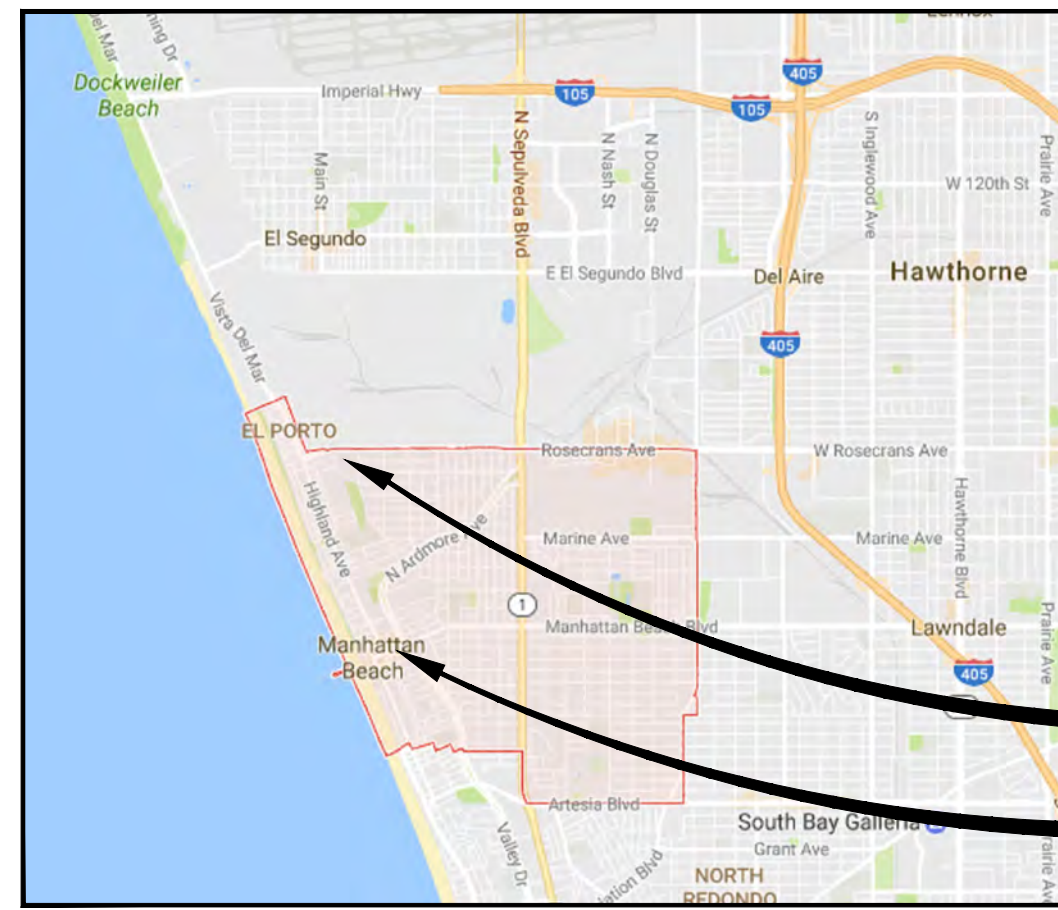


CITY OF MANHATTAN BEACH

PLANS FOR

CITY FACILITIES CAMERA PROJECT

PUBLIC WORKS YARD AND CITY HALL



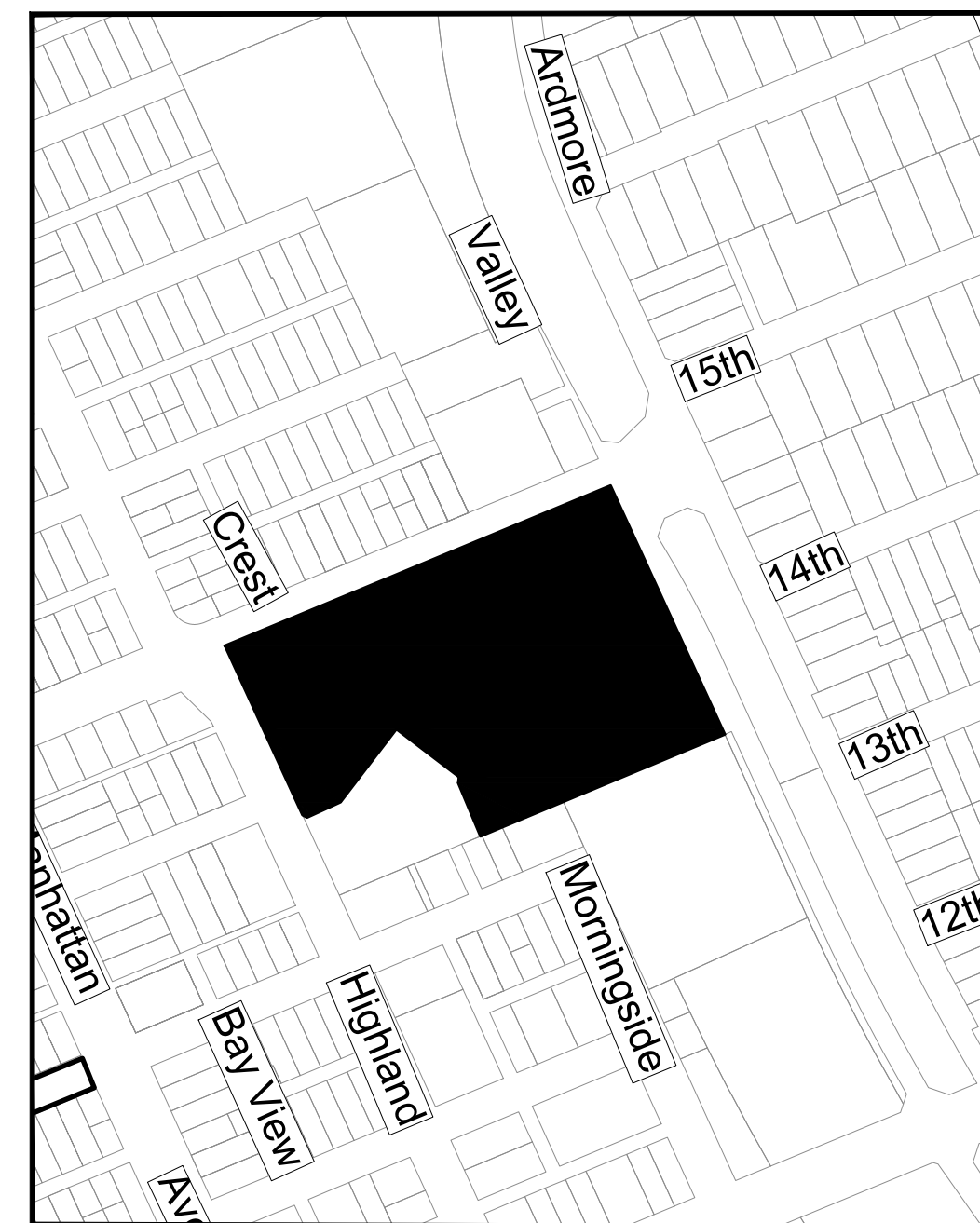
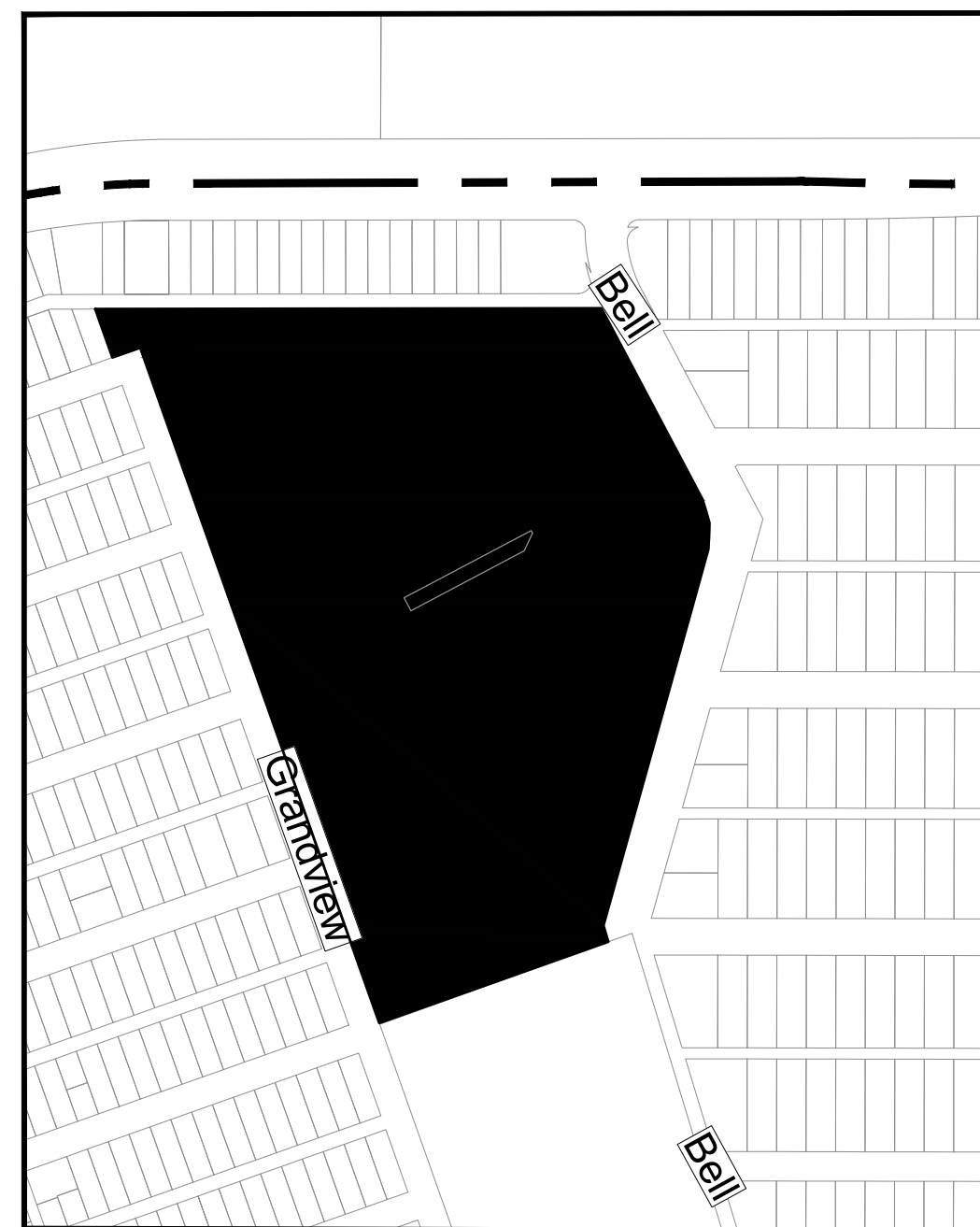
PROJECT SITE
PROJECT SITE



PUBLIC WORKS DEPARTMENT
3621 BELL AVENUE
MANHATTAN BEACH, CALIFORNIA 90266

DWG. NO.	DESCRIPTION
X-XXX1	
G001	COVER SHEET
EY001	SECURITY SYMBOLS, ABBREVIATIONS, AND NOTES
EY002	NOTES SHEET
---	PHASE 1 SET
EY100	CIVIC CENTER SITE PLAN, DEVICE LAYOUT
EY100.1	CIVIC CENTER SITE PLAN, CAMERA FIELD OF VIEWS
EY110	CITY HALL BASEMENT LEVEL, DEVICE LAYOUT
EY110.1	CITY HALL BASEMENT LEVEL, CAMERA FIELD OF VIEWS
EY111	CITY HALL FIRST FLOOR PLAN, DEVICE LAYOUT
EY111.1	CITY HALL FIRST FLOOR PLAN, CAMERA FIELD OF VIEWS
EY120	PUBLIC WORKS SITE PLAN, DEVICE LAYOUT
EY120.1	PUBLIC WORKS SITE PLAN, CAMERA FIELD OF VIEWS
EY121	PUBLIC WORKS, ADMINISTRATION BUILDING FLOOR PLAN, DEVICE LAYOUT
EY121.1	PUBLIC WORKS, ADMINISTRATION BUILDING FLOOR PLAN, CAMERA FIELD OF VIEWS
EY122	PUBLIC WORKS, BUILDING B FLOOR PLAN, DEVICE LAYOUT
EY122.1	PUBLIC WORKS, BUILDING B FLOOR PLAN, CAMERA FIELD OF VIEWS
---	PHASE 2 SET
EY100	CIVIC CENTER SITE PLAN, DEVICE LAYOUT
EY130	POLICE DEPT. FIRST FLOOR PLAN DEVICE LAYOUT
EY130.1	POLICE DEPT FIRST FLOOR PLAN CAMERA FOV
EY131	POLICE DEPT. NORTH BASEMENT PLAN DEVICE LAYOUT
EY131.1	POLICE DEPT. NORTH BASEMENT PLAN CAMERA FOV
EY132	POLICE DEPT. SOUTH BASEMENT PLAN DEVICE LAYOUT
EY132.1	POLICE DEPT. SOUTH BASEMENT PLAN CAMERA FOV
EY133	FIRE DEPT. FLOOR PLAN DEVICE LAYOUT
EY133.1	FIRE DEPT. FLOOR PLAN CAMERA FOV
---	PHASE 3 SET
EY140	MANHATTAN HEIGHTS COMMUNITY CENTER DEVICE LAYOUT
EY140.1	MANHATTAN HEIGHTS COMMUNITY CENTER CAMERA FOV
EY141	ARTS CENTER SITE PLAN DEVICE LAYOUT
EY141.1	ARTS CENTER SITE PLAN CAMERA FOV
EY150	JOSLYN COMMUNITY CENTER DEVICE LAYOUT
EY150.1	JOSLYN COMMUNITY CENTER CAMERA FOV
EY160	LIVE OAK PARK, DARCY FIELD DEVICE LAYOUT
EY160.1	LIVE OAK PARK, DARCY FIELD CAMERA FIV
EY161	LIVE OAK PARK, TENNIS/TOT LOT DEVICE LAYOUT
EY161.1	LIVE OAK PARK, TENNIS/TOT LOT CAMERA FOV
EY162	LIVE OAK PARK, PONY FIELD DEVICE LAYOUT
EY162.1	LIVE OAK PARK, PONY FIELD CAMERA FOV
---	DETAILS
EY500	DOOR DETAILS - 1
EY510	CAMERA DETAILS - 1
EY511	CAMERA DETAILS - 2
EY512	CAMERA DETAILS - 3
EY513	CAMERA DETAILS - 4
EY514	WIRELESS DETAILS - 1
EY520	MISCELLANEOUS DETAILS
EY530	WIRING DIAGRAMS
EY531	TYP. VSS COMPONENT INTERCONNECT DIAGRAMS
EY600	SINGLE LINE DIAGRAMS - 1 PHASE 1
EY601	SINGLE LINE DIAGRAMS - 2 PHASE 2
EY602	SINGLE LINE DIAGRAMS - 3 PHASE 3

PROJECT UTILITY CONTACTS	
CITY OF MANHATTAN BEACH (PUBLIC WORKS DEPARTMENT)...ERICK LEE.....	(310) 802-5303
CITY OF MANHATTAN BEACH (POLICE DEPARTMENT).....	(310) 802-5103
CITY OF MANHATTAN BEACH (FIRE DEPARTMENT).....	(310) 802-5203
COUNTY SANITATION DISTRICT (COMPTON)...ENGINEERING COUNTER.....	(562) 908-4288 (Ext. 1204 or 1205)
AT&T DISTRIBUTION...SUBSTRUCTURE RECORDS REQUEST CONSTRUCTION & ENGINEERING.....	(510) 645-2929
WEST BASIN MUNICIPAL WATER DISTRICT...FRANK FUCHS.....	(310) 660-6255
WEST BASIN MUNICIPAL WATER DISTRICT - INFRAMARK, LLC (RECYCLED WATER PIPELINE MAINTENANCE).....	(310) 217-2417
LA COUNTY PUBLIC WORKS - FLOOD MAINTENANCE...EDUARDO IVASAN or AHMET TATILIOVLO.....	(562) 861-0316
NEXTGLAVEN NETWORK...BRYANT LOWE.....	(724) 416-2193
SHELL OIL...CLARINDA MALDONADO.....	(310) 816-2063
ZENITH ENERGY.....	(800) 708-5071
SOUTHERN CALIFORNIA GAS COMPANY...GUILLERMO TEJEDA.....	(310) 687-2014
SOUTHERN CALIFORNIA EDISON...KRIS WALSH.....	(949) 533-6137
SPECTRUM (TIME WARNER CABLE)...ANTHONY XANPHIS.....	(310) 750-9185
T-MOBILE...SHAWN HENDERSON.....	(805) 279-3513
FRONTIER COMMUNICATION (PREVIOUSLY VERIZON)...DAN HAYES.....	(310) 793-4159
XO COMMUNICATIONS.....	(949) 417-7841



LOCATION MAP
NOT TO SCALE

THOMAS GUIDE:
PAGE 732, GRID 6F

WORK SITE LOCATION

DECLARATION OF DESIGN ENGINEER OF RECORD

I HEREBY DECLARE THAT THE DESIGN OF THE IMPROVEMENTS AS SHOWN ON THESE PLANS COMPLIES WITH PROFESSIONAL ENGINEERING STANDARDS AND PRACTICES. AS THE ENGINEER IN RESPONSIBLE CHARGE OF THE DESIGN OF THESE IMPROVEMENTS, I ASSUME FULL RESPONSIBLE CHARGE FOR SUCH DESIGN. THE PLAN CHECK IS NOT A DETERMINATION OF THE TECHNICAL ADEQUACY OF THE DESIGN OF THE IMPROVEMENTS. SUCH CHECK DOES NOT, THEREFORE RELIEVE ME OF MY RESPONSIBILITY FOR THE DESIGN OF THESE IMPROVEMENTS. I ALSO HEREBY DECLARE THAT I HAVE COMPARED THESE PLANS WITH ALL APPLICABLE ADA TITLE II REQUIREMENTS FOR DISABILITY ACCESS FOR THIS PROJECT AND THESE PLANS ARE IN FULL COMPLIANCE WITH THOSE REQUIREMENTS.

David A Skusek
SIGNATURE DATE 7/25/2023

PROFESSIONAL ENGINEER'S NOTE:

THE PLANS AND SPECIFICATIONS HAVE BEEN PREPARED BY THE ENGINEER OF RECORD USING AVAILABLE RECORD PLANS AND MAPS AND BASED ON FIELD RECONNAISSANCE OF EXISTING CONDITIONS. KNOWN UTILITIES AND OWNERS OF OTHER STRUCTURES HAVE BEEN GIVEN WRITTEN NOTICE OF THE PROJECT. HOWEVER, THE ENGINEER OF RECORD AND CITY OF MANHATTAN BEACH ARE NOT RESPONSIBLE FOR THE TOTAL ACCURACY AND/OR CORRECTNESS OF THE SHOWN INFORMATION. THE CONTRACTOR, BY SIGNING THE CONSTRUCTION CONTRACT FOR THIS PROJECT, ACCEPTS AND ASSUMES FULL RESPONSIBILITY FOR THE WORK AND ITS IMPACT ON THE EXISTING FACILITIES WHETHER SHOWN OR NOT ON THESE PLANS AND DESCRIBED IN THE SPECIFICATIONS.

THE CONTRACTOR IS RESPONSIBLE TO MAKE HIS OWN INVESTIGATION AND INSPECTION INCLUDING POTHOLES AND SUCH OTHER METHODS HE DEEMS NECESSARY TO ALLOW HIM TO PROCEED ON THE CONSTRUCTION OF THIS PROJECT IN COMPLIANCE WITH THE LAWS, ORDINANCES, REGULATIONS AND CITY STANDARDS APPLICABLE TO THE PROJECT, INCLUDING STATE SAFETY ORDERS AND PROCEDURES OF USA.

THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ANY SURVEYS REQUIRED TO ESTABLISH HORIZONTAL AND VERTICAL CONTROLS PRIOR TO AND DURING CONSTRUCTION, AND TO REPLACE DISTURBED OR COVERED EXISTING SURVEY MONUMENTS AT HIS EXPENSE. MONUMENT RESTORATION/REPLACEMENT TO BE RECORDED.

STANDARD PLANS:

- LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
- 2002-1 PRECAST CONCRETE SHALLOW MANHOLE..
- 2023-2 CRADLING AND ENCASEMENT.
- 2027-1 ALLOWABLE TRENCH WIDTHS.
- 6008-1 MINIMUM PUBLIC SAFETY REQUIREMENTS.
- STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
- 201-2 PRECAST CONCRETE SHALLOW MANHOLE
- 221-2 PIPE ANCHORS AND BACKFILL STABILIZERS

THE PLANS HAVE BEEN APPROVED BY THE MANHATTAN BEACH PUBLIC WORKS DIRECTOR.

PUBLIC WORKS DIRECTOR DATE
ERICK LEE

CITY OF MANHATTAN BEACH																											
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION																											
CITY FACILITIES CAMERA PROJECT																											
PHASE 1 COVER SHEET																											
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NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE. TWO WORKING DAYS BEFORE YOU DIG.

SUPPLEMENTAL NOTES:

- THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
- DUE TO INDIVIDUAL LOT IMPROVEMENTS, THE EXISTING WATER, SEWER AND/OR GAS LATERALS MAY NOT BE AT THE LOCATIONS SHOWN OR SHOWN IN THEIR ENTIRETY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN EXCAVATING.
- THE CONTRACTOR SHALL DETERMINE THE DEPTH OF THE GAS, OCEAN, CABLE, SEWER, STORM DRAIN AND WATER AT ALL INTERSECTIONS AND INTERFERENCES PRIOR TO CONSTRUCTION AND AS NOTED ON PLANS.

ENGINEER/ARCHITECT OF RECORD STAMP

DATE SIGNED

2925 Mira Vista Way, Corona 92881

tel: 949-943-9422
web: www.triadsdg.com

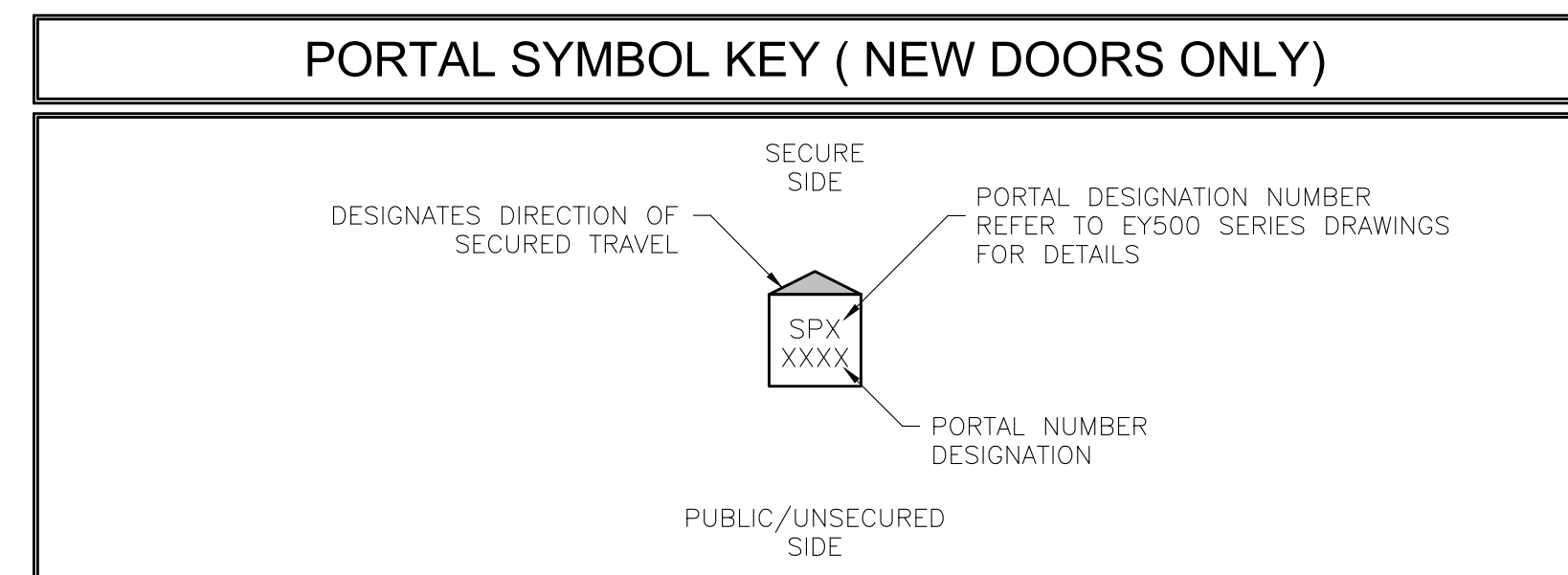
REVIEWED BY

DATE

SECURITY EQUIPMENT SYMBOLS LIST				
SYMBOL	DESCRIPTION	REMARKS	ROUGH-IN	MOUNTING
	SURFACE MOUNTED WIREWAY	6"x6"x24" UON	---	---
	SURFACE MOUNTED TERMINAL CABINET	24"x36"x6" UON	---	---
	EXISTING ELECTRICAL PANEL	---	---	---
	SECURITY PULL BOX	8"x8"x4" UON OR REQUIRED BY CODE	---	CEILING
	SECURITY EQUIPMENT RACK	REFER TO SPECIFICATIONS	---	---
	EXISTING EQUIPMENT RACK	---	---	---
	CONDUIT, SURFACE MOUNTED	REFER TO SPECIFICATIONS	---	---
	CONDUIT, CONCEALED	---	---	---
	CONDUCTOR PATH, NO CONDUIT	REFER TO SPECIFICATIONS	---	PLENUM RATED WIRING
	CONDUIT HOME RUN, TO INDICATED LOCATION	---	---	---
	FLEXIBLE CONDUIT CONNECTION	---	---	---
	CONDUIT TURNED UP	---	---	---
	CONDUIT TURNED DOWN	---	---	---
	CONDUIT STUB-OUT WITH BUSHED CHASE NIPPLE	---	---	---
	FIRE RATED WALL	---	---	---
	REFER TO NOTE SCHEDULE ON SHEET AS INDICATED	---	---	---
	REFER TO DETAIL AND SHEET AS INDICATED	---	---	---
	REFER TO ELEVATION DETAIL AND SHEET AS INDICATED	---	---	---
	REFER TO SECTION DETAIL AND SHEET AS INDICATED	---	---	---
	MATCH POINT ON DRAWING MATCHES ANOTHER POINT BEARING SAME LETTER(S)	---	---	---
	120VAC POWER SOURCE (SHOWN FOR REFERENCE)	---	---	---
	WALL/COLUMN OR BEAM MOUNTED DEVICE	REFER TO SPECIFICATIONS	REFER TO DETAILS	REFER TO PLANS AND DETAILS
	FIXED MINI-DOME CAMERA WITH NOMINAL 3.5" DOME (SEE CAMERA SCHEDULE)	REFER TO SPECIFICATIONS	AS REQUIRED BY MANUFACTURER	WALL/CEILING
	FIXED MINI-DOME CAMERA WITH THREE INDIVIDUAL IMAGERS (SEE CAMERA SCHEDULE)	PROVIDES 180° VIDEO COVERAGE	AS REQUIRED BY MANUFACTURER	WALL/CEILING
	FIXED MINI-DOME CAMERA WITH FOUR INDIVIDUAL IMAGERS (SEE CAMERA SCHEDULE)	PROVIDES 180° OR 270° VIDEO COVERAGE	AS REQUIRED BY MANUFACTURER	WALL/CEILING
	CONTINUOUS POWER BRIDGE XX = DESIGNATION	PROVIDES POWER WHEN CONTINUOUS POWER IS NOT AVAILABLE		POLE
	WIRELESS BASE UNIT XX = DESIGNATION	COMMUNICATES WITH WTU AND CONNECTS TO NETWORK INFRASTRUCTURE		POLE
	WIRELESS TERMINAL UNIT XX = DESIGNATION	COMMUNICATES WITH WBU TO PROVIDE COMM TO REMOTE DEVICES		POLE
	COMMUNICATION EQUIPMENT CABINET XX = DESIGNATION	COMMUNICATES WITH WBU TO PROVIDE COMM TO REMOTE DEVICES		POLE
	UNDERGROUND PULL BOX, 2'x3'x3' XX = DESIGNATION	COMMUNICATES WITH WBU TO PROVIDE COMM TO REMOTE DEVICES		POLE
	JUNCTION BOX	55 SQUARE UON	---	
	SECURITY WORKSTATION	REFER TO SPECIFICATIONS	---	COUNTER/DESKTOP

ABBREVIATIONS			
AFD	ABOVE FINISHED DECK	PL	PLACES
AFF	ABOVE FINISHED FLOOR	PM	PROJECT MANAGER
AFG	ABOVE FINISHED GROUND	PTZ	PAN / TILT / ZOOM
AFL	ABOVE FINISHED LANDING	REQ'D	REQUIRED
BFC	BELOW FINISHED CEILING	REX	REQUEST-TO-EXIT
BG	BELOW GRADE	RH	RELATIVE HUMIDITY
BMS	BALANCED MAGNETIC SWITCH	RX	RECEIVE / RECEIVER
CCTV	CLOSED CIRCUIT TELEVISION	SIM	SIMILAR
CNTL	CONTROLLER	SM	SINGLE MODE FIBER OPTIC CABLE
COMB	CITY OF MANHATTAN BEACH	SPB	SECURITY PULL BOX
CPB	CONTINUOUS POWER BRIDGE	STC	SECURITY TERMINAL CABINET
CPS	CAMERA POWER SUPPLY	T	TEMPERATURE
CPU	CENTRAL PROCESSING UNIT	TC	TERMINAL CABINET
CV	COMMUNICATIONS VAULT	TX	TRANSMIT / TRANSMITTER
DPS	DOOR POSITION SWITCH	TYP	TYPICAL
DVMS	DIGITAL VIDEO MANAGEMENT AND RECORDING SYSTEM	UON	UNLESS OTHERWISE NOTED
EC	ELECTRICAL CONTRACTOR	UPB	UNDERGROUND PULL BOX
EPS	ELECTRONICS POWER SUPPLY	UPS	UNINTERRUPTABLE POWER SUPPLY
ER	EQUIPMENT RACK	VAC	VOLTS ALTERNATING CURRENT
ESS	ELECTRONIC SECURITY SYSTEMS	VC	VIDEO CAMERA
FO	FIBER OPTIC	VCS	VIDEO CAMERA SITE
FOPP	FIBER OPTIC PATCH PANEL	VDC	VOLTS DIRECT CURRENT
GC	GENERAL CONTRACTOR	VESA	VIDEO ELECTRONICS STANDARDS ASSOCIATION
GND	GROUND	VKB	VIDEO KEYBOARD
IR	INFRARED ILLUMINATOR	VM	VIDEO MONITOR
IVAS	INTELLIGENT VIDEO ANALYTIC SYSTEM	VSS	VIDEO SURVEILLANCE SYSTEM
J	JUNCTION BOX	W/	WITH
LAN	LOCAL AREA NETWORK	W/O	WITHOUT
LED	LIGHT EMITTING DIODE	WP	WEATHER PROOF
LPS	LOCK POWER SUPPLY	XFMR	TRANSFORMER
M	METER	XLTR	PROTOCOL TRANSLATOR
MM	MULTI MODE FIBER OPTIC CABLE	(E)	EXISTING, TO REMAIN
NPT	NATIONAL PIPE THREAD	(F)	FUTURE
NTS	NOT TO SCALE	(N)	NEW - DEVICES ARE NEW UNLESS OTHERWISE NOTED
NVR	NETWORK VIDEO RECORDER	(R)	EXISTING, TO BE REMOVED AND REPLACED, AS SPECIFIED
		(X)	EXISTING, TO BE REMOVED

CAMERA TYPE SCHEDULE			
XX	DESCRIPTION	Y	MODE
SHD	SUPER HIGH DEFINITION - 1920X1080 PIXELS	S	SURVEILLANCE MODE - 20 PIXEL/FT
EHD	EXTENDED HIGH DEFINITION - 2560X1440 PIXELS	F	FORENSIC MODE - 40 PIXEL/FT
UHD	ULTRA HIGH DEFINITION - 3840X2160 PIXELS		



GENERAL NOTES	
1.	THE FOLLOWING GENERAL NOTES ARE APPLICABLE AS STATED BELOW, EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE ON THE DRAWINGS OR IN THE BID SPECIFICATION.
2.	SINGLE LINE DIAGRAMS, SCHEMATICS, DETAILS AND CONDUIT PATHS SHOWN HEREIN ARE CONCEPTUAL AND ILLUSTRATE ONLY THE FUNCTIONAL RELATIONSHIPS BETWEEN COMPONENTS OF THE SYSTEM. ACCORDINGLY, FULL SHOP DRAWING DEVELOPMENT BY CONTRACTOR IS REQUIRED TO REALIZE THE SPECIFIED FUNCTIONS.
3.	DEVICE LOCATIONS ON PLANS ARE CONCEPTUAL. CONTRACTOR SHALL LOCATE AS SITE CONDITIONS REQUIRE AND AS APPROVED BY THE ENGINEER.
4.	REFER TO THE BID SPECIFICATION FOR ADDITIONAL REQUIREMENTS REGARDING THIS WORK.
5.	INSTALL ALL INTERIOR WALL MOUNTED CAMERAS MINIMUM OF 9'-6" AFF UON. INSTALL EXTERIOR WALL AND POLE MOUNT CAMERAS BETWEEN 12'-0" AND 14'-0" AS REQUIRED BY CONDITIONS.
6.	PAINTING, PATCHING AND FINISHES FOR ALL DEVICES LOCATED IN EXISTING AREAS SHALL MATCH EXISTING FINISHES AS APPROVED BY THE ENGINEER.
7.	FINISHES OF ALL DEVICES SHALL BE APPROVED BY THE ENGINEER.
8.	ALL WORK AND MATERIALS SHALL CONFORM TO THE MOST CURRENT UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AS FURNISHED BY THE ENGINEER. ALL WORK AND MATERIALS NOT IN CONFORMANCE WITH THESE SPECIFICATIONS AND DETAILS ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
9.	CAMERAS, VSS SERVERS, AND WORKSTATIONS SHALL COMMUNICATE OVER THE CITY NETWORK. COORDINATE WITH CITY INFORMATION TECHNOLOGY (IT) DEPARTMENT FOR ALL CONNECTIONS TO NETWORK AND CONFIGURATION OF IP ADDRESS AND VLAN SEGMENTS.
10.	ALL CAMERAS SHALL BE POWERED VIA POE. WHERE EXISTING SWITCHES DO NOT SUPPORT POE PROVIDE POE INJECTORS.

ELECTRICAL NOTES	
1.	ALL CONDUIT CONNECTIONS SHALL INCLUDE INTEGRAL PROTECTIVE BUSHINGS OR CHASE NIPPLES.
2.	ALL CONDUIT FOR FUTURE USE SHALL BE FILLED WITH 200 POUND STRENGTH PULL LINE. PROVIDE LABELING ON EACH END OF THE PULL LINE TO INDICATE LOCATION OF OTHER END.
3.	CONDUITS SHALL BE CONCEALED WHENEVER POSSIBLE. SURFACE MOUNTED CONDUITS ARE PERMISSIBLE ONLY WHERE APPROVED. USE ONLY CONCEALED CONDUITS WITHIN FINISHED SPACES. THE ABOVE STANDARDS ALSO APPLY TO EXTERIOR SPACES. SEEK APPROVAL FROM CITY ENGINEER FOR EACH AREA WHERE SURFACE CONDUIT IS NECESSARY.
4.	ALL J-BOXES SHALL BE MINIMUM 4 INCH SQUARE DEEP STYLE AND SIZED AS REQUIRED TO ACCOMMODATE CONDUITS UNLESS OTHERWISE NOTED. PROVIDE MOUNTING RING AS NOTED ON DEVICE TYPE LIST OR AS REQUIRED. PROVIDE A BLANK BOX MOUNT PLATE FOR JUNCTION BOXES WITH NO DEVICE. PROVIDE PERMANENT MARKINGS ON CONCEALED J-BOXES IE, SEC (SECURITY) FIRE (FIRE ALARM) ETC.
5.	ALL EXPOSED BOXES AND PANELS MOUNTED IN OR ON EXTERIOR WALLS SHALL BE WEATHERPROOF AND RAINTIGHT.
6.	ALL CONDUIT SHALL BE 3/4" EMT UNLESS OTHERWISE NOTED.
7.	PLENUM CABLE IS ACCEPTABLE ABOVE FINISHED CEILING AREAS. WHERE PLENUM CABLE IS USED CONTRACTOR SHALL PROVIDE COMPLETE SUPPORT SYSTEM FOR CABLE AND SECURE CABLE BUNDLES EVERY 10'.
8.	PROVIDE RJ-45 JACK AT CONVENIENT LOCATION ADJACENT TO EACH CAMERA AS APPROVED THE THE ENGINEER. PROVIDE CONNECTION AND TERMINATION BETWEEN RJ-45 JACK AND CAMERA DATA PORT. PROVIDE CAT6 CABLE FROM DATA ROOM TO CAMERA JACK LOCATION AND TERMINATE WITH RJ-45 CONNECTOR TO CONNECT CAMERA TO NETWORK.

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ENGINEER/ARCHITECT OF RECORD STAMP

DATE SIGNED _____

2925 Mira Vista Way, Corona 92881

tel: 949-943-9422
web: www.triadsg.com

REVIEWED BY	DATE

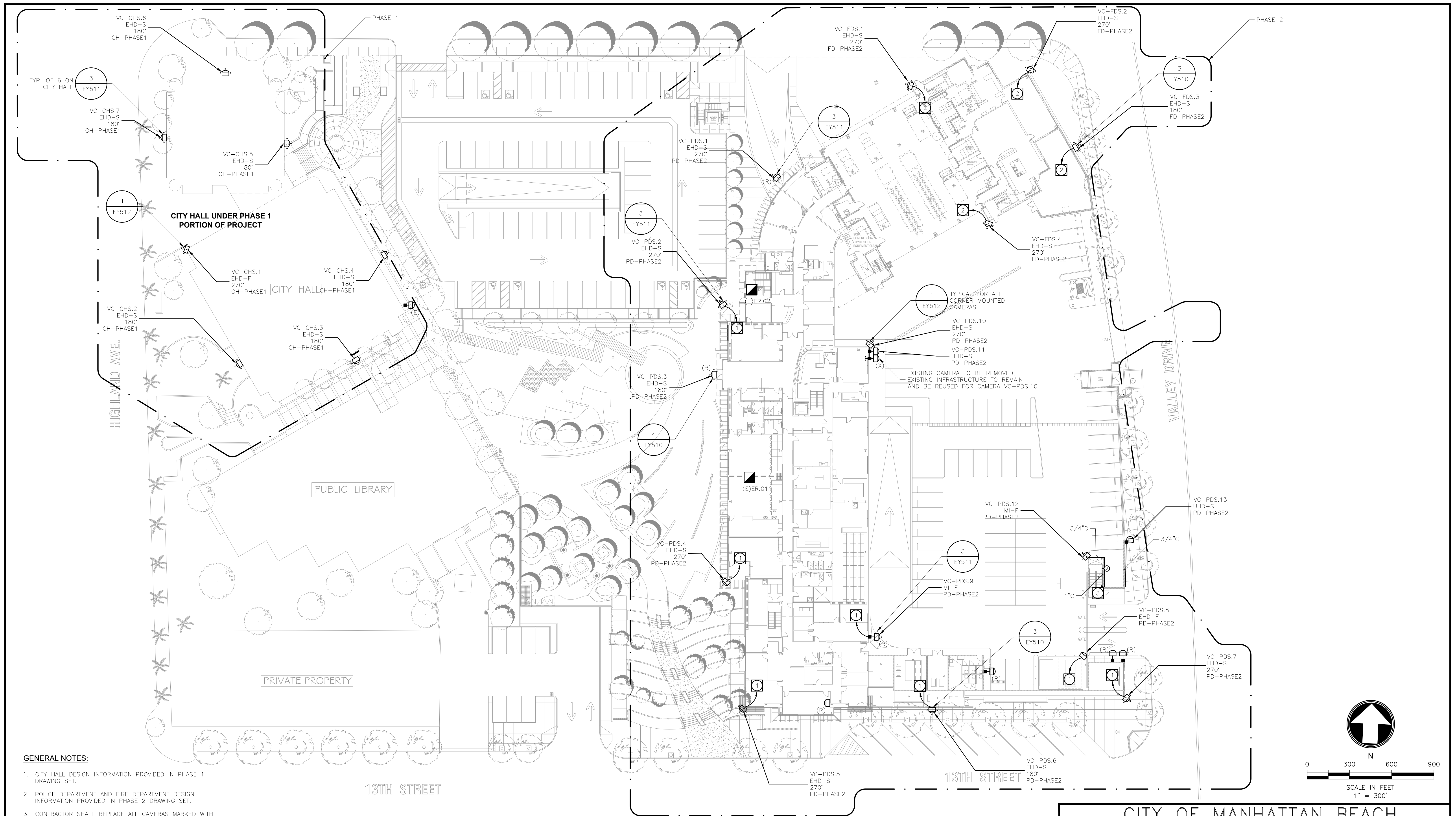
CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
SECURITY SYMBOLS, ABBREVIATIONS, AND NOTES

REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	ALL PHASES, 655 SUBMITTA	TRAD	10/12/22
2	ALL PHASES, 905 SUBMITTA	TRAD	03/31/23
3	ALL PHASES, 100R FINAL SUBMITTA	TRAD	6/9/23

DESIGNED BY <i>D.A. Lopez</i> DANIEL LOPEZ 7/25/2023	REVIEWED BY <i>David A Skusek</i> DAVID A. SKUSEK 7/25/2023	RECOMMENDED BY <i>Katherine Doherty</i> KATHERINE DOHERTY 7/26/2023
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SCALE AS NOTED	DATE 06/09/2023	DRAWING NO. EY001
SHEET 2 OF 25		



- GENERAL NOTES:**
- CITY HALL DESIGN INFORMATION PROVIDED IN PHASE 1 DRAWING SET.
 - POLICE DEPARTMENT AND FIRE DEPARTMENT DESIGN INFORMATION PROVIDED IN PHASE 2 DRAWING SET.
 - CONTRACTOR SHALL REPLACE ALL CAMERAS MARKED WITH (R) WITH AXIS MODEL P3267-LV OR EQUAL UON AND COORDINATE WITH THE CITY FOR FIELD OF VIEW.

- REFERENCE NOTES:**
- CONTRACTOR SHALL ROUTE CAT6 DATA CABLE FROM CAMERA TO EQUIPMENT RACK ER.01 FOR TERMINATION AT PATCH PANEL. COORDINATE WITH CITY FOR PATCH PANEL TERMINATION LOCATIONS AND LABELING.
 - CONTRACTOR SHALL ROUTE CAT6 DATA CABLE FROM CAMERA TO EQUIPMENT RACK ER.02 FOR TERMINATION AT PATCH PANEL. COORDINATE WITH CITY FOR PATCH PANEL TERMINATION LOCATIONS AND LABELING.
 - CONTRACTOR SHALL ROUTE 1" C WITHIN STAIRWELL DOWN TO BASEMENT LEVEL AND ROUTE TO EQUIPMENT RACK ER.01.

SUPPLEMENTAL NOTES:

- THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
- DUE TO INDIVIDUAL LOT IMPROVEMENTS, THE EXISTING WATER, SEWER AND/OR GAS LATERALS MAY NOT BE AT THE LOCATIONS SHOWN OR SHOWN IN THEIR ENTIRETY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN EXCAVATING.
- THE CONTRACTOR SHALL DETERMINE THE DEPTH OF THE GAS, SEE, CABLE, SEWER, STORM DRAIN AND WATER AT ALL INTERSECTIONS AND INTERFERENCES PRIOR TO CONSTRUCTION AND AS NOTED ON PLANS.

811
Know what's below.
Call before you dig.

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE. TWO WORKING DAYS BEFORE YOU DIG.

ENGINEER/ARCHITECT OF RECORD STAMP

TRIAD CONSULTING
SYSTEM DESIGN GROUP
2925 Mira Vista Way, Corona 92881

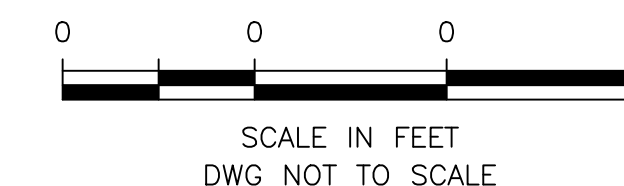
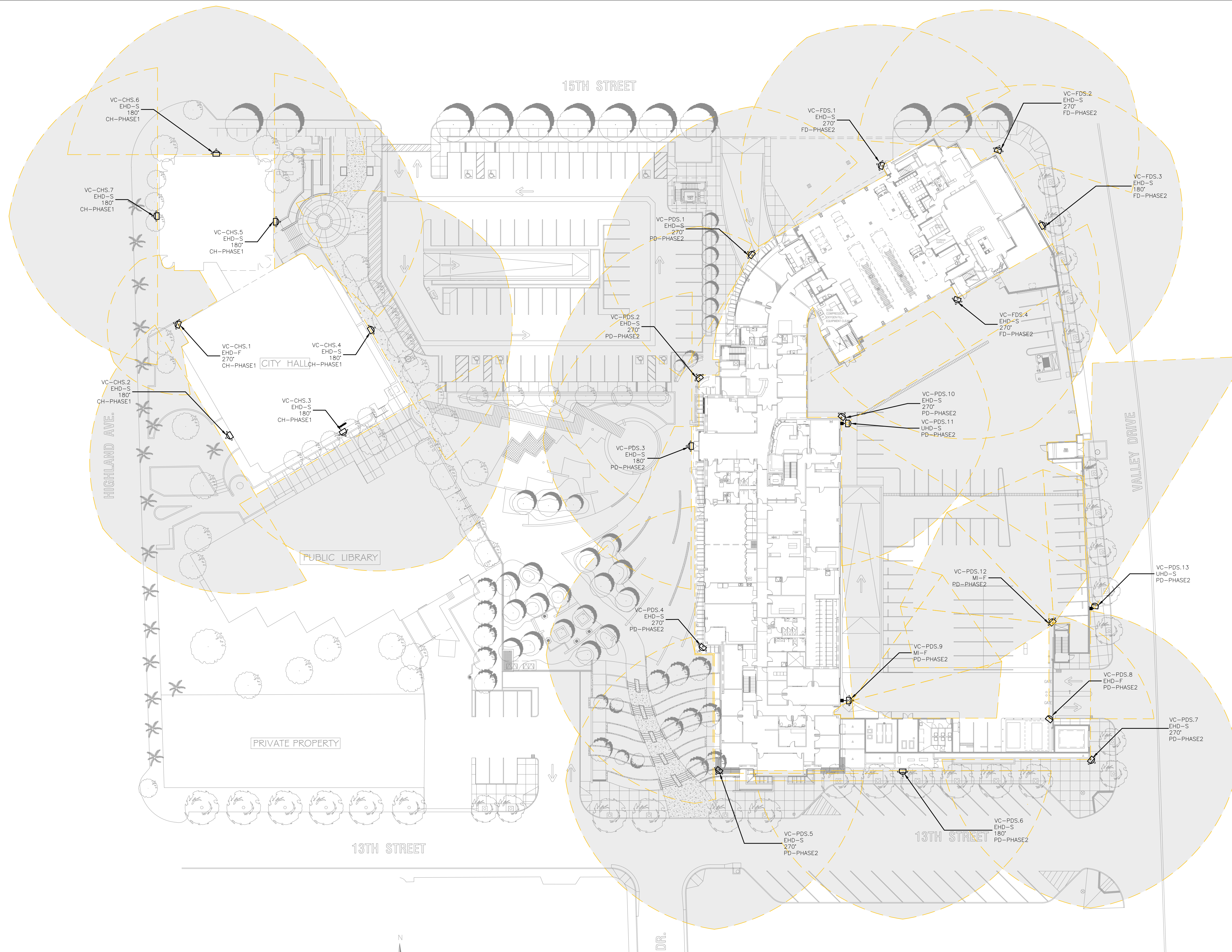
tel: 949-943-9422
web: www.triadsdg.com

REVIEWED BY	DATE

CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
CIVIC CENTER SITE PLAN
DEVICE LAYOUT

<table border="1"> <tr> <th colspan="4">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DESCRIPTION</th> <th>BY</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>		REVISIONS				NO.	DESCRIPTION	BY	DATE													<table border="1"> <tr> <td>REVIEWED BY</td> <td>DATE</td> </tr> <tr> <td><i>David A Skusek</i></td> <td>7/25/2023</td> </tr> <tr> <td>PROJECT MANAGER</td> <td>DATE</td> </tr> <tr> <td>DAVE SKUSEK</td> <td>06/09/2023</td> </tr> <tr> <td>DESIGNED BY</td> <td>DATE</td> </tr> <tr> <td><i>D.A. Lopez</i></td> <td>7/25/2023</td> </tr> <tr> <td>SR. SYSTEMS DESIGNER</td> <td>DATE</td> </tr> <tr> <td>DANIEL LOPEZ</td> <td> </td> </tr> </table>	REVIEWED BY	DATE	<i>David A Skusek</i>	7/25/2023	PROJECT MANAGER	DATE	DAVE SKUSEK	06/09/2023	DESIGNED BY	DATE	<i>D.A. Lopez</i>	7/25/2023	SR. SYSTEMS DESIGNER	DATE	DANIEL LOPEZ	
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3 OF 25	EY100																																					



CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION

REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	PHASE 1, 80% SUBMITTAL	TRAD	10/12/22
2	PHASE 1, 90% SUBMITTAL	TRAD	03/31/23
3	PHASE 1, 100% FINAL SUBMITTAL	TRAD	6/9/23

REFERENCES	

DESIGNED BY <i>D.A. Lopez</i> DANIEL LOPEZ SR. SYSTEMS DESIGNER DATE: 7/25/2023	REVIEWED BY <i>David A Skusek</i> DAVE SKUSEK PROJECT MANAGER DATE: 7/25/2023	RECOMMENDED BY <i>Katherine Doherty</i> KATHERINE DOHERTY CITY ENGINEER DATE: 06/09/2023	DRAWING NO. EY100.1
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NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE, TWO WORKING DAYS BEFORE YOU DIG.

SUPPLEMENTAL NOTES:

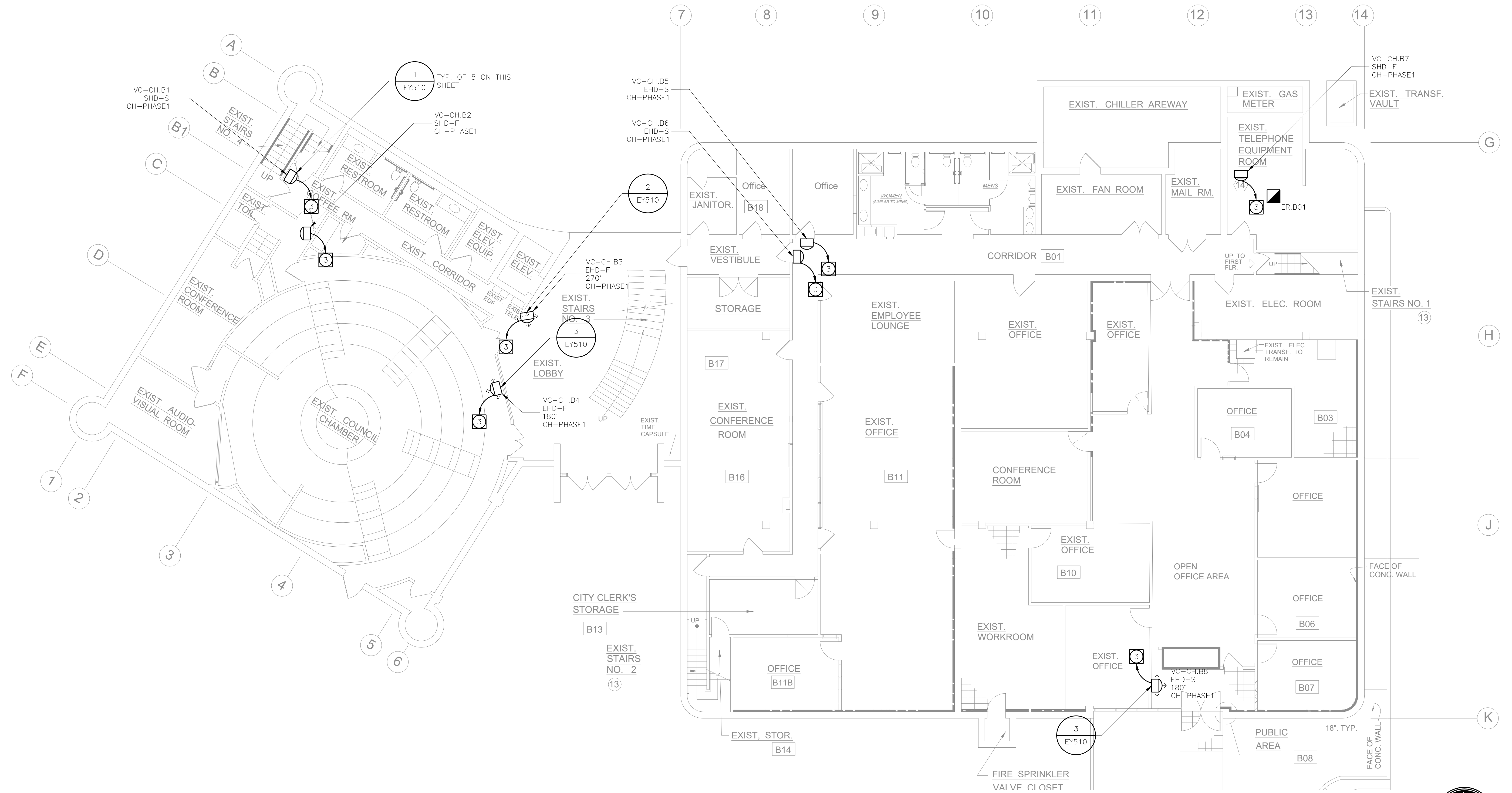
- THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
- DUE TO INDIVIDUAL LOT IMPROVEMENTS, THE EXISTING WATER, SEWER AND/OR GAS LATERALS MAY NOT BE AT THE LOCATIONS SHOWN OR SHOWN IN THEIR ENTIRETY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN EXCAVATING.
- THE CONTRACTOR SHALL DETERMINE THE DEPTH OF THE GAS, SEE, CABLE, SEWER, STORM DRAIN AND WATER AT ALL INTERSECTIONS AND INTERFERENCES PRIOR TO CONSTRUCTION AND AS NOTED ON PLANS.

ENGINEER/ARCHITECT OF RECORD STAMP

DATE SIGNED _____

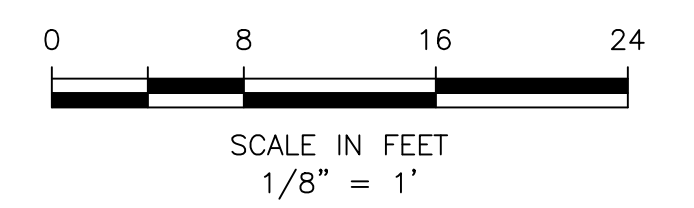
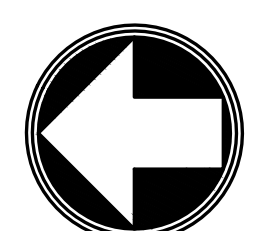
TRIAD CONSULTING
SYSTEM DESIGN GROUP
2925 Mira Vista Way, Corona 92881
tel: 949-943-9422
web: www.triadsdg.com

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REFERENCE NOTES:

- 1 FOR SURFACE CEILING MOUNT IN HARD LID CEILING THE CONTRACTOR SHALL PROVIDE TOGGLE BOLTS TO SECURE THE CAMERA TO THE CEILING. THE CONTRACTOR SHALL PROVIDE A CABLE SECURED TO THE CAMERA BODY AND A STRUCTURAL ELEMENT ABOVE THE CEILING TO PREVENT THE CAMERA FROM FALLING DUE TO CEILING MATERIAL FAILURE.
- 2 FOR SURFACE CEILING MOUNT FOR DROP OR REMOVABLE CEILING TILES THE CONTRACTOR SHALL PROVIDE A METAL PLATE ABOVE THE CEILING TILE AND SECURE THE CAMERA TO THE METAL PLATE. THE METAL PLATE SHALL BE SECURED TO A STRUCTURAL ELEMENT ABOVE THE CEILING TO PREVENT THE CAMERA FROM FALLING DUE TO CEILING FAILURE.
- 3 CONTRACTOR SHALL ROUTE CAT6 DATA CABLE FROM CAMERA TO EQUIPMENT RACK ER.B01 FOR TERMINATION AT PATCH PANEL. COORDINATE WITH CITY FOR PATCH PANEL TERMINATION LOCATIONS AND LABELING.



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SUPPLEMENTAL NOTES:

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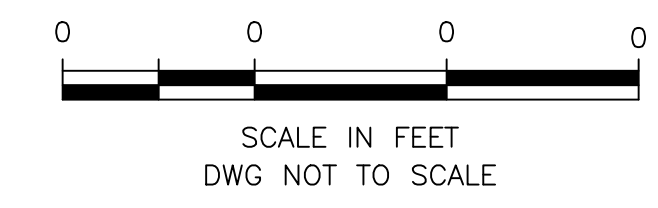
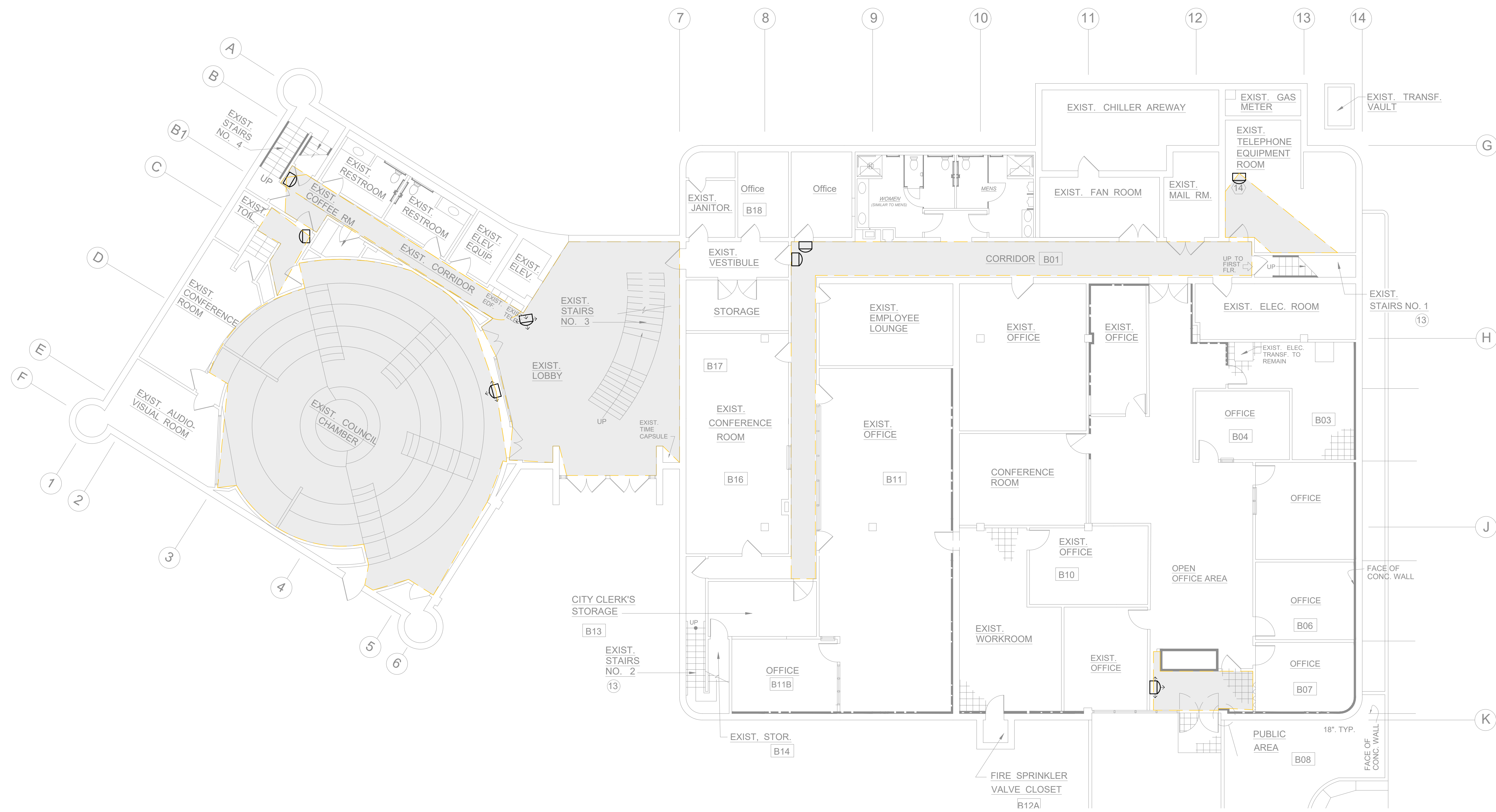
CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
CITY HALL BASEMENT LEVEL
DEVICE LAYOUT

REVISIONS			
NO.	DESCRIPTION	BY	DATE
REFERENCES			

DESIGNED BY <i>D.A. Lopez</i> SR. SYSTEMS DESIGNER DATE: 7/25/2023	REVIEWED BY <i>David A Skusek</i> PROJECT MANAGER DATE: 7/25/2023	RECOMMENDED BY <i>Katherine Doherty</i> CITY ENGINEER DATE: 7/26/2023
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SCALE AS NOTED	DATE 06/09/2023	DRAWING NO. EY110
SHEET 3 OF 25		



CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT – ENGINEERING DIVISION

REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	PHASE 1, RISE SUBMITTAL	TRHAD	10/12/22
2	PHASE 1, RISE SUBMITTAL	TRHAD	03/31/23
3	PHASE 1, 100% FINAL SUBMITTAL	TRHAD	6/9/23

DESIGNED BY <i>D.A. Lopez</i> SR. SYSTEMS DESIGNER DANIEL LOPEZ	7/25/2023 DATE	RECOMMENDED BY <i>Katherine Doherty</i> CITY ENGINEER KATHERINE DOHERTY	7/26/2023 DATE
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SCALE AS NOTED	DATE 06/09/2023	DRAWING NO. EY110.1
SHEET 3 OF 25		

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE, TWO WORKING DAYS BEFORE YOU DIG.

SUPPLEMENTAL NOTES:

- THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
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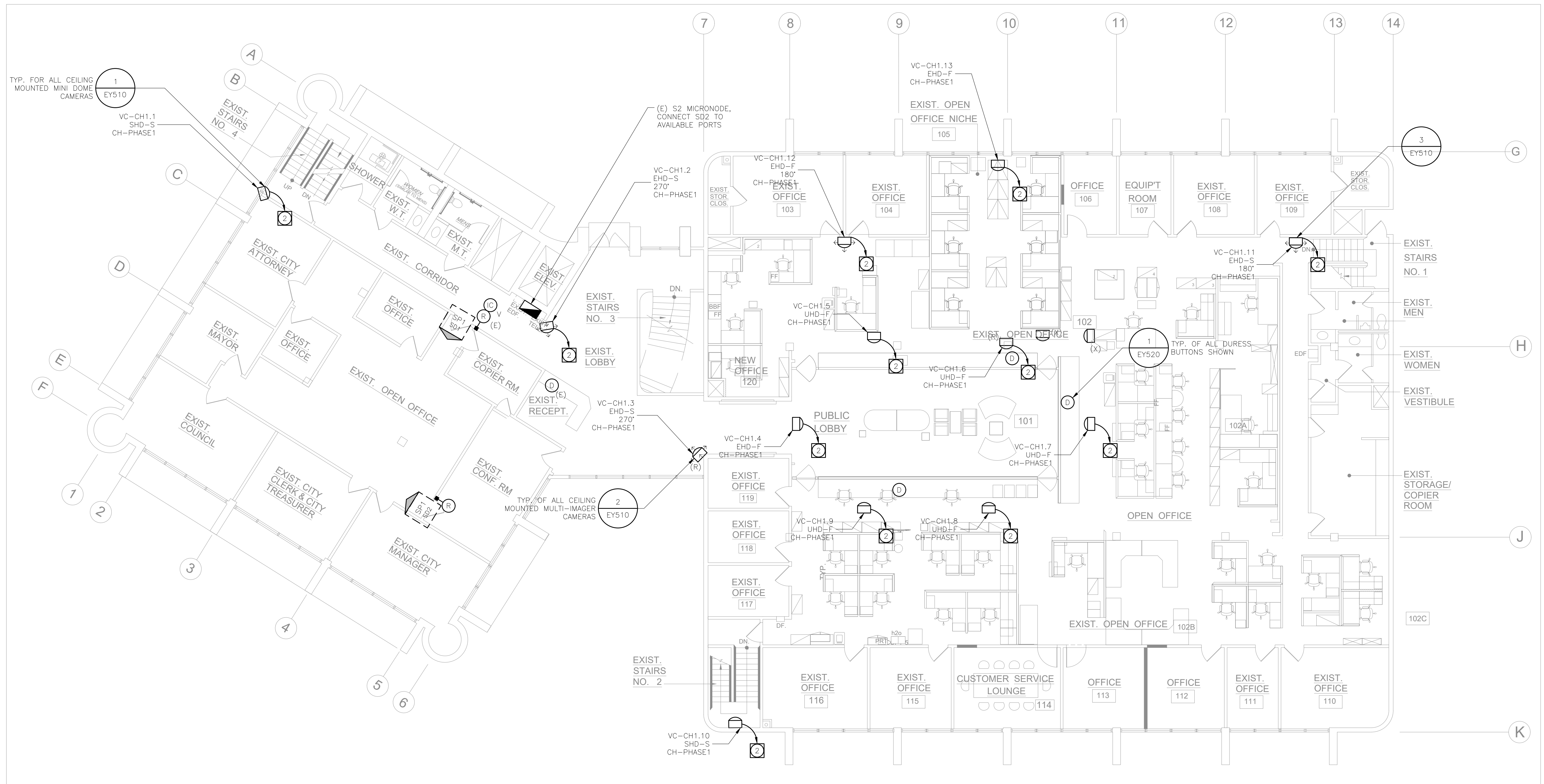
ENGINEER/ARCHITECT OF RECORD STAMP

DATE SIGNED _____

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SYSTEM DESIGN GROUP
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tel: 949-943-9422
web: www.triadsdg.com

REVIEWED BY	DATE



REFERENCE NOTE:

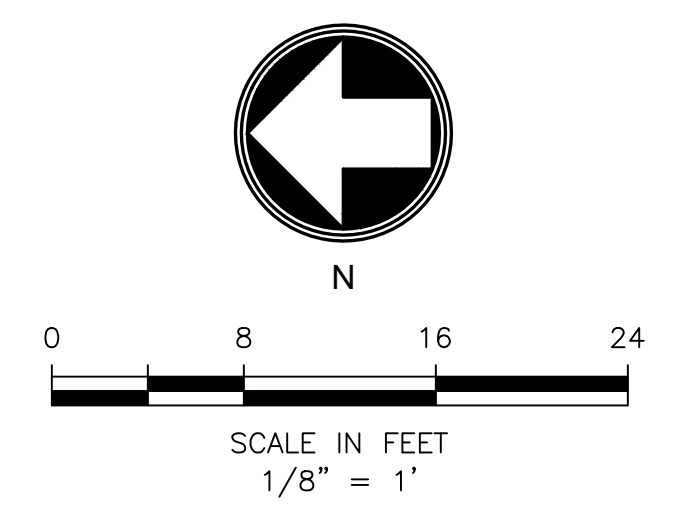
1. FOR SURFACE CEILING MOUNT IN HARD LID CEILING THE CONTRACTOR SHALL PROVIDE TOGGLE BOLTS TO SECURE THE CAMERA TO THE CEILING. THE CONTRACTOR SHALL PROVIDE A CABLE SECURED TO THE CAMERA BODY AND A STRUCTURAL ELEMENT ABOVE THE CEILING TO PREVENT THE CAMERA FROM FALLING DUE TO CEILING MATERIAL FAILURE.

2. FOR SURFACE CEILING MOUNT FOR DROP OR REMOVABLE CEILING TILES THE CONTRACTOR SHALL PROVIDE A METAL PLATE ABOVE THE CEILING TILE AND SECURE THE CAMERA TO THE METAL PLATE. THE METAL PLATE SHALL BE SECURED TO A STRUCTURAL ELEMENT ABOVE THE CEILING TO PREVENT THE CAMERA FROM FALLING DUE TO CEILING FAILURE.

3. CONTRACTOR SHALL ROUTE CAT6 DATA CABLE FROM CAMERA TO EQUIPMENT RACK (ER-01) FOR TERMINATION AT PATCH PANEL. COORDINATE WITH CITY FOR PATCH PANEL TERMINATION LOCATIONS AND LABELING.

GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE WITH CITY FOR LOCATION OF DURESS BUTTONS.



CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
CITY HALL FIRST FLOOR PLAN
DEVICE LAYOUT

REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	PHASE 1, RISE SUBMITTAL	TRAD	10/12/22
2	PHASE 1, RISE SUBMITTAL	TRAD	03/31/23
3	PHASE 1, 100% FINAL SUBMITTAL	TRAD	6/9/23

DESIGNED BY <i>D.A. Lopez</i> SR. SYSTEMS DESIGNER DATE: 7/25/2023	REVIEWED BY <i>David A Skusek</i> PROJECT MANAGER DATE: 7/25/2023	RECOMMENDED BY <i>Katherine Doherty</i> CITY ENGINEER DATE: 7/26/2023
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SCALE: AS NOTED DATE: 06/09/2023 DRAWING NO.: **EY111**

SHEET 3 OF 25

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE. TWO WORKING DAYS BEFORE YOU DIG.

SUPPLEMENTAL NOTES:

1. THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.

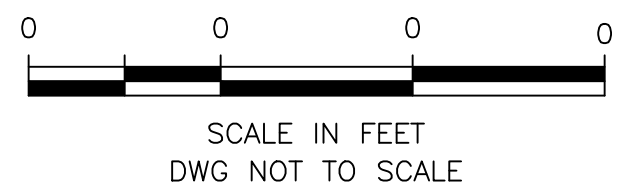
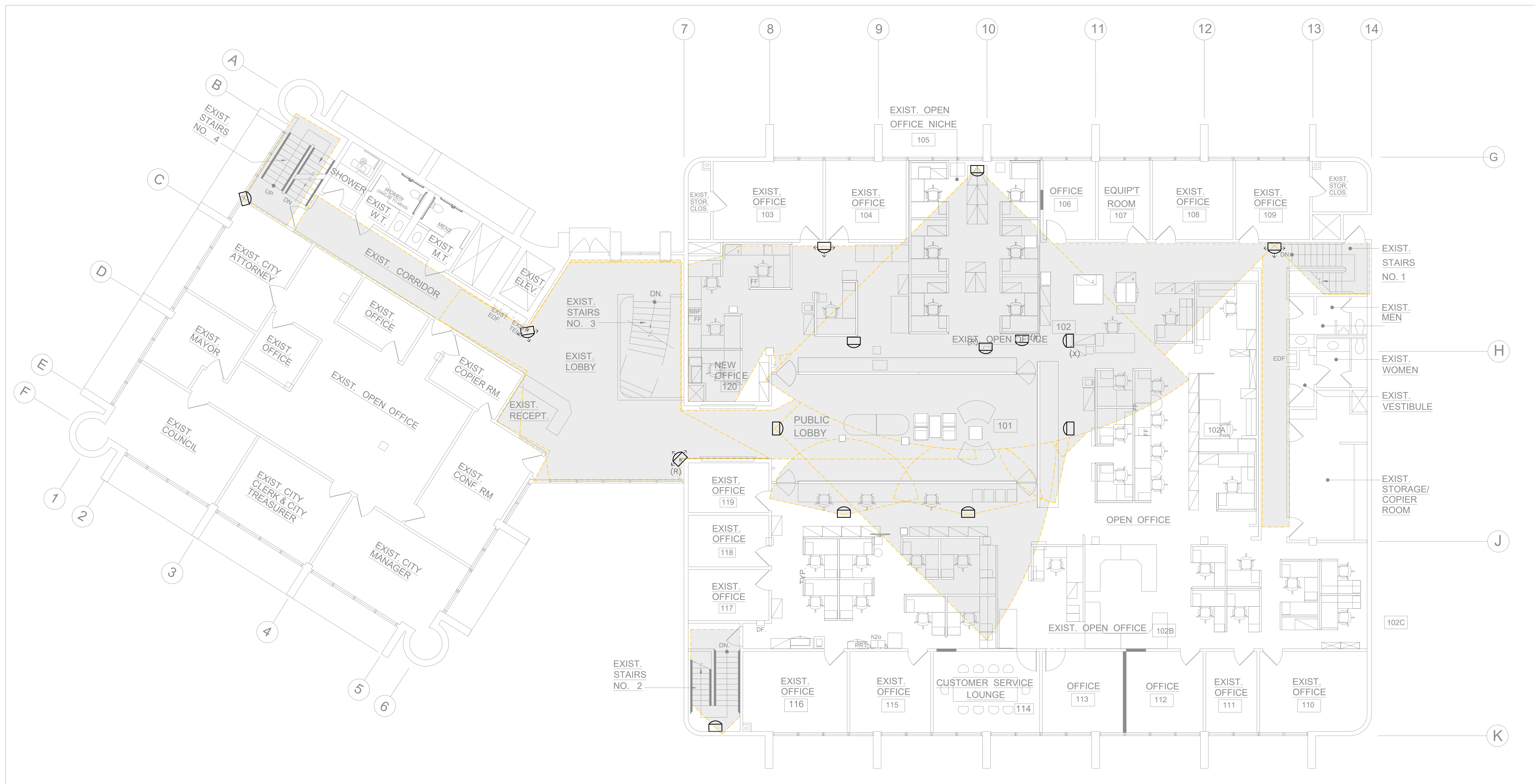
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ENGINEER/ARCHITECT OF RECORD STAMP

2925 Mira Vista Way, Corona 92881
tel: 949-943-9422
web: www.triadsdg.com

REVIEWED BY	DATE



CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT – ENGINEERING DIVISION

REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	PHASE 1, RISE SUBMITTAL	TRAD	10/12/22
2	PHASE 1, ROSE SUBMITTAL	TRAD	03/31/23
3	PHASE 1, 100% FINAL SUBMITTAL	TRAD	6/9/23

DESIGNED BY <i>D.A. Lopez</i> SR. SYSTEMS DESIGNER DANIEL LOPEZ	DATE 7/25/2023	REVIEWED BY <i>David A Skusek</i> PROJECT MANAGER DAVE SKUSEK	DATE 7/25/2023	RECOMMENDED BY <i>Katherine Doherty</i> CITY ENGINEER KATHERINE DOHERTY	DATE 7/26/2023
SCALE AS NOTED		DATE 06/09/2023		DRAWING NO. EY1111.1	
SHEET 3 OF 25					

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE, TWO WORKING DAYS BEFORE YOU DIG.

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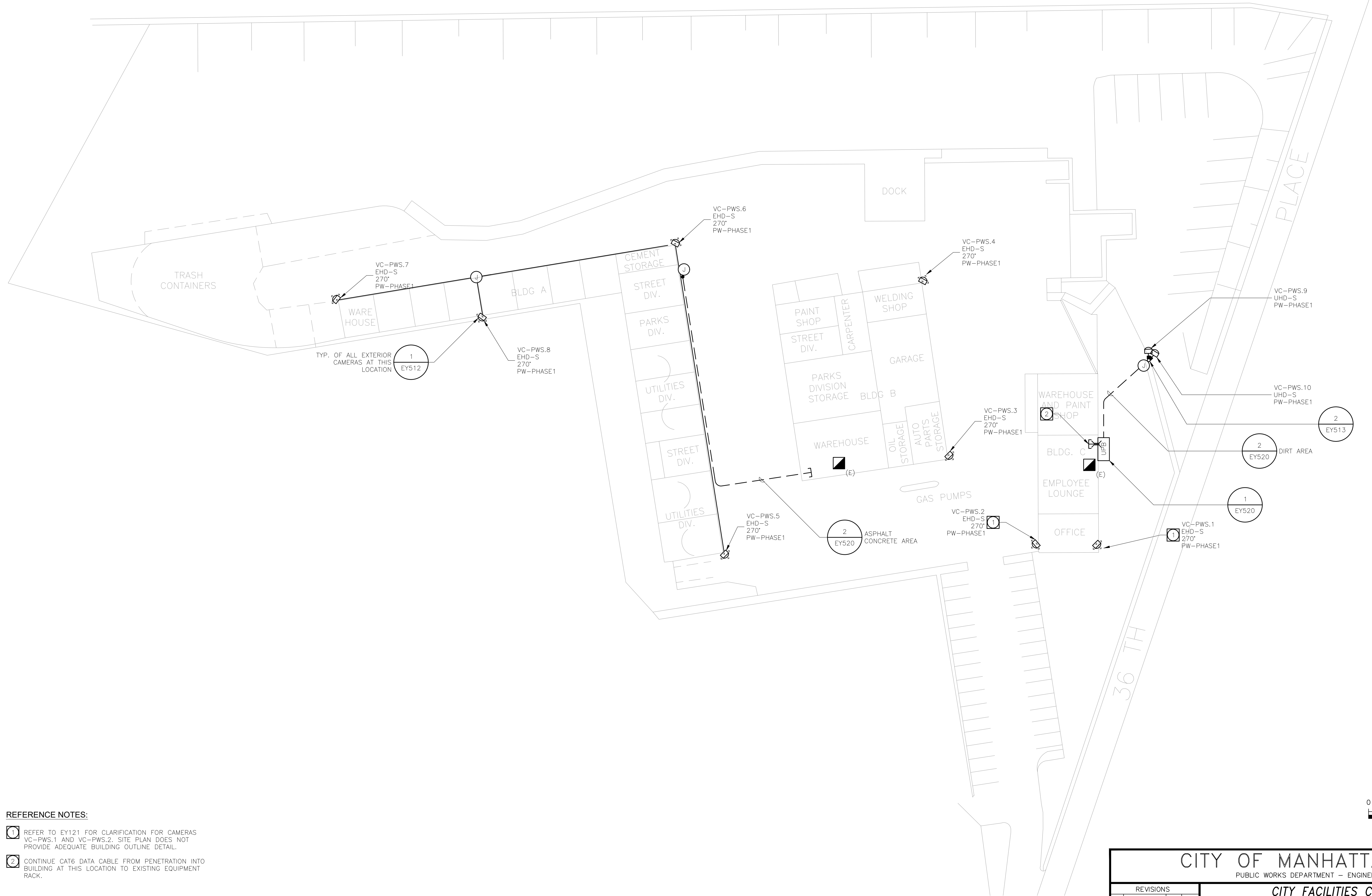
ENGINEER/ARCHITECT OF RECORD STAMP

DATE SIGNED _____

TRIAD CONSULTING
SYSTEM DESIGN GROUP
2925 Mira Vista Way, Corona 92881

tel: 949-943-9422
web: www.triadsdg.com

REVIEWED BY	DATE



REFERENCE NOTES:

- 1 REFER TO EY121 FOR CLARIFICATION FOR CAMERAS VC-PWS.1 AND VC-PWS.2. SITE PLAN DOES NOT PROVIDE ADEQUATE BUILDING OUTLINE DETAIL.
- 2 CONTINUE CAT6 DATA CABLE FROM PENETRATION INTO BUILDING AT THIS LOCATION TO EXISTING EQUIPMENT RACK.

SUPPLEMENTAL NOTES:

- THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
- DUE TO INDIVIDUAL LOT IMPROVEMENTS, THE EXISTING WATER, SEWER AND/OR GAS LATERALS MAY NOT BE AT THE LOCATIONS SHOWN OR SHOWN IN THEIR ENTIRETY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN EXCAVATING.
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ENGINEER/ARCHITECT OF RECORD STAMP

TRIAD CONSULTING
SYSTEM DESIGN GROUP
2925 Mira Vista Way, Corona 92881

tel: 949-943-9422
web: www.triadsdg.com

DATE SIGNED _____

CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
PUBLIC WORKS SITE PLAN
DEVICE LAYOUT

REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	PHASE 1, RISE SUBMITTAL	TRAD	10/12/22
2	PHASE 1, RISE SUBMITTAL	TRAD	03/31/23
3	PHASE 1, 100% FINAL SUBMITTAL	TRAD	6/9/23

REVIEWED BY	DATE	DESIGNED BY	DATE
		D.A. Lopez	7/25/2023

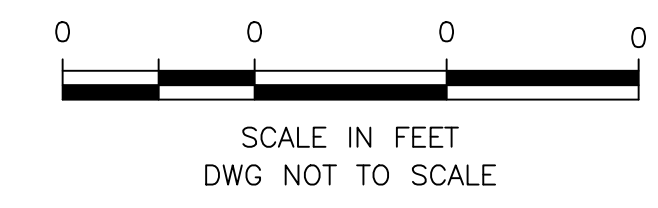
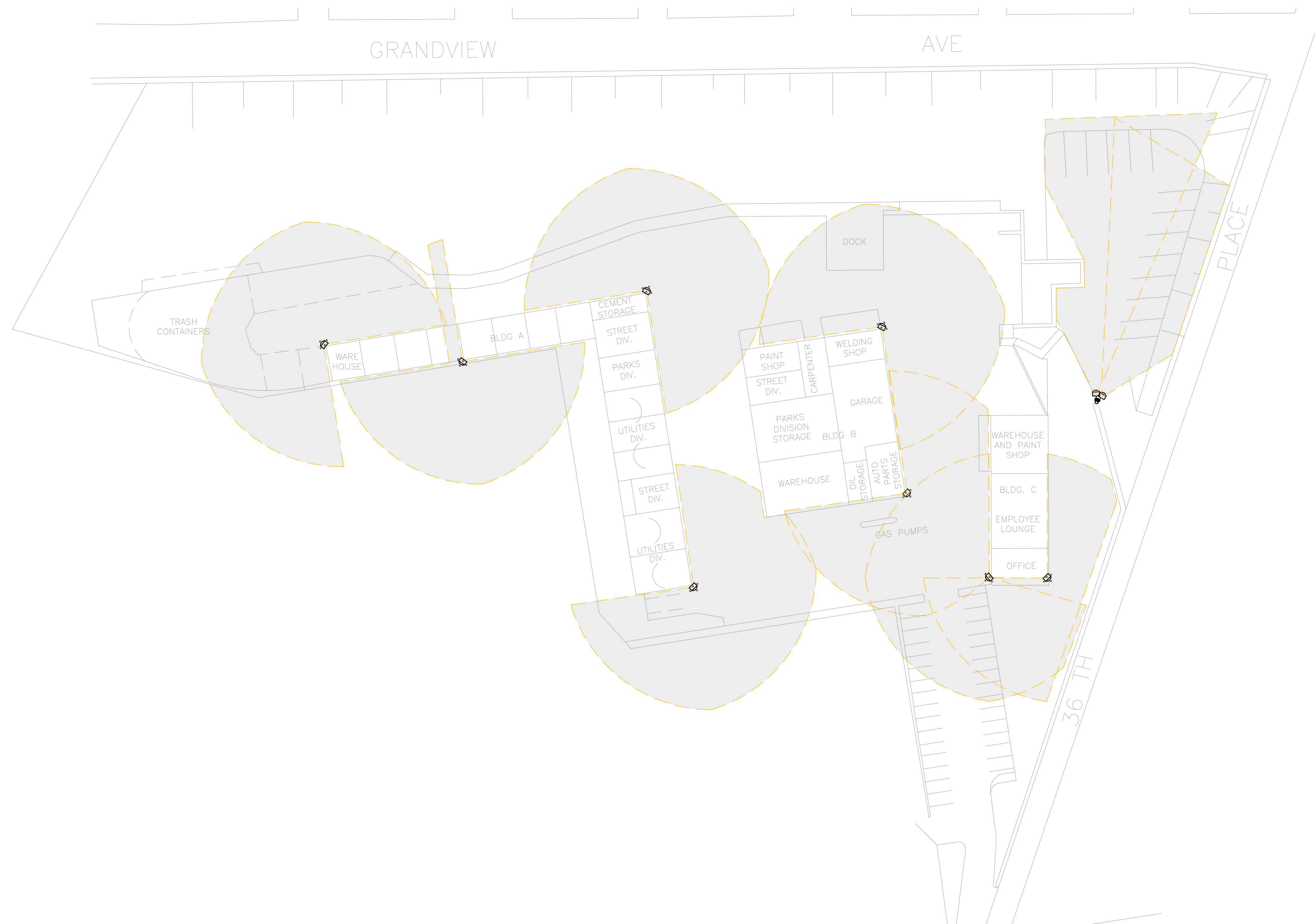
RECOMMENDED BY	DATE	SCALE	DATE	DRAWING NO.
Katherine Doherty	7/26/2023	AS NOTED	06/09/2023	EY120

PROJECT MANAGER: DAVE SKUSEK
CITY ENGINEER: KATHERINE DOHERTY
SR. SYSTEMS DESIGNER: DANIEL LOPEZ

SHEET 3 OF 25

811
Know what's below.
Call before you dig.

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE, TWO WORKING DAYS BEFORE YOU DIG.



CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT – ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
PUBLIC WORKS SITE PLAN
CAMERA FIELD OF VIEWS

REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	PHASE 1, RISE SUBMITTAL	TRAD	10/12/22
2	PHASE 1, RISE SUBMITTAL	TRAD	03/31/23
3	PHASE 1, 100% FINAL SUBMITTAL	TRAD	6/9/23

REVIEWED BY _____ DATE _____	RECOMMENDED BY <i>Katherine Doherty</i> DATE 7/26/2023
PROJECT MANAGER DAVE SKUSEK DATE 7/25/2023	CITY ENGINEER KATHERINE DOHERTY DATE 06/09/2023
DESIGNED BY <i>Daniel Lopez</i> SR. SYSTEMS DESIGNER DANIEL LOPEZ DATE 7/25/2023	SCALE AS NOTED DATE 06/09/2023

DRAWING NO.
EY120.1

SHEET 3 OF 25

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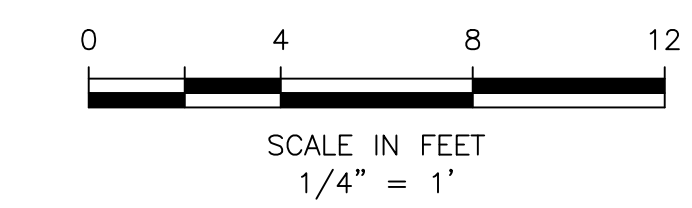
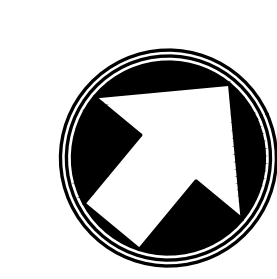
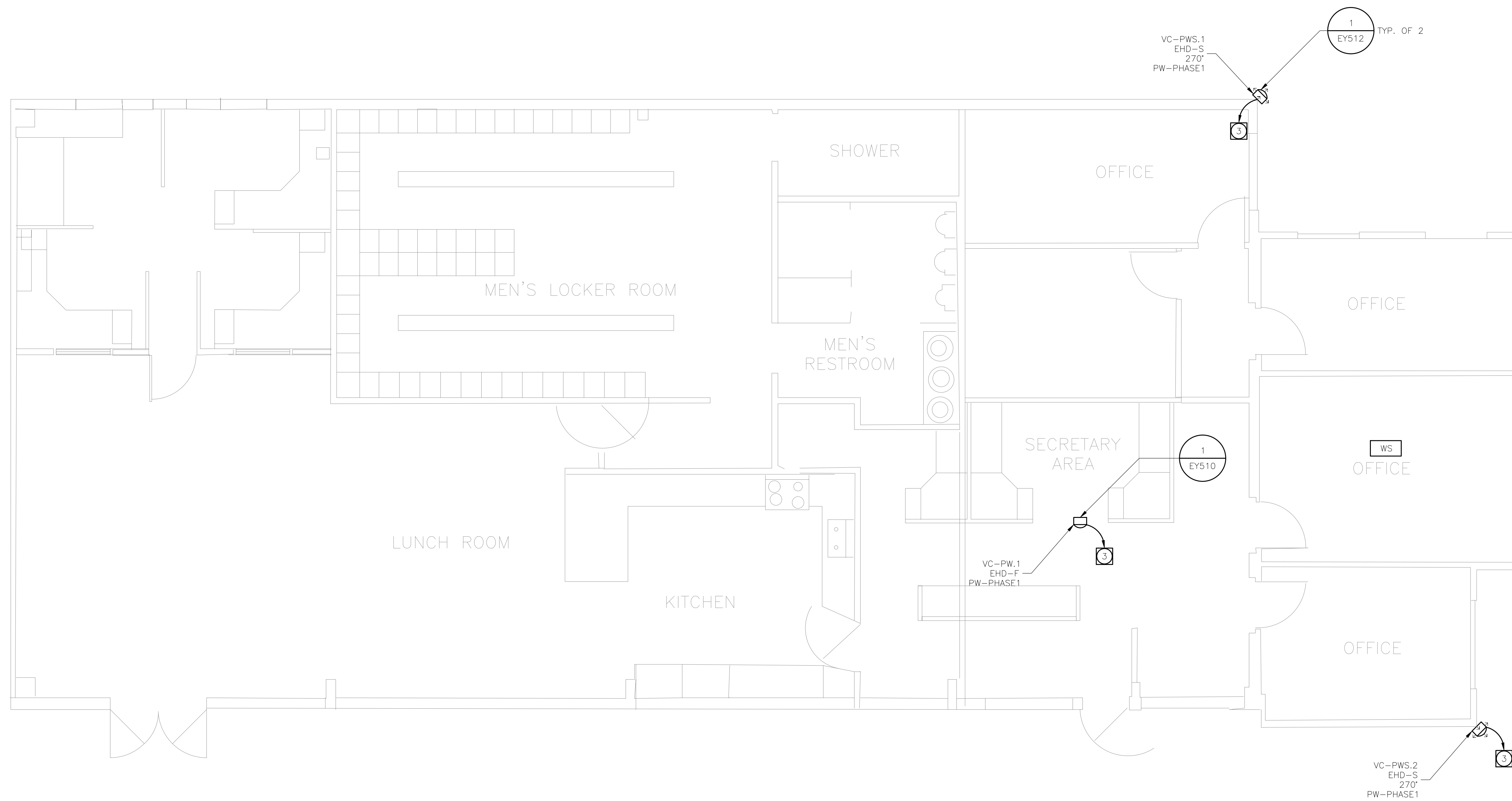
ENGINEER/ARCHITECT OF RECORD STAMP

DATE SIGNED _____

TRIAD CONSULTING
SYSTEM DESIGN GROUP
2925 Mira Vista Way, Corona 92881

tel: 949-943-9422
web: www.triadsdg.com

REVIEWED BY	DATE



REFERENCE NOTES:

- ① FOR SURFACE CEILING MOUNT IN HARD LID CEILING THE CONTRACTOR SHALL PROVIDE TOGGLE BOLTS TO SECURE THE CAMERA TO THE CEILING. THE CONTRACTOR SHALL PROVIDE A CABLE SECURED TO THE CAMERA BODY AND A STRUCTURAL ELEMENT ABOVE THE CEILING TO PREVENT THE CAMERA FROM FALLING DUE TO CEILING MATERIAL FAILURE.
- ② FOR SURFACE CEILING MOUNT FOR DROP OR REMOVABLE CEILING TILES THE CONTRACTOR SHALL PROVIDE A METAL PLATE ABOVE THE CEILING TILE AND SECURE THE CAMERA TO THE METAL PLATE. THE METAL PLATE SHALL BE SECURED TO A STRUCTURAL ELEMENT ABOVE THE CEILING TO PREVENT THE CAMERA FROM FALLING DUE TO CEILING FAILURE.
- ③ CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR EXACT LOCATION OF SECURITY WORKSTATION.
- ④ CONTRACTOR SHALL ROUTE CAT6 DATA CABLE FROM CAMERA TO EXISTING EQUIPMENT RACK LOCATED IN BACK OF EMPLOYEE LOUNGE AREA FOR TERMINATION AT PATCH PANEL. COORDINATE WITH CITY FOR PATCH PANEL TERMINATION LOCATIONS AND LABELING.

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE. TWO WORKING DAYS BEFORE YOU DIG.

SUPPLEMENTAL NOTES:

- THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
- DUE TO INDIVIDUAL LOT IMPROVEMENTS, THE EXISTING WATER, SEWER AND/OR GAS LATERALS MAY NOT BE AT THE LOCATIONS SHOWN OR SHOWN IN THEIR ENTIRETY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN EXCAVATING.
- THE CONTRACTOR SHALL DETERMINE THE DEPTH OF THE GAS SCE, CABLE, SEWER, STORM DRAIN AND WATER AT ALL INTERSECTIONS AND INTERFERENCES PRIOR TO CONSTRUCTION AND AS NOTED ON PLANS.

ENGINEER/ARCHITECT OF RECORD STAMP

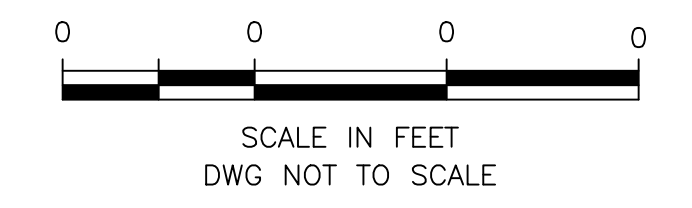
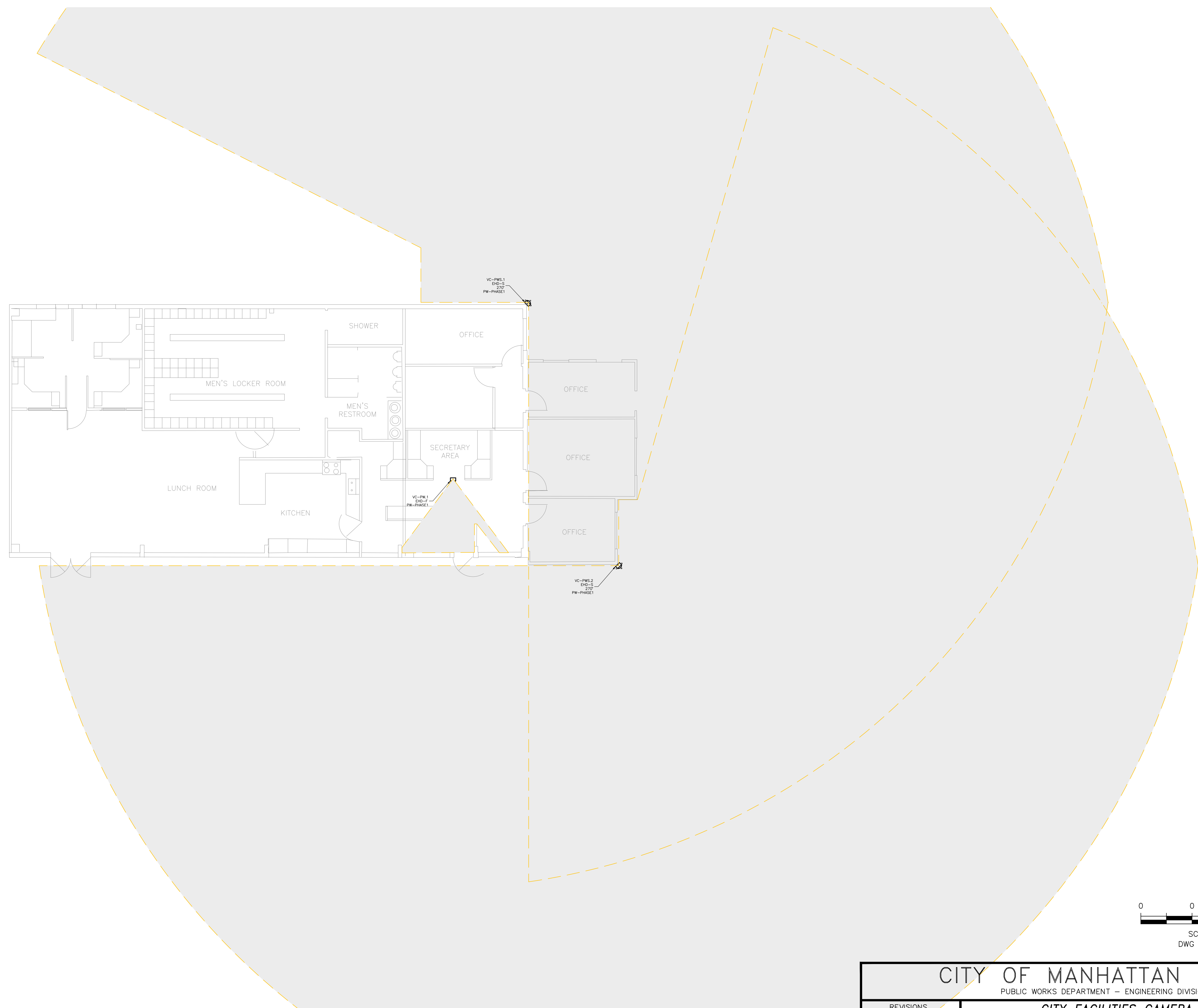
DATE SIGNED _____

2925 Mira Vista Way, Corona 92881

tel: 949-943-9422
web: www.triadsdg.com

REVIEWED BY	DATE

CITY OF MANHATTAN BEACH PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION			
CITY FACILITIES CAMERA PROJECT PUBLIC WORKS ADMINISTRATION BUILDING FLOOR PLAN DEVICE LAYOUT			
REVISIONS		DESIGNED BY	
NO.	DESCRIPTION	BY	DATE
REFERENCES		REVIEWED BY	
PROJECT MANAGER DAVE SKUSEK		RECOMMENDED BY KATHERINE DOHERTY	
7/25/2023		7/26/2023	
SR. SYSTEMS DESIGNER DANIEL LOPEZ		SCALE AS NOTED	
7/25/2023		DATE 06/09/2023	
SHEET 3 OF 25		DRAWING NO. EY121	



CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT – ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
PUBLIC WORKS ADMINISTRATION BUILDING FLOOR PLAN
CAMERA FIELD OF VIEWS

REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	PHASE 1, RISE SUBMITTAL	TRAD	10/12/22
2	PHASE 1, RISE SUBMITTAL	TRAD	03/31/23
3	PHASE 1, 100% FINAL SUBMITTAL	TRAD	6/9/23

REFERENCES	

REVIEWED BY	DATE

DESIGNED BY
D.A. Lopez
7/25/2023
DATE

PROJECT MANAGER
DAVE SKUSEK

RECOMMENDED BY
Katherine Doherty
7/26/2023
DATE

CITY ENGINEER
KATHERINE DOHERTY

SCALE
AS NOTED

DATE
06/09/2023

DRAWING NO.
EY121.1

SHEET 3 OF 25

811
Know what's below.
Call before you dig.

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE, TWO WORKING DAYS BEFORE YOU DIG.

SUPPLEMENTAL NOTES:

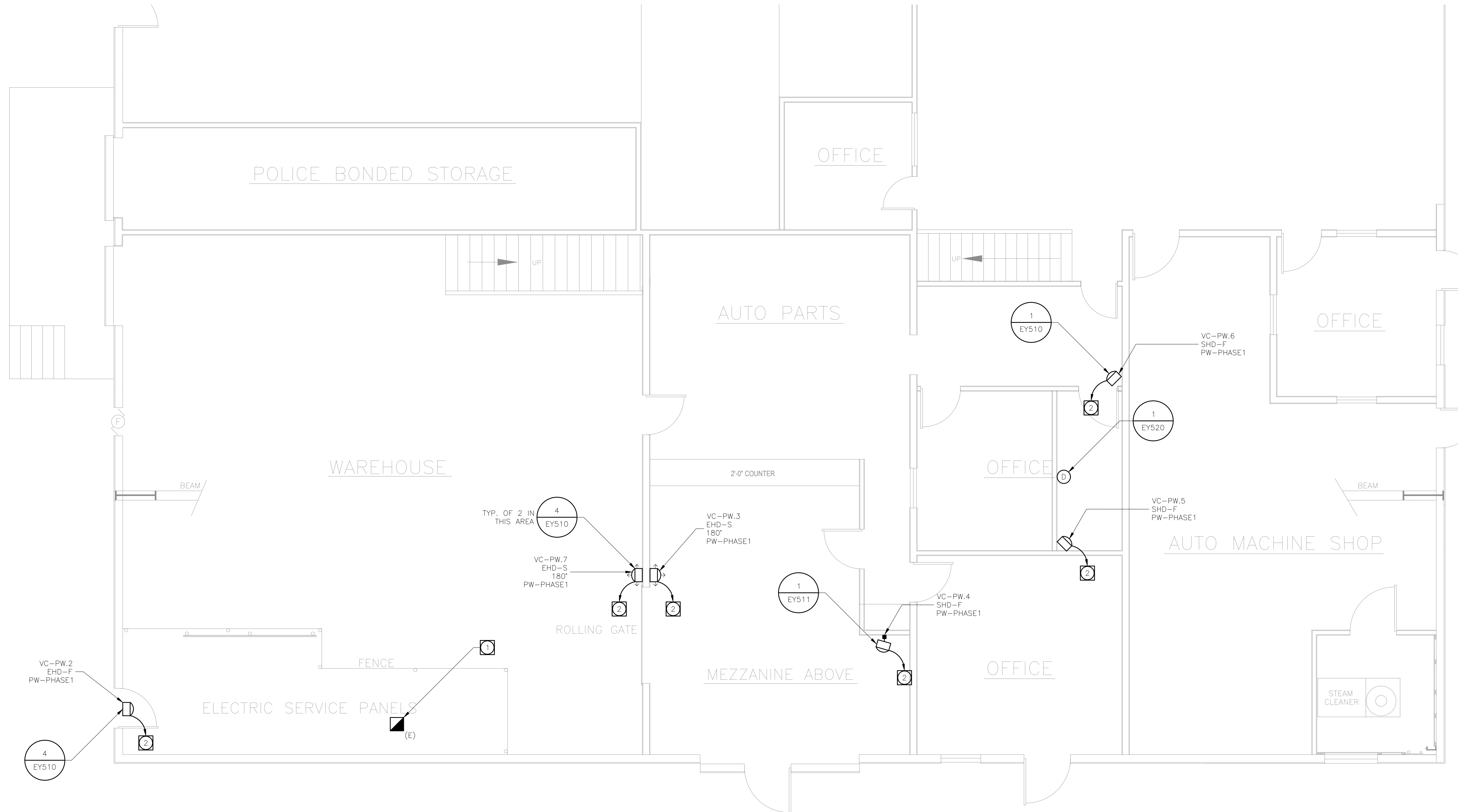
- THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
- DUE TO INDIVIDUAL LOT IMPROVEMENTS, THE EXISTING WATER, SEWER AND/OR GAS LATERALS MAY NOT BE AT THE LOCATIONS SHOWN OR SHOWN IN THEIR ENTIRETY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN EXCAVATING.
- THE CONTRACTOR SHALL DETERMINE THE DEPTH OF THE GAS SCE, CABLE, SEWER, STORM DRAIN AND WATER AT ALL INTERSECTIONS AND INTERFERENCES PRIOR TO CONSTRUCTION AND AS NOTED ON PLANS.

ENGINEER/ARCHITECT
OF RECORD STAMP

DATE SIGNED _____

TRIAD CONSULTING
SYSTEM DESIGN GROUP
2925 Mira Vista Way, Corona 92881

tel: 949-943-9422
web: www.triadsdg.com

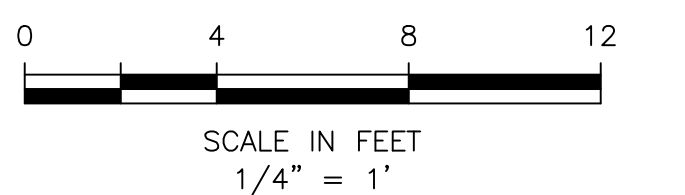
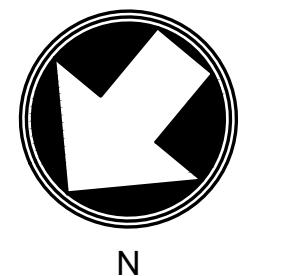


GENERAL NOTES:

- FOR CEILING FLUSH MOUNT CAMERAS THE CONTRACTOR SHALL PROVIDE A CABLE SECURED TO THE CAMERA BODY AND A STRUCTURAL ELEMENT ABOVE THE CEILING TO PREVENT THE CAMERA FROM FALLING DUE TO CEILING MATERIAL FAILURE.

REFERENCE NOTES:

- CONTRACTOR SHALL PROVIDE AND INSTALL NEW PATCH PANEL WITHIN EXISTING RACK FOR CAMERA TERMINATIONS. CONTRACTOR SHALL COORDINATE TERMINATION PORTS WITH CITY IT DEPARTMENT.
- CONTRACTOR SHALL ROUTE CAT6 DATA CABLE FROM CAMERA TO EXISTING EQUIPMENT RACK LOCATED IN THE WAREHOUSE FOR TERMINATION AT PATCH PANEL. COORDINATE WITH CITY FOR PATCH PANEL TERMINATION LOCATIONS AND LABELING.



NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE. TWO WORKING DAYS BEFORE YOU DIG.

SUPPLEMENTAL NOTES:

- THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
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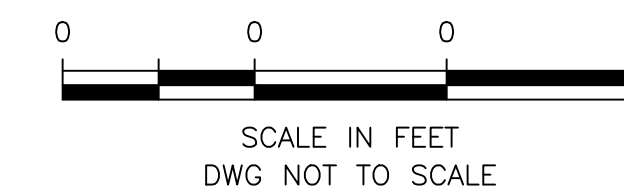
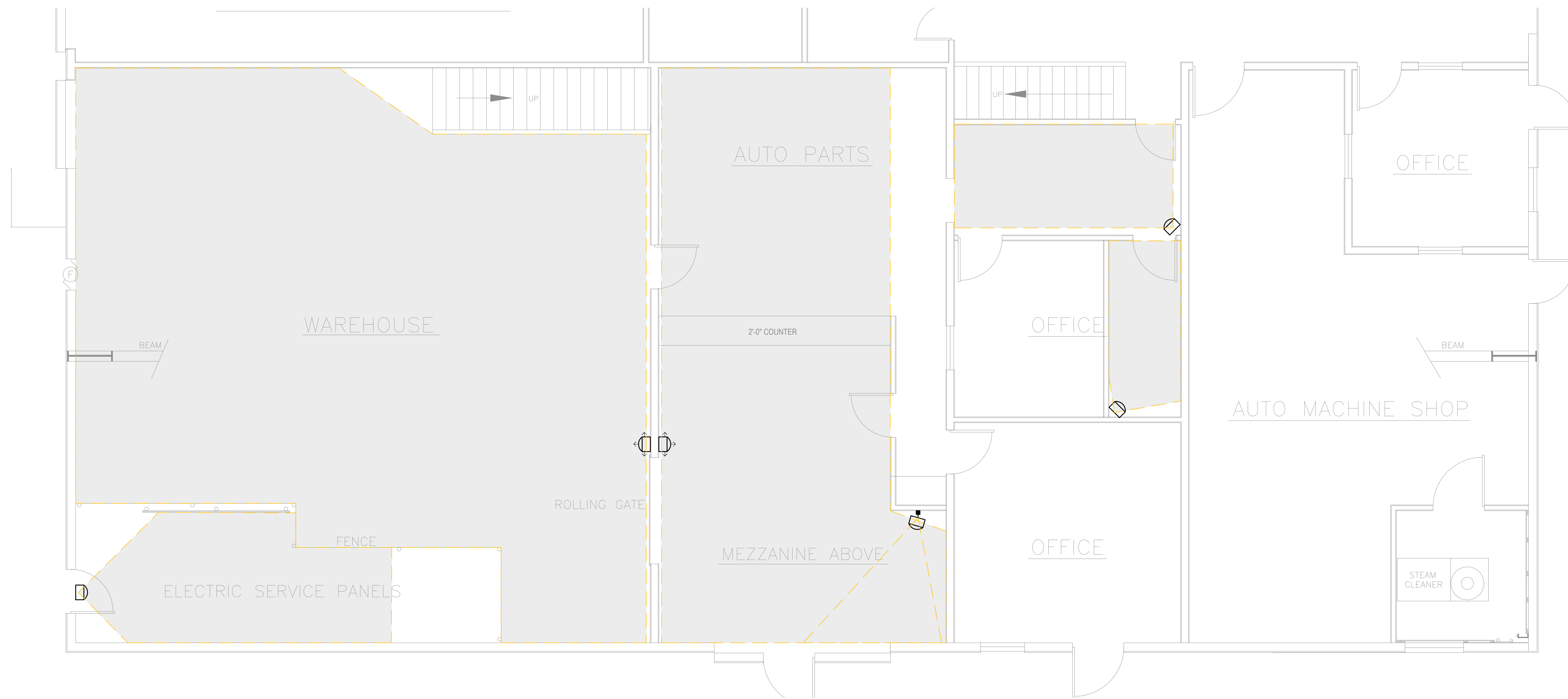
ENGINEER/ARCHITECT OF RECORD STAMP

DATE SIGNED _____

2925 Mira Vista Way, Corona 92881
tel: 949-943-9422
web: www.triadsdg.com

REVIEWED BY	DATE

CITY OF MANHATTAN BEACH PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION			
CITY FACILITIES CAMERA PROJECT PUBLIC WORKS BUILDING B FLOOR PLAN DEVICE LAYOUT			
REVISIONS		RECOMMENDED BY	
NO.	DESCRIPTION	BY	DATE
REFERENCES		DESIGNED BY	
PROJECT MANAGER DAVE SKUSEK 7/25/2023		DATE 7/26/2023	
SR. SYSTEMS DESIGNER DANIEL LOPEZ 7/25/2023		DATE 06/09/2023	
CITY ENGINEER KATHERINE DOHERTY		DRAWING NO. EY122	
SCALE AS NOTED		DATE 06/09/2023	
SHEET 3 OF 25		DATE 	



CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT – ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
PUBLIC WORKS BUILDING B FLOOR PLAN
CAMERA FIELD OF VIEWS

REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	PHASE 1, RISE SUBMITTAL	TRHAD	10/12/22
2	PHASE 1, ROSE SUBMITTAL	TRHAD	03/31/23
3	PHASE 1, 100% FINAL SUBMITTAL	TRHAD	6/9/23

REVIEWED BY	DATE	RECOMMENDED BY	DATE
<i>Daniel A. Skusek</i>	7/25/2023	<i>Katherine Doherty</i>	7/26/2023
PROJECT MANAGER DAVE SKUSEK		CITY ENGINEER KATHERINE DOHERTY	
DESIGNED BY <i>D.A. Lopez</i>	7/25/2023	SCALE AS NOTED	DATE 06/09/2023
SR. SYSTEMS DESIGNER DANIEL LOPEZ		DRAWING NO. EY122.1	

SHEET 3 OF 25

811
Know what's below.
Call before you dig.

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE, TWO WORKING DAYS BEFORE YOU DIG.

SUPPLEMENTAL NOTES:

- THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
- DUE TO INDIVIDUAL LOT IMPROVEMENTS, THE EXISTING WATER, SEWER AND/OR GAS LATERALS MAY NOT BE AT THE LOCATIONS SHOWN OR SHOWN IN THEIR ENTIRETY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN EXCAVATING.
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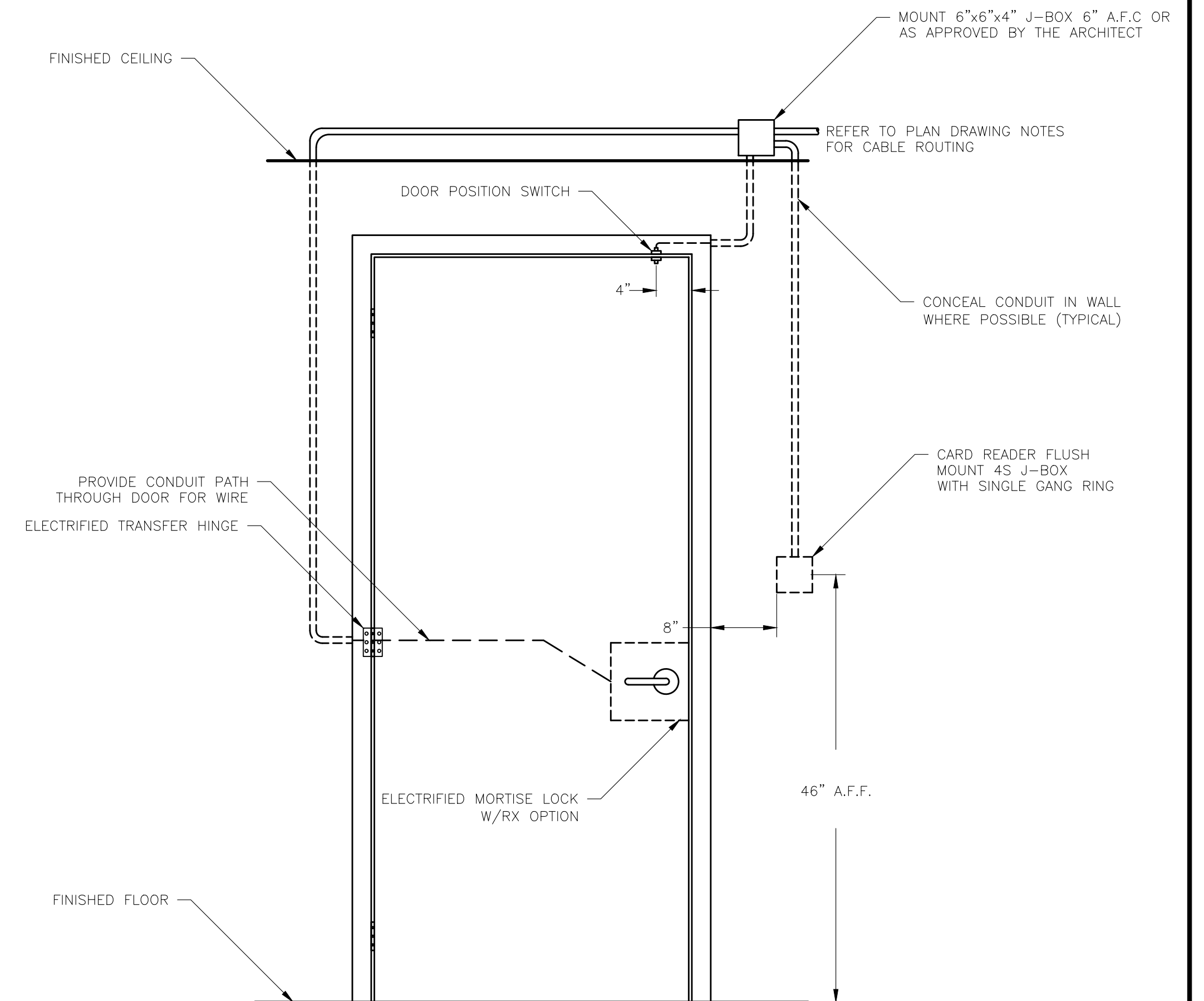
ENGINEER/ARCHITECT OF RECORD STAMP

DATE SIGNED _____

TRIAD CONSULTING
SYSTEM DESIGN GROUP
2925 Mira Vista Way, Corona 92881

tel: 949-943-9422
web: www.triadsdg.com

REVIEWED BY	DATE



- GENERAL NOTES:**
- VIEW SHOWN IS FROM SECURED SIDE OF PORTAL. CONDUIT, BOXES AND EQUIPMENT SHALL BE MOUNTED ON SECURED SIDE OF PORTAL, UNLESS OTHERWISE NOTED.
 - CONDUITS MAY BE COMBINED. IF COMBINED, CONTRACTOR SHALL ENSURE CONDUIT IS SIZED TO ACCEPT REQUIRED CONDUCTORS.
 - COORDINATE ALL MOUNTING LOCATIONS, ROUGH-IN AND FINISHES.
 - ALL CONDUIT SHALL BE CONCEALED UNLESS OTHERWISE NOTED.
 - DOOR HARDWARE SHOWN FOR REFERENCE ONLY. TYPE OF HARDWARE MAY VARY.

NOT USED SCALE: 3

NOT USED SCALE: 2

SP1 - TYPICAL CONDUIT REQUIREMENTS FOR SINGLE DOOR W/ ELECTRIFIED MORTISE LOCK W/ INTEGRATED REX, READER, AND DPS SCALE: 1 NTS

CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
DOOR DETAILS - 1

REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	ALL PHASES, 60SE SUBMITTAL	TRIAD	10/12/22
2	ALL PHASES, 90SE SUBMITTAL	TRIAD	03/31/23
3	ALL PHASES, 100R FINAL SUBMITTAL	TRIAD	6/9/23

REVIEWED BY	DATE

DESIGNED BY
D.A. Lopez
SR. SYSTEMS DESIGNER
DATE: 7/25/2023

RECOMMENDED BY
Katherine Doherty
CITY ENGINEER
KATHERINE DOHERTY
DATE: 7/26/2023

SCALE: AS NOTED
DATE: 06/09/2023
DRAWING NO.: EY500
SHEET 3 OF 25

SUPPLEMENTAL NOTES:

- THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
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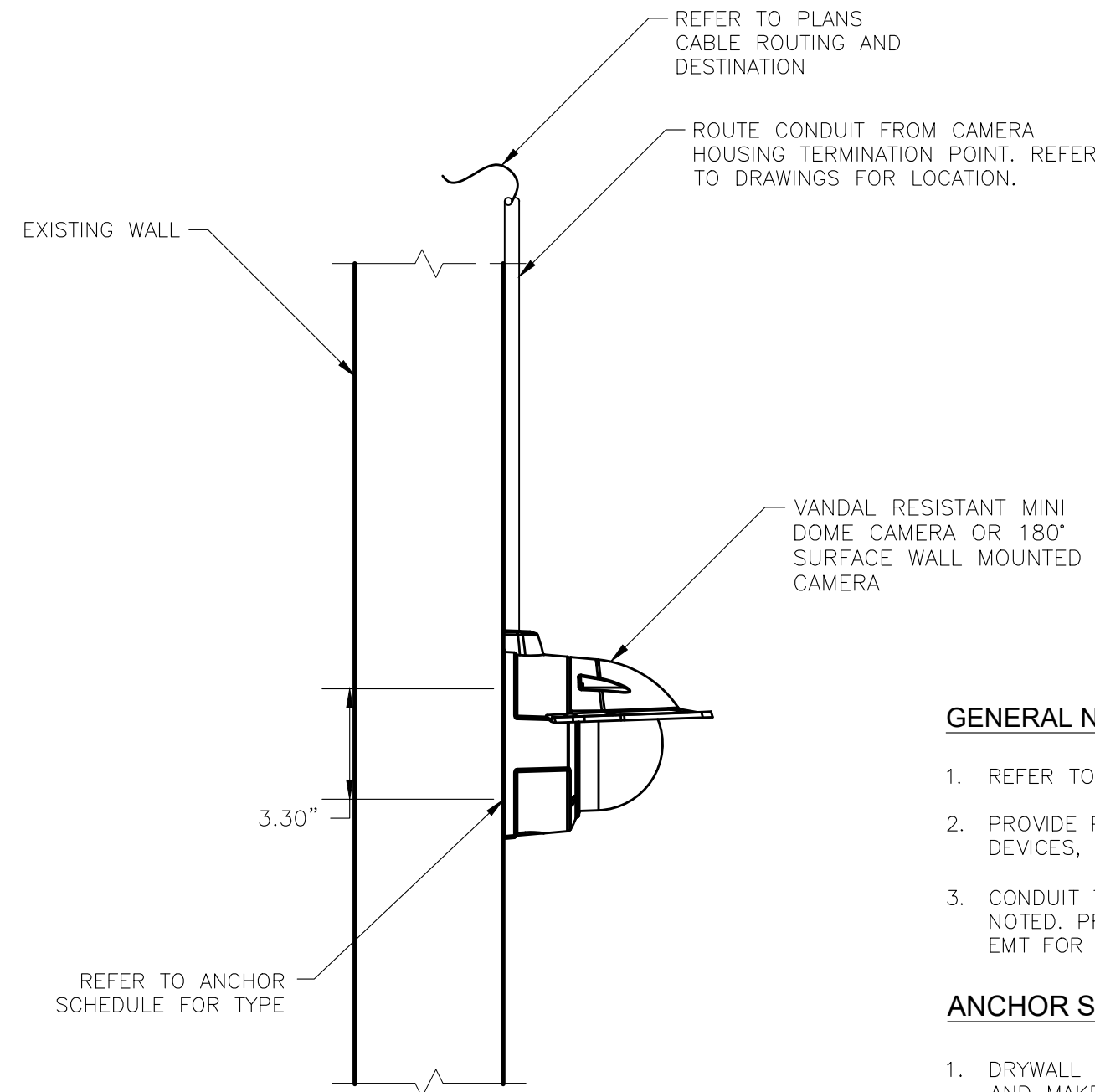
ENGINEER/ARCHITECT OF RECORD STAMP

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web: www.triadsdg.com

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GENERAL NOTES:

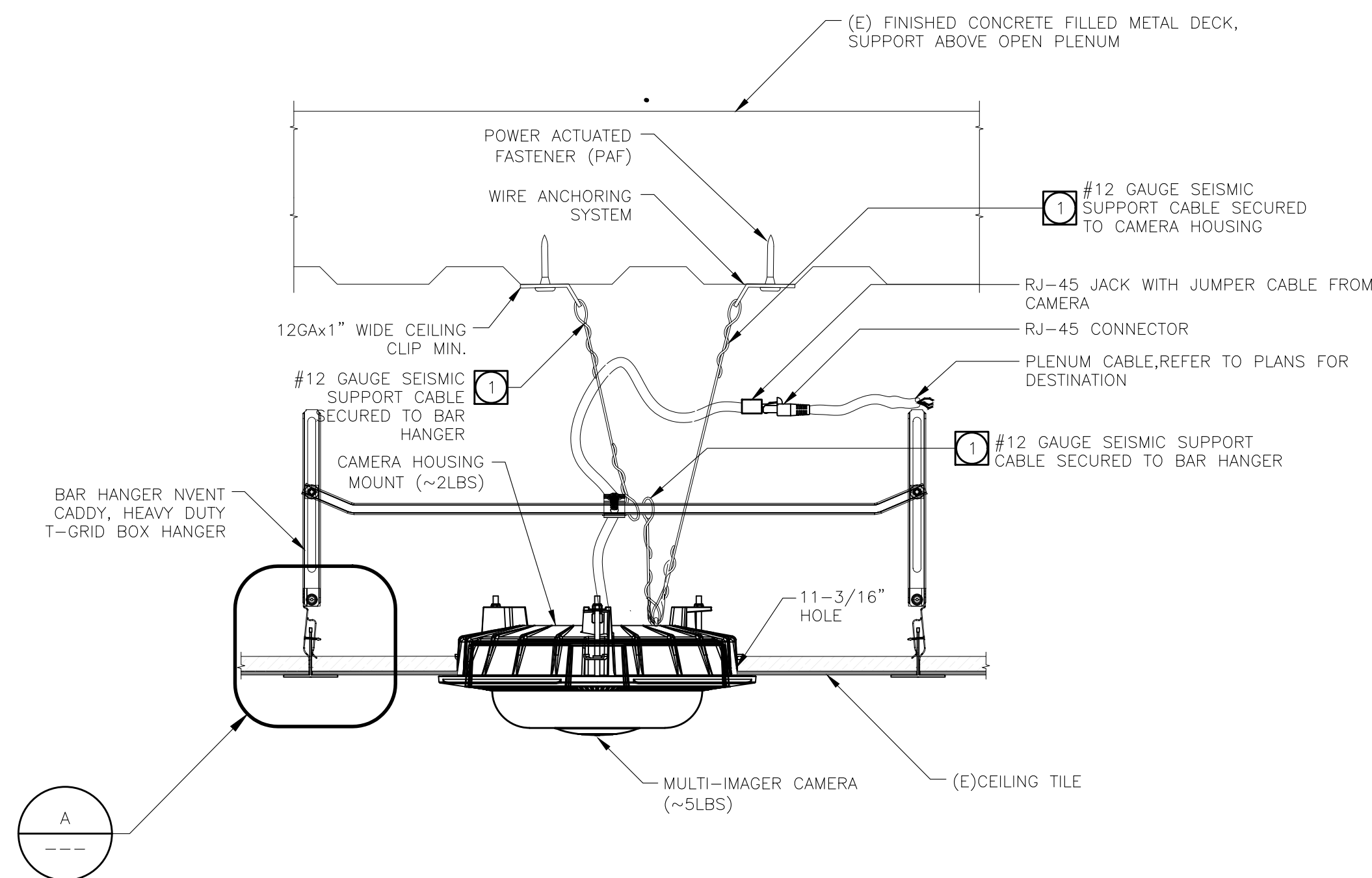
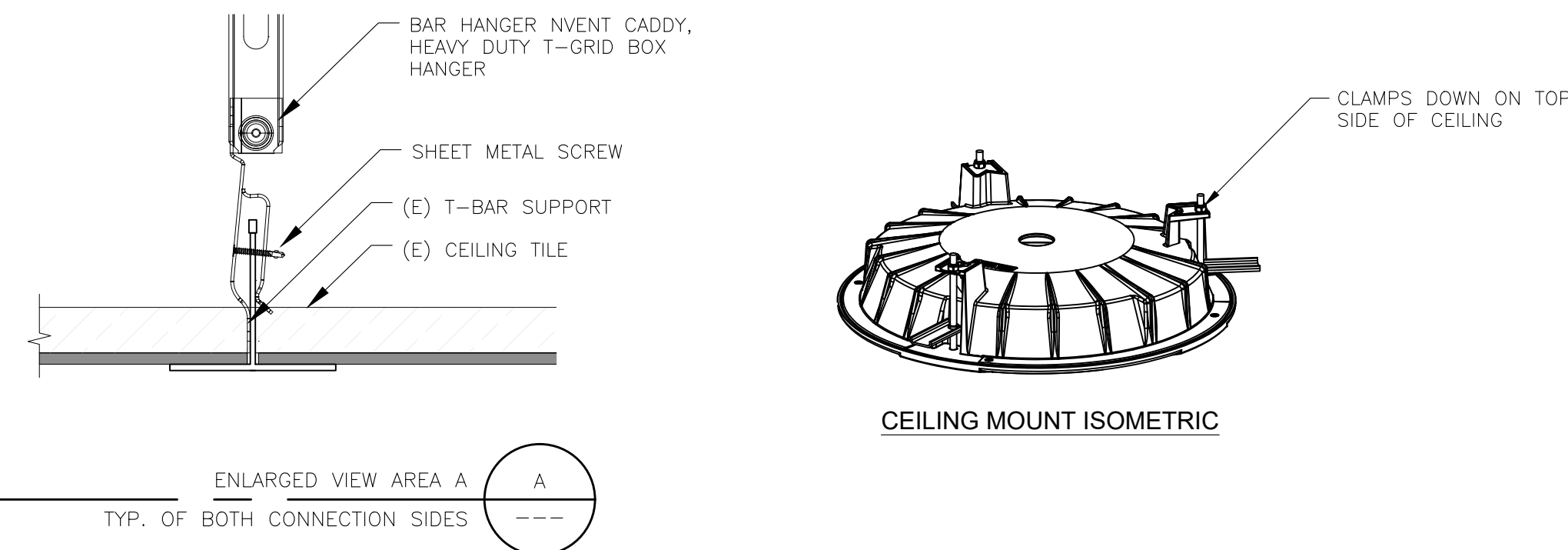
1. REFER TO PLANS FOR CAMERA TYPE AND LOCATIONS.
2. PROVIDE PAINTING AND FINISHES, OF MATERIALS AND DEVICES, AS APPROVED BY THE OWNER.
3. CONDUIT TO BE 3/4" MINIMUM, UNLESS OTHERWISE NOTED. PROVIDE RIGID CONDUIT FOR EXTERIOR AND EMT FOR INTERIOR LOCATIONS.

ANCHOR SCHEDULE PER WALL TYPE:

1. DRYWALL - CONTRACTOR SHALL USE SHEET METAL SCREWS AND MAKE SURE D-RINGS SHALL BE MOUNTED TO METAL STUDS ONLY.
2. MASONRY - CONTRACTOR SHALL USE THE HILTI KWIK BOLT-TZ. 3/8" ANCHOR, MIN. EMBED OF 2-5/16"
3. CONCRETE - CONTRACTOR SHALL USE THE HILTI KWIK BOLT-TZ. 3/8" ANCHOR, MIN. EMBED OF 2-5/16"

EXTERIOR FLAT SURFACE WALL MOUNT CAMERA
SIMILAR REQUIREMENTS FOR 180 DEGREE WALL MOUNTED CAMERA

SCALE:
NTS **4**



GENERAL NOTES:

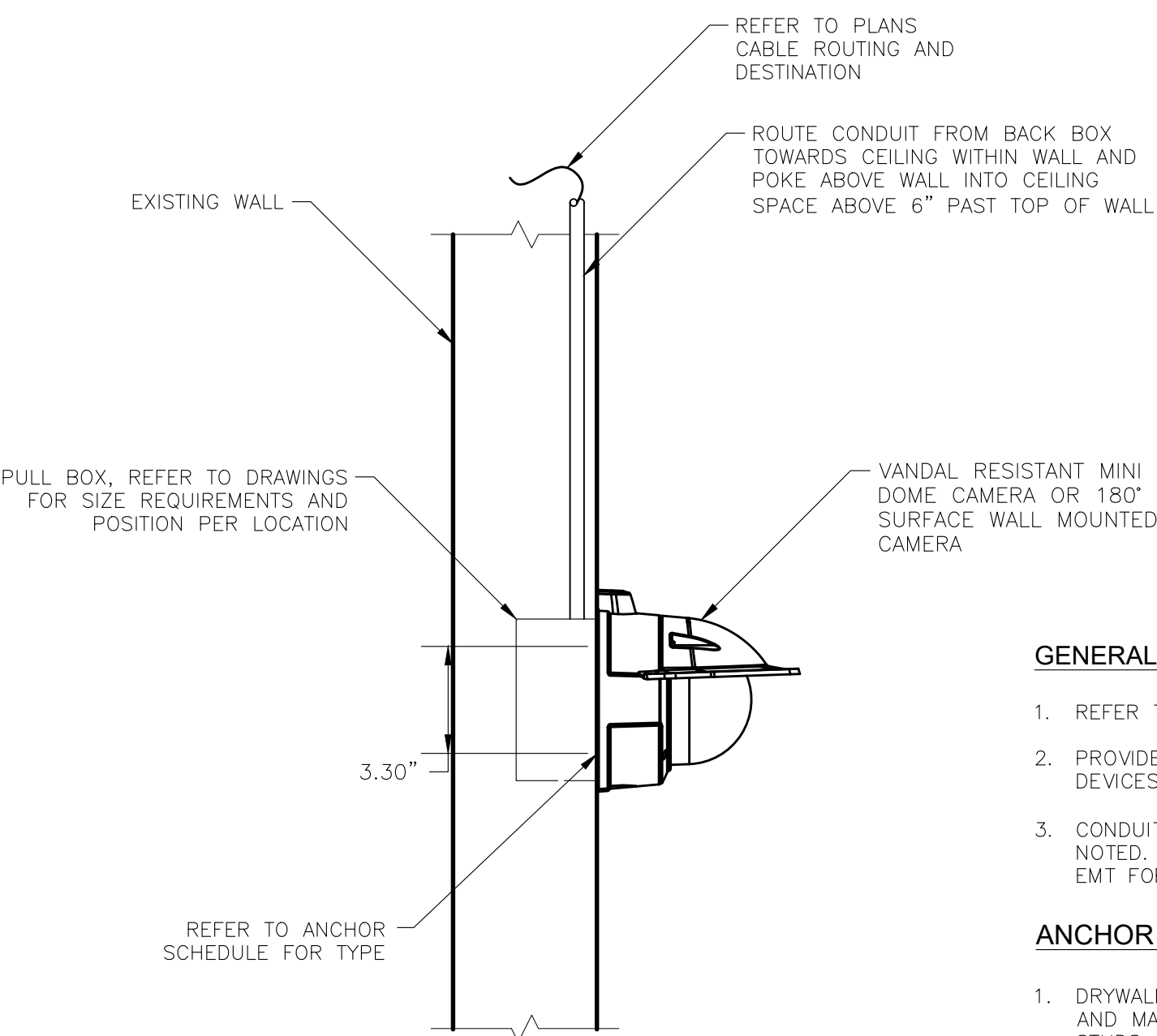
1. REFER TO PLANS FOR CAMERA TYPE AND LOCATIONS.
2. PROVIDE PAINTING AND FINISHES, OF MATERIALS AND DEVICES, AS APPROVED BY THE OWNER.
3. CONDUIT TO BE 3/4" MINIMUM, UNLESS OTHERWISE NOTED. PROVIDE RIGID CONDUIT FOR EXTERIOR AND EMT FOR INTERIOR LOCATIONS.

ANCHOR SCHEDULE PER WALL TYPE:

1. DRYWALL - CONTRACTOR SHALL USE SHEET METAL SCREWS AND MAKE SURE D-RINGS SHALL BE MOUNTED TO METAL STUDS ONLY.
2. MASONRY - CONTRACTOR SHALL USE THE HILTI KWIK BOLT-TZ. 3/8" ANCHOR, MIN. EMBED OF 2-5/16"
3. CONCRETE - CONTRACTOR SHALL USE THE HILTI KWIK BOLT-TZ. 3/8" ANCHOR, MIN. EMBED OF 2-5/16"

REFERENCE NOTES:

- SEISMIC SUPPORT CABLE SHALL HAVE 3 TIGHT TWISTS ON EACH CONNECTION END.



GENERAL NOTES:

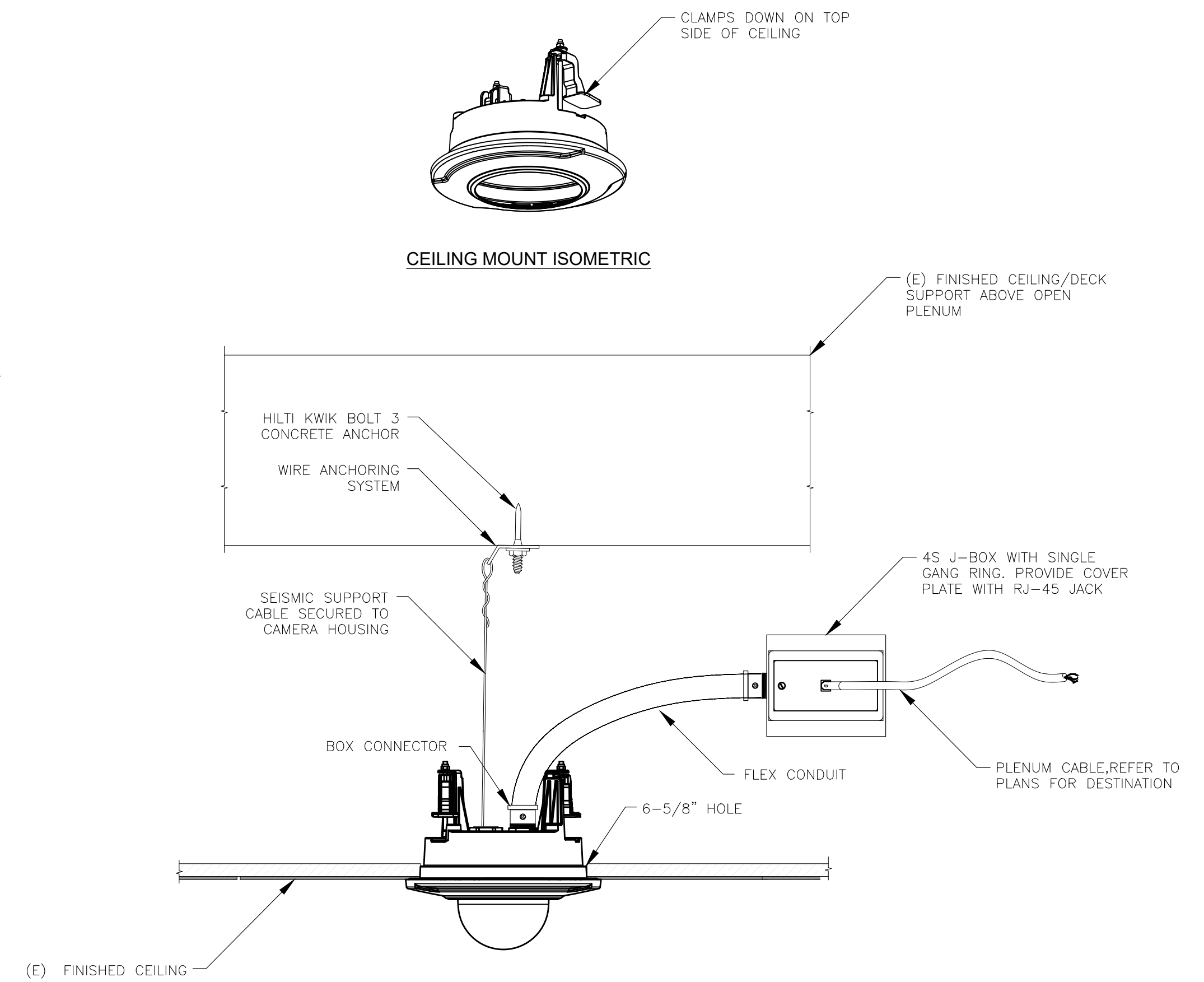
1. REFER TO PLANS FOR CAMERA TYPE AND LOCATIONS.
2. PROVIDE PAINTING AND FINISHES, OF MATERIALS AND DEVICES, AS APPROVED BY THE OWNER.
3. CONDUIT TO BE 3/4" MINIMUM, UNLESS OTHERWISE NOTED. PROVIDE RIGID CONDUIT FOR EXTERIOR AND EMT FOR INTERIOR LOCATIONS.

ANCHOR SCHEDULE PER WALL TYPE:

1. DRYWALL - CONTRACTOR SHALL USE SHEET METAL SCREWS AND MAKE SURE D-RINGS SHALL BE MOUNTED TO METAL STUDS ONLY.
2. MASONRY - CONTRACTOR SHALL USE THE HILTI KWIK BOLT-TZ. 3/8" ANCHOR, MIN. EMBED OF 2-5/16"
3. CONCRETE - CONTRACTOR SHALL USE THE HILTI KWIK BOLT-TZ. 3/8" ANCHOR, MIN. EMBED OF 2-5/16"

INTERIOR FLAT SURFACE WALL MOUNT CAMERA
SIMILAR REQUIREMENTS FOR 180 DEGREE WALL MOUNTED CAMERA

SCALE:
NTS **3**



GENERAL NOTES:

1. REFER TO PLANS FOR CAMERA TYPE AND LOCATIONS.
2. PROVIDE PAINTING AND FINISHES, OF MATERIALS AND DEVICES, AS APPROVED BY THE OWNER.
3. CONDUIT TO BE 3/4" MINIMUM, UNLESS OTHERWISE NOTED. PROVIDE RIGID CONDUIT FOR EXTERIOR AND EMT FOR INTERIOR LOCATIONS.

ANCHOR SCHEDULE PER WALL TYPE:

1. DRYWALL - CONTRACTOR SHALL USE SHEET METAL SCREWS AND MAKE SURE D-RINGS SHALL BE MOUNTED TO METAL STUDS ONLY.
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CEILING FLUSH MOUNTED MULTI-IMAGER CAMERA

SCALE:
NTS **2**

CEILING FLUSH MOUNTED MINI DOME CAMERA

SCALE:
NTS **1**

CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
CAMERA DETAILS - 1

REVISIONS			
NO.	DESCRIPTION	BY	DATE
ALL PHASES, 605	TRAD	10/12/22	
ALL PHASES, 905	TRAD	03/31/23	
ALL PHASES, 100R	TRAD	6/9/23	

REFERENCES	

REVIEWED BY
David A Skusek
7/25/2023
DATE

PROJECT MANAGER
DAVE SKUSEK

DESIGNED BY
D.A. Lopez
7/25/2023
DATE

SR. SYSTEMS DESIGNER
DANIEL LOPEZ

RECOMMENDED BY
Katherine Doherty
7/26/2023
DATE

CITY ENGINEER
KATHERINE DOHERTY

SCALE
AS NOTED

DATE
06/09/2023

DRAWING NO.
EY510

SHEET 2 OF 25

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE, TWO WORKING DAYS BEFORE YOU DIG.

SUPPLEMENTAL NOTES:

1. THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
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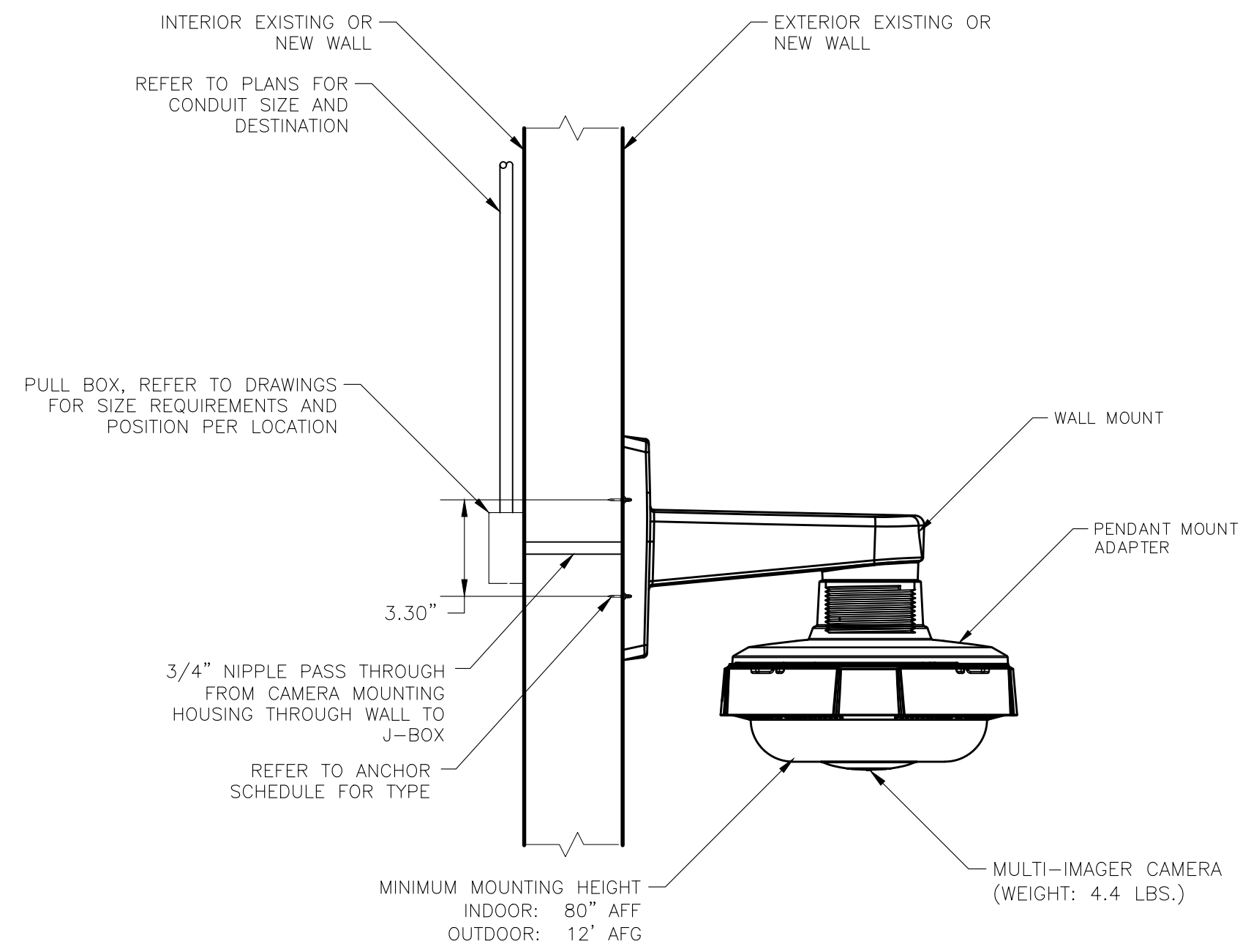
ENGINEER/ARCHITECT OF RECORD STAMP

DATE SIGNED

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tel: 949-943-9422
web: www.triadsg.com

REVIEWED BY	DATE

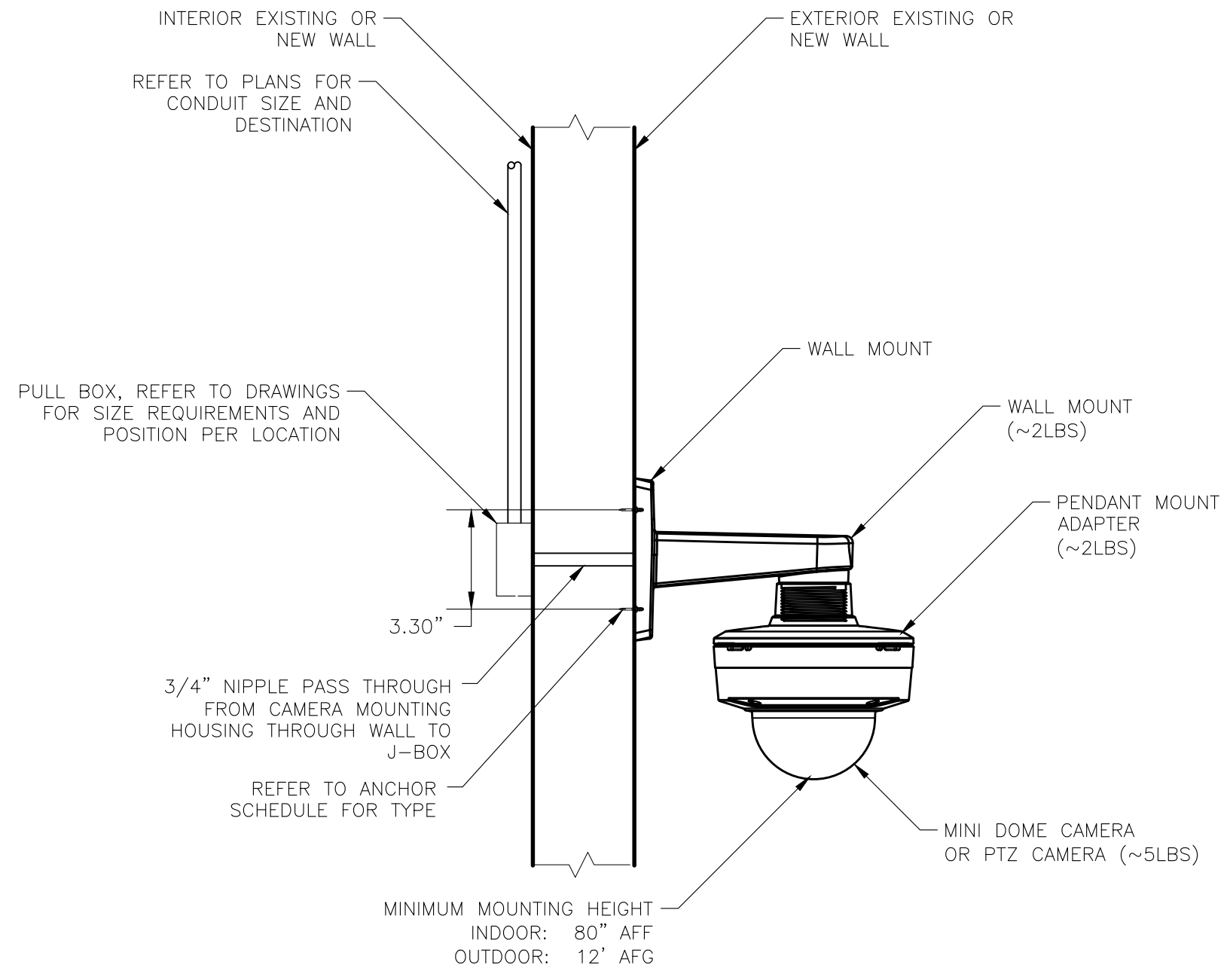


GENERAL NOTES:

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ANCHOR SCHEDULE PER WALL TYPE:

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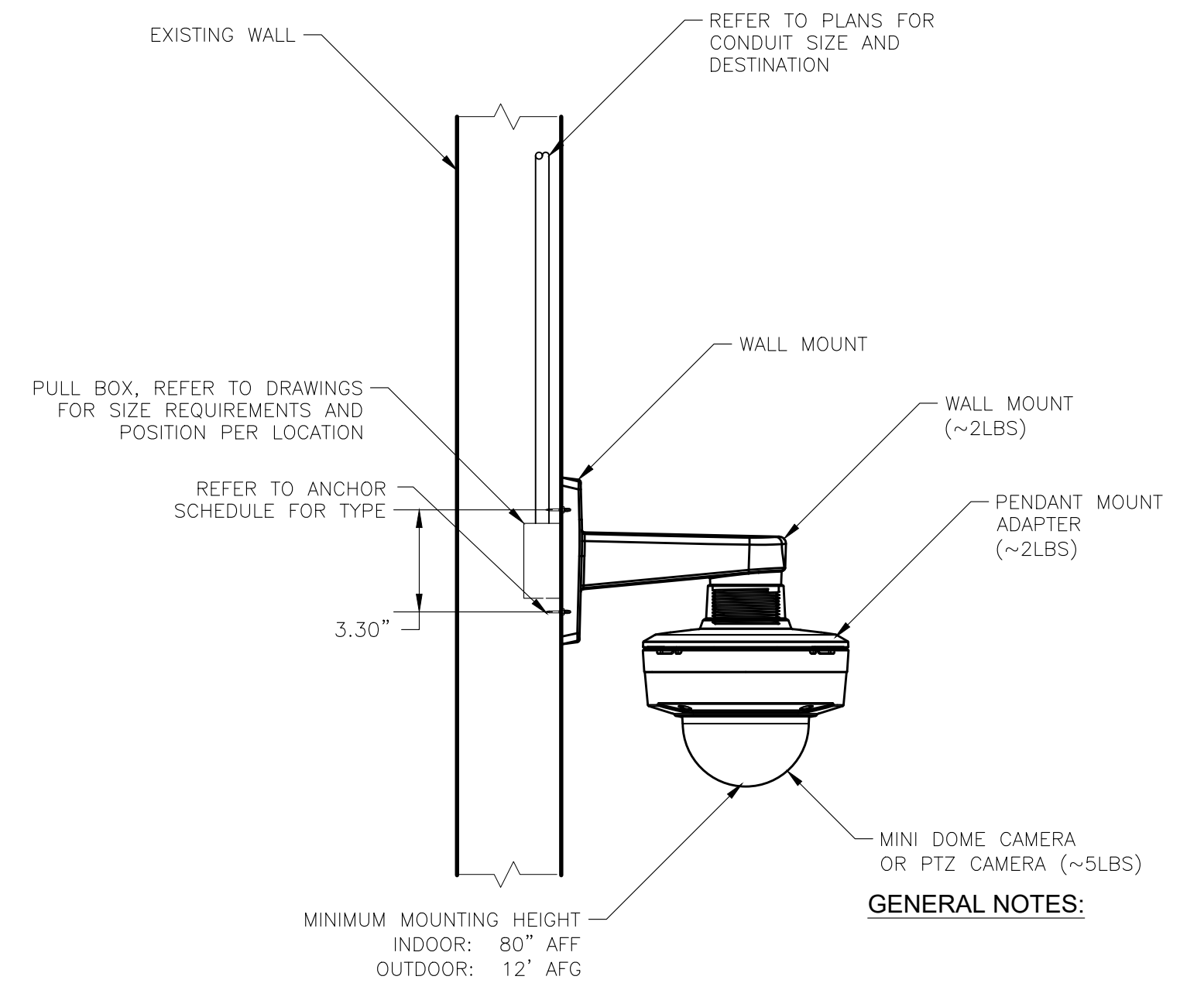


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EXTERIOR GOOSE NECK WALL MOUNTED MULTI-IMAGER CAMERA

SCALE: NTS

3

GOOSE NECK WALL MOUNTED MINI DOME CAMERA W/EXTERNAL WALL CONDUIT ROUTING

SCALE: NTS

2

GOOSE NECK WALL MOUNTED MINI DOME CAMERA W/INTERNAL WALL CONDUIT ROUTING

SCALE: NTS

1

CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT – ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
CAMERA DETAILS – 2

NO.	DESCRIPTION	BY	DATE
1	ALL PHASES, 60% SUBMITTAL	TRAD	10/12/22
2	ALL PHASES, 90% SUBMITTAL	TRAD	03/31/23
3	ALL PHASES, 100% FINAL SUBMITTAL	TRAD	6/9/23

DESIGNED BY	DATE
D.A. Lopez	7/25/2023

REVIEWED BY	DATE
Dave Skusek	7/25/2023

RECOMMENDED BY	DATE
Katherine Doherty	7/26/2023

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE, TWO WORKING DAYS BEFORE YOU DIG.

SUPPLEMENTAL NOTES:

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ENGINEER/ARCHITECT OF RECORD STAMP

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tel: 949-943-9422
web: www.triadsdg.com

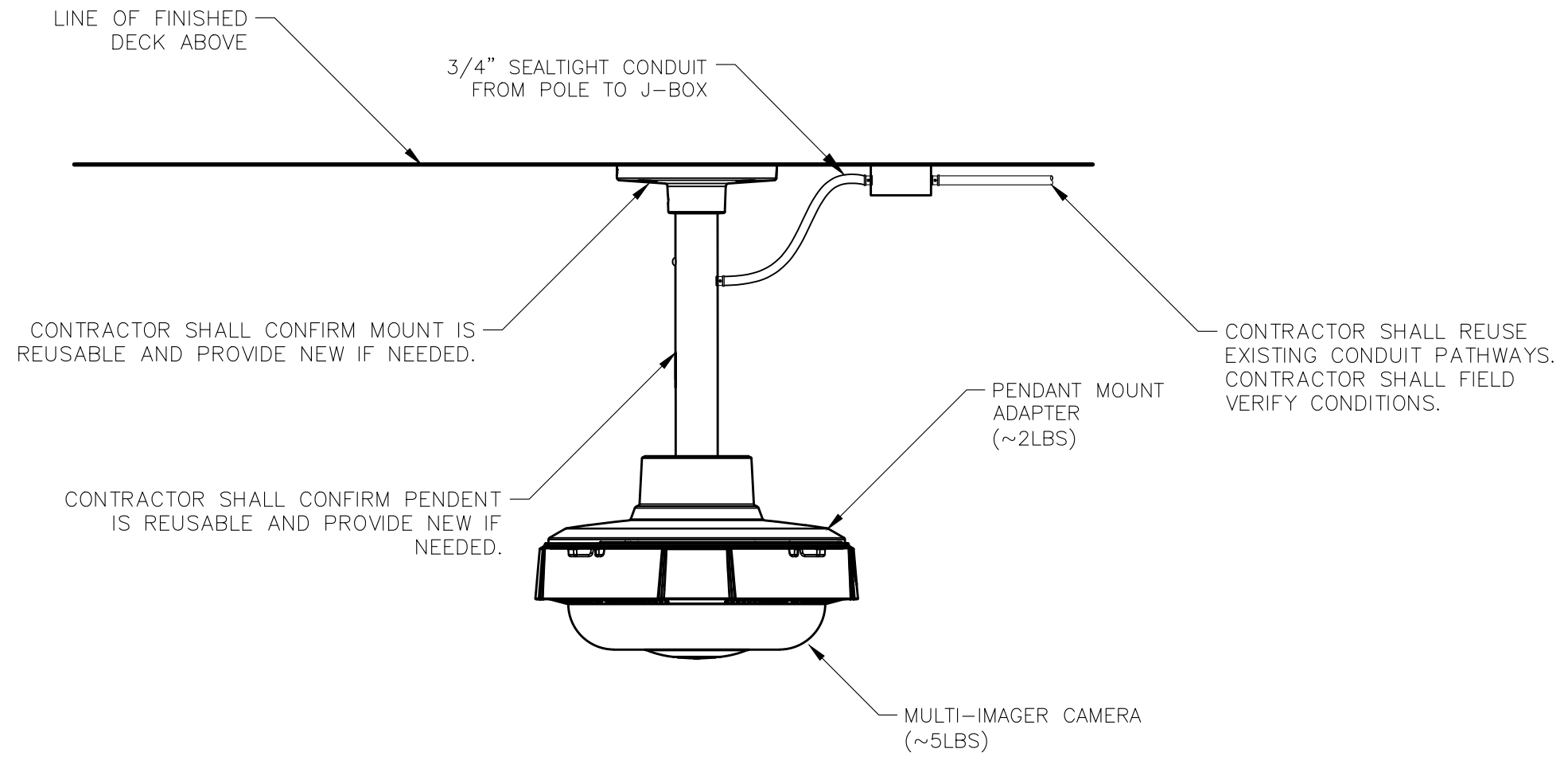
REVIEWED BY	DATE

REFERENCES

SCALE	DATE
AS NOTED	06/09/2023

DRAWING NO.
EY511

SHEET 2 OF 25



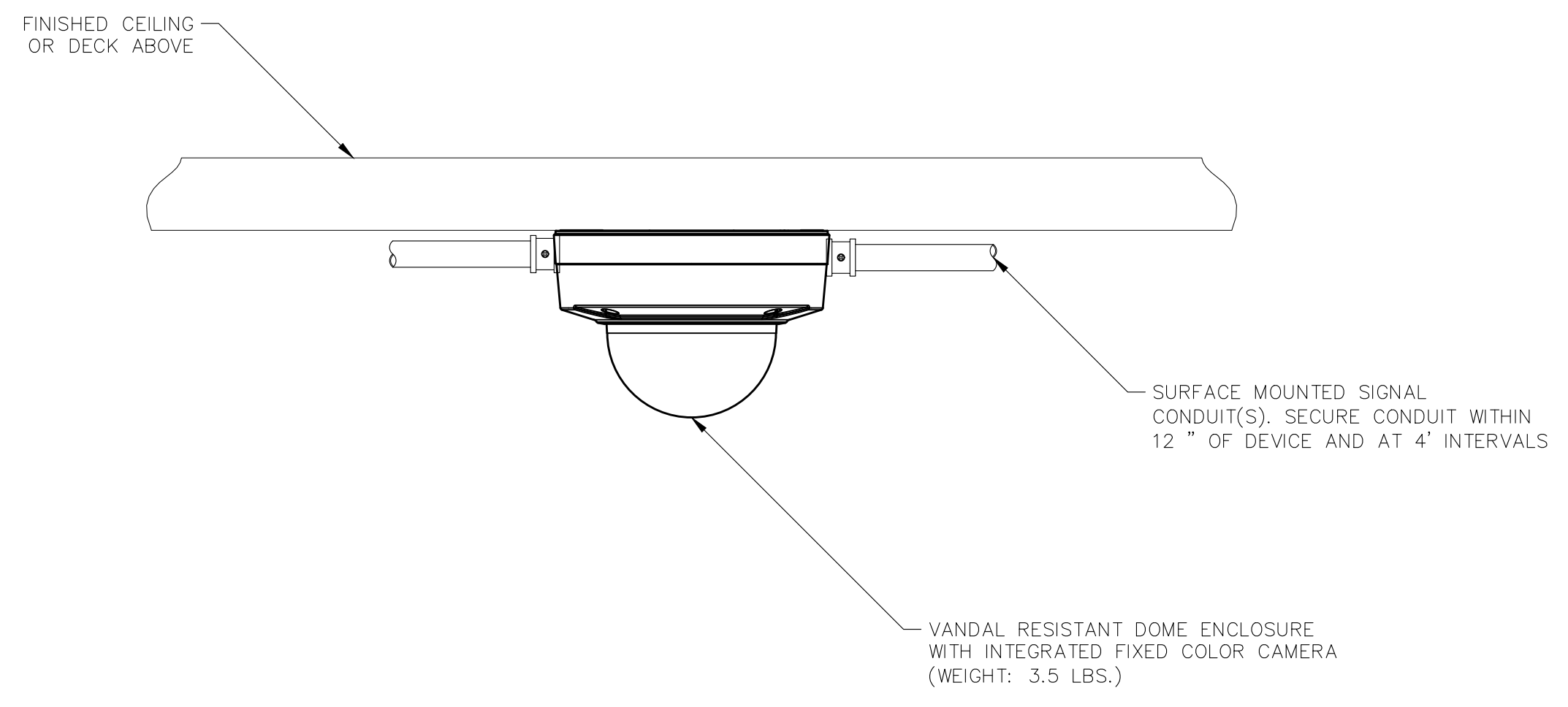
GENERAL NOTES:

- REFER TO PLANS FOR CAMERA TYPE AND LOCATIONS.
- PROVIDE PAINTING AND FINISHES, OF MATERIALS AND DEVICES, AS APPROVED BY THE OWNER.
- CONDUIT TO BE 3/4" MINIMUM, UNLESS OTHERWISE NOTED. PROVIDE RIGID CONDUIT FOR EXTERIOR AND EMT FOR INTERIOR LOCATIONS.

ANCHOR SCHEDULE PER WALL TYPE:

- DRYWALL – CONTRACTOR SHALL USE SHEET METAL SCREWS AND MAKE SURE D-RINGS SHALL BE MOUNTED TO METAL STUDS ONLY.
- MASONRY – CONTRACTOR SHALL USE THE HILTI KWIK BOLT-TZ. 3/8" ANCHOR, MIN. EMBED OF 2-5/16"
- CONCRETE – CONTRACTOR SHALL USE THE HILTI KWIK BOLT-TZ. 3/8" ANCHOR, MIN. EMBED OF 2-5/16"

PENDANT MOUNTED MULTI-IMAGER CAMERA SCALE: 3 NTS



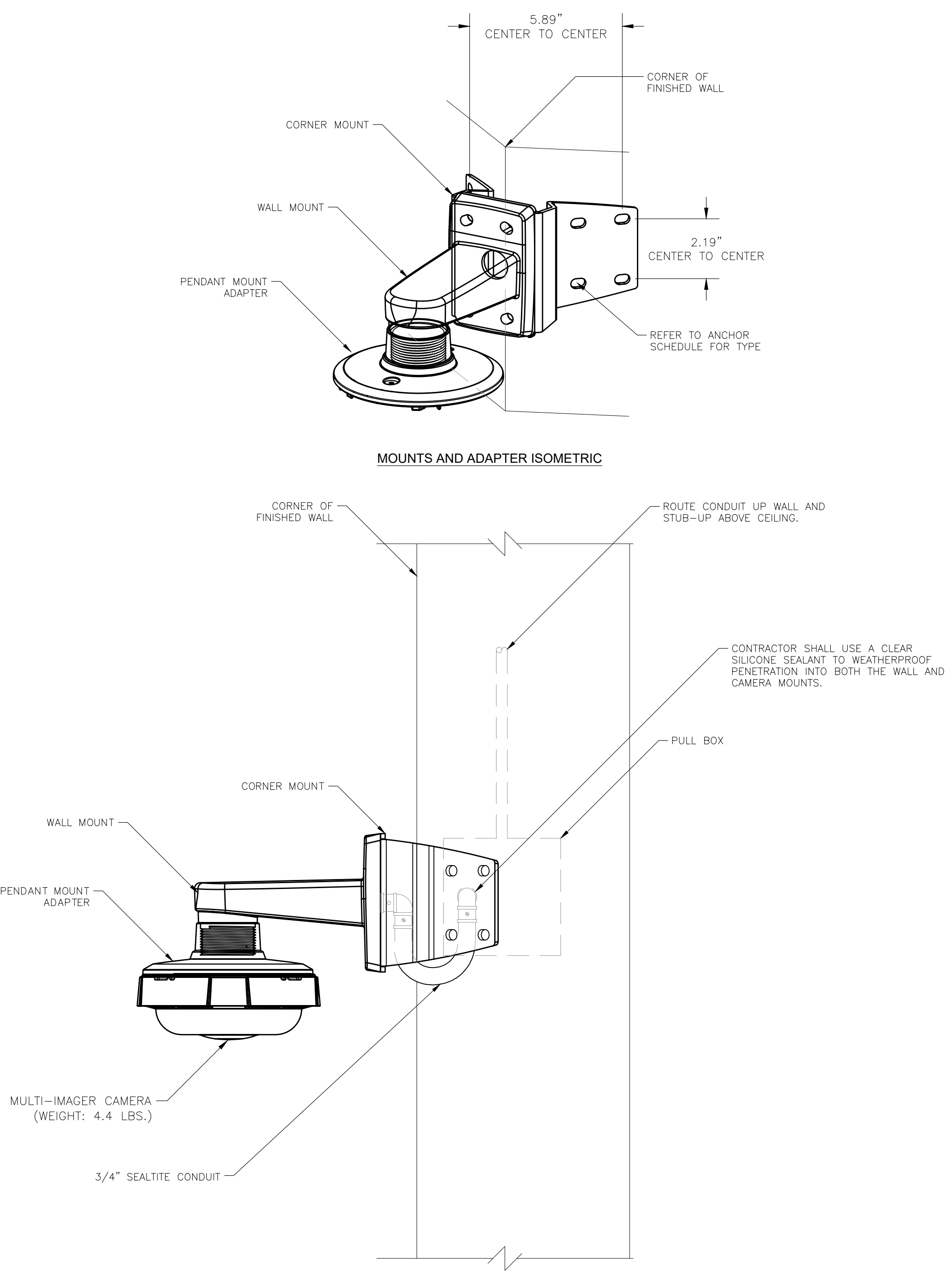
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CEILING SURFACE MOUNT MINI DOME CAMERA SCALE: 2 NTS



GENERAL NOTES:

- REFER TO PLANS FOR CAMERA TYPE AND LOCATIONS.
- PROVIDE PAINTING AND FINISHES, OF MATERIALS AND DEVICES, AS APPROVED BY THE OWNER.
- CONDUIT TO BE 3/4" MINIMUM, UNLESS OTHERWISE NOTED. PROVIDE RIGID CONDUIT FOR EXTERIOR AND EMT FOR INTERIOR LOCATIONS.

ANCHOR SCHEDULE PER WALL TYPE:

- DRYWALL – CONTRACTOR SHALL USE SHEET METAL SCREWS AND MAKE SURE D-RINGS SHALL BE MOUNTED TO METAL STUDS ONLY.
- MASONRY – CONTRACTOR SHALL USE THE HILTI KWIK BOLT-TZ. 3/8" ANCHOR, MIN. EMBED OF 2-5/16"
- CONCRETE – CONTRACTOR SHALL USE THE HILTI KWIK BOLT-TZ. 3/8" ANCHOR, MIN. EMBED OF 2-5/16"

EXTERIOR CORNER MOUNT MULTI-IMAGER CAMERA SCALE: 1 NTS

CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT – ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
CAMERA DETAILS – 3

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE, TWO WORKING DAYS BEFORE YOU DIG.

SUPPLEMENTAL NOTES:

- THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
- DUE TO INDIVIDUAL LOT IMPROVEMENTS, THE EXISTING WATER, SEWER AND/OR GAS LATERALS MAY NOT BE AT THE LOCATIONS SHOWN OR SHOWN IN THEIR ENTIRETY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN EXCAVATING.
- THE CONTRACTOR SHALL DETERMINE THE DEPTH OF THE GAS SCE, CABLE, SEWER, STORM DRAIN AND WATER AT ALL INTERSECTIONS AND INTERFERENCES PRIOR TO CONSTRUCTION AND AS NOTED ON PLANS.

ENGINEER/ARCHITECT OF RECORD STAMP

DATE SIGNED _____

2925 Mira Vista Way, Corona 92881
tel: 949-943-9422
web: www.triadsdg.com

REVIEWED BY	DATE

NO.	DESCRIPTION	BY	DATE

DESIGNED BY: David A. Skusek
DATE: 7/25/2023

PROJECT MANAGER: DAVE SKUSEK

SR. SYSTEMS DESIGNER: DANIEL LOPEZ
DATE: 7/25/2023

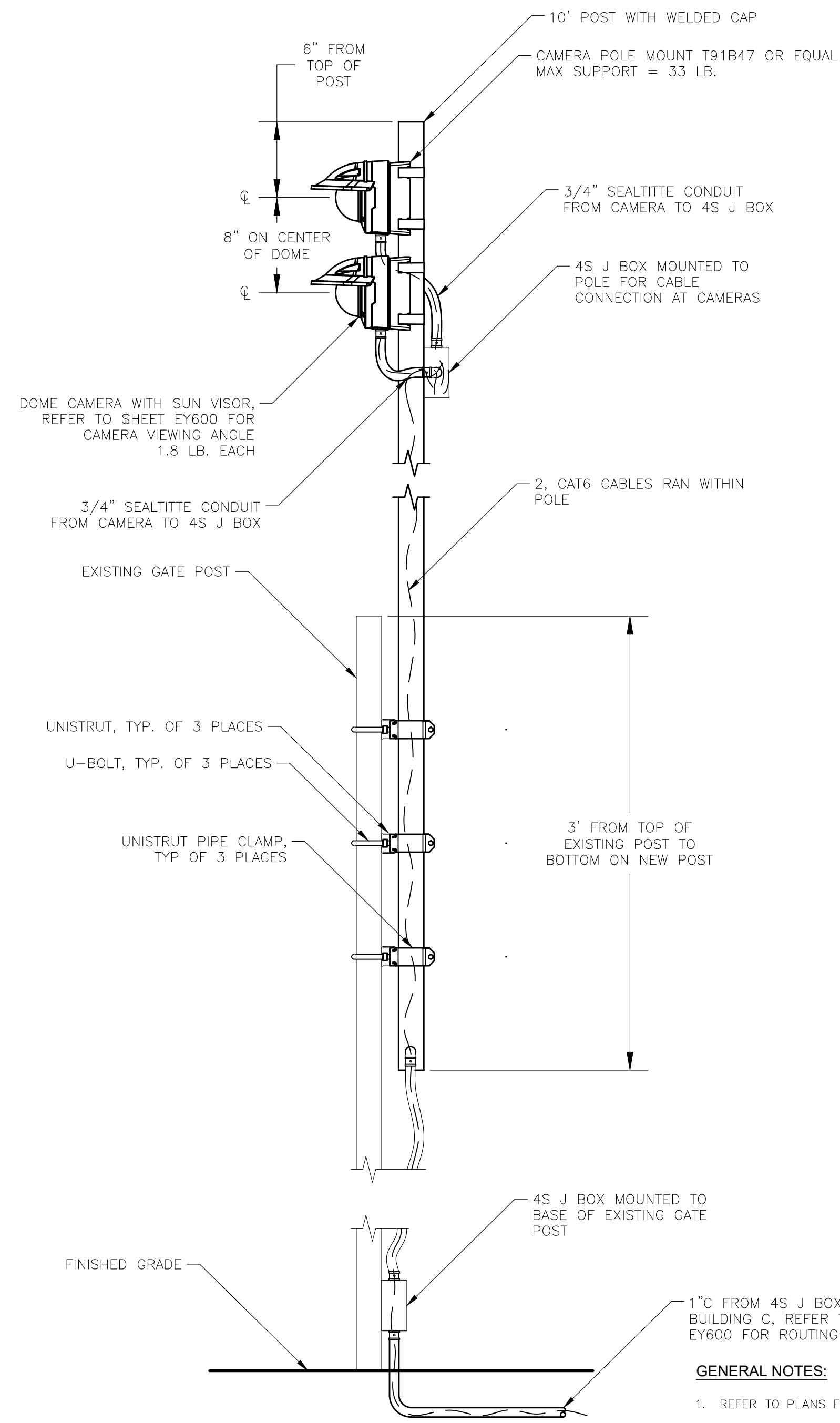
RECOMMENDED BY: Katherine Doherty
DATE: 7/26/2023

CITY ENGINEER: KATHERINE DOHERTY

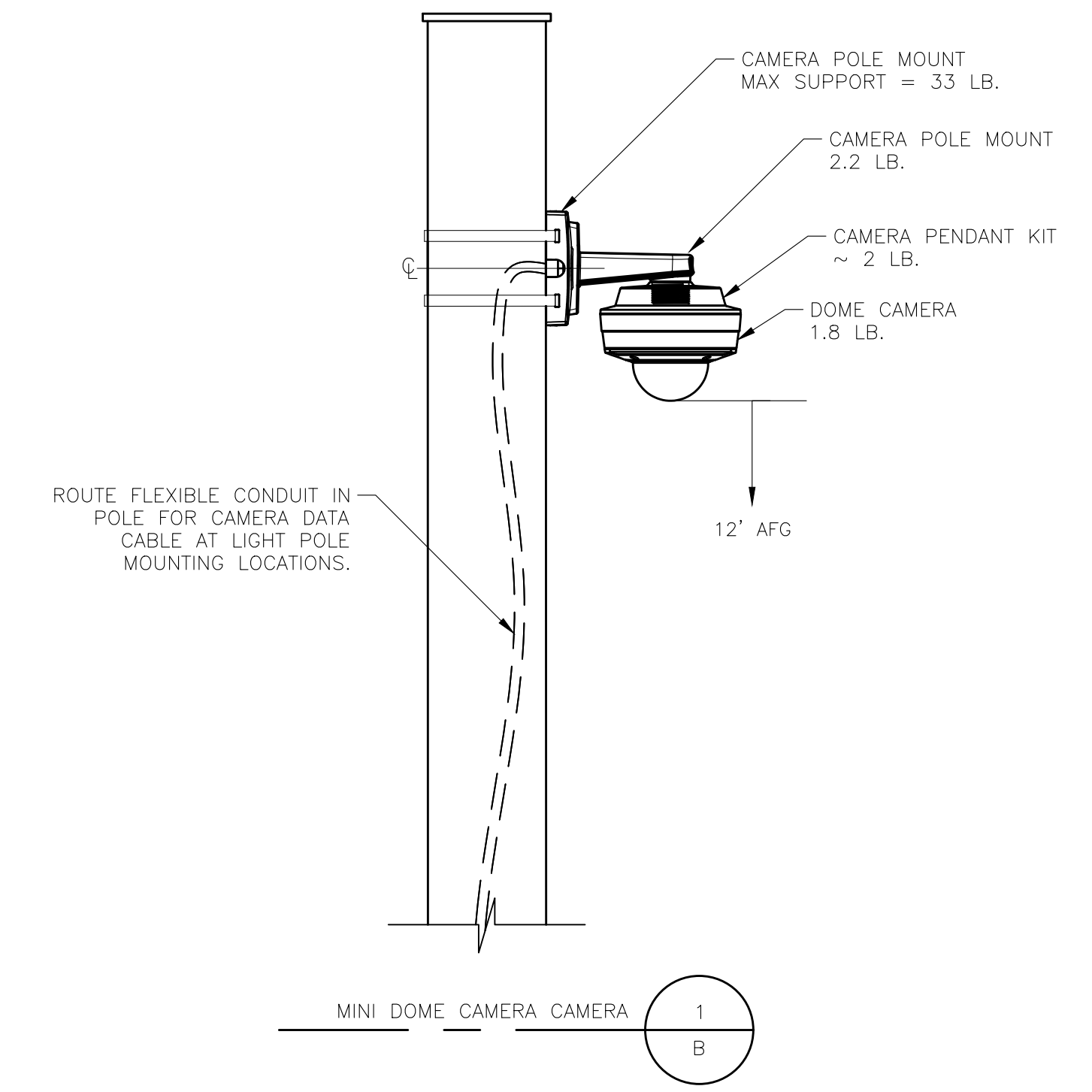
SCALE: AS NOTED
DATE: 06/09/2023

DRAWING NO.: EY512

SHEET 2 OF 25



- GENERAL NOTES:**
- REFER TO PLANS FOR CAMERA TYPE AND LOCATIONS.
 - PROVIDE PAINTING AND FINISHES, OF MATERIALS AND DEVICES, AS APPROVED BY THE OWNER TO MATCH SURROUNDING AREAS.
 - CONTRACTOR SHALL ATTACH NEW CAMERA POLE TO EXISTING GATE POST AT A MINIMUM OF 3 LOCATIONS AS SHOWN. CONTRACTOR SHALL FIELD VERIFY SIZING OF U-BOLTS, UNISTRUT, AND PIPE CLAMPS TO FIT EXISTING GATE POST AND NEW CAMERA POLE.



- GENERAL NOTES:**
- REFER TO PLANS FOR CAMERA TYPE AND LOCATIONS.
 - PROVIDE PAINTING AND FINISHES, OF MATERIALS AND DEVICES, AS APPROVED BY THE OWNER TO MATCH SURROUNDING AREAS.
 - PROVIDE FLEX CONDUIT WITHIN EXISTING POLE TO SEPARATE CLASS 1 AND CLASS 2 CIRCUITS.

NOT USED SCALE: 3

POLE MOUNTED CAMERAS AT EXISTING GATE POST SCALE: 2

POLE MOUNT CAMERA DETAIL FOR DOME AND MULTI-IMAGER SCALE: 1

CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
CAMERA DETAILS - 4

REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	ALL PHASES, 60% SUBMITTAL	TRAD	10/12/22
2	ALL PHASES, 90% SUBMITTAL	TRAD	03/31/23
3	ALL PHASES, 100% FINAL SUBMITTAL	TRAD	6/9/23

REFERENCES	

REVIEWED BY	DATE

DESIGNED BY: *D.A. Lopez*
SR. SYSTEMS DESIGNER
DATE: 7/25/2023

RECOMMENDED BY: *Katherine Doherty*
CITY ENGINEER
KATHERINE DOHERTY
DATE: 7/26/2023

SCALE: AS NOTED
DATE: 06/09/2023
DRAWING NO.: EY513
SHEET 2 OF 25

811
Know what's below.
Call before you dig.

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE, TWO WORKING DAYS BEFORE YOU DIG.

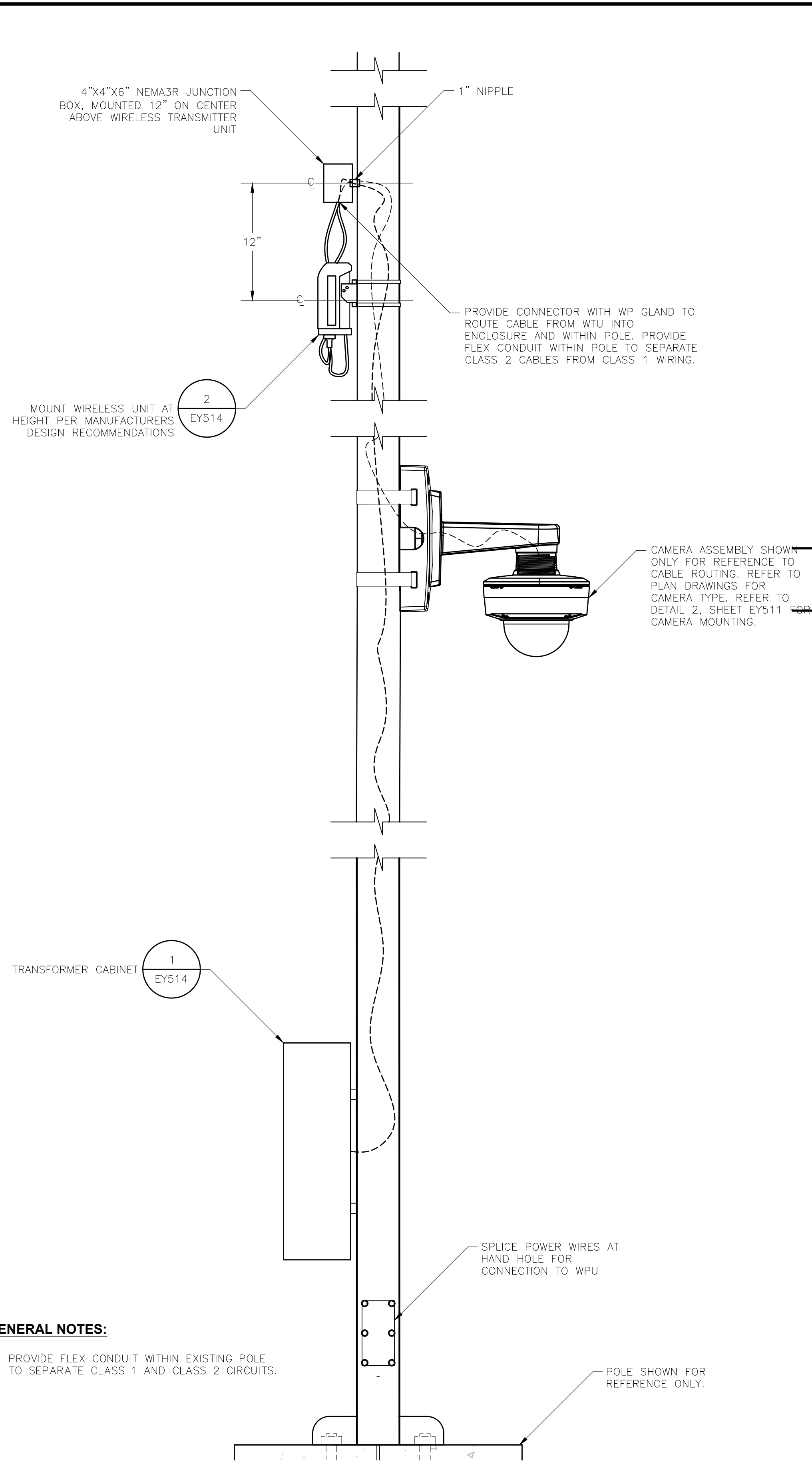
SUPPLEMENTAL NOTES:

- THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
- DUE TO INDIVIDUAL LOT IMPROVEMENTS, THE EXISTING WATER, SEWER AND/OR GAS LATERALS MAY NOT BE AT THE LOCATIONS SHOWN OR SHOWN IN THEIR ENTIRETY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN EXCAVATING.
- THE CONTRACTOR SHALL DETERMINE THE DEPTH OF THE GAS SCE, CABLE, SEWER, STORM DRAIN AND WATER AT ALL INTERSECTIONS AND INTERFERENCES PRIOR TO CONSTRUCTION AND AS NOTED ON PLANS.

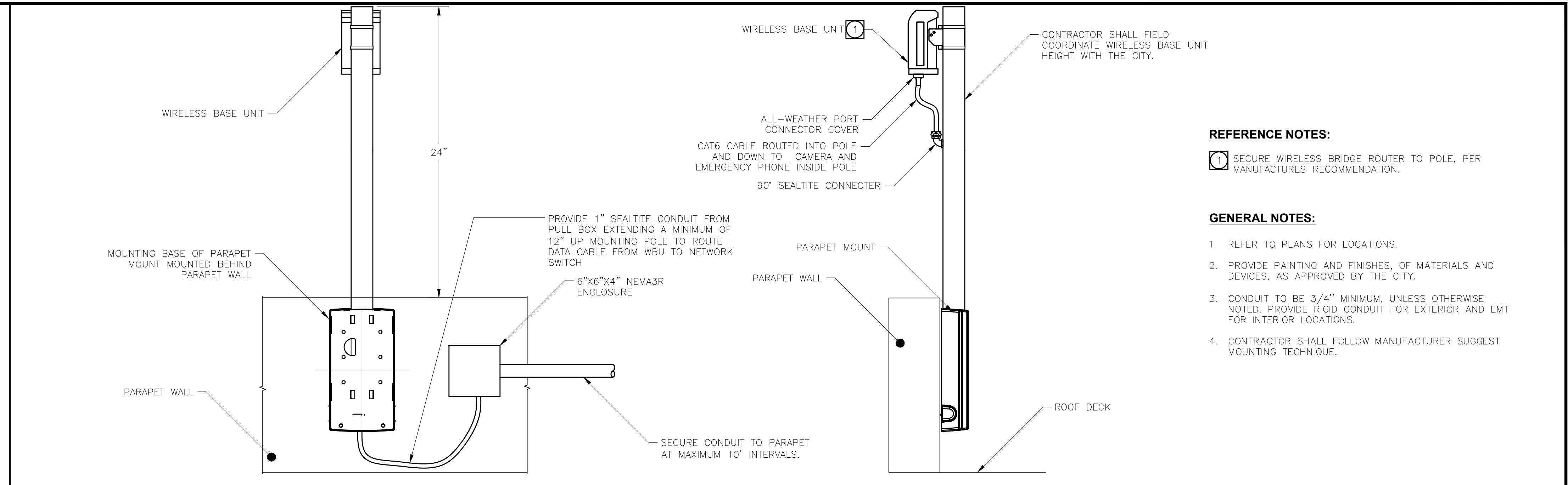
ENGINEER/ARCHITECT OF RECORD STAMP

DATE SIGNED: _____

TRIAD CONSULTING
SYSTEM DESIGN GROUP
2925 Mira Vista Way, Corona 92881
tel: 949-943-9422
web: www.triadsdg.com



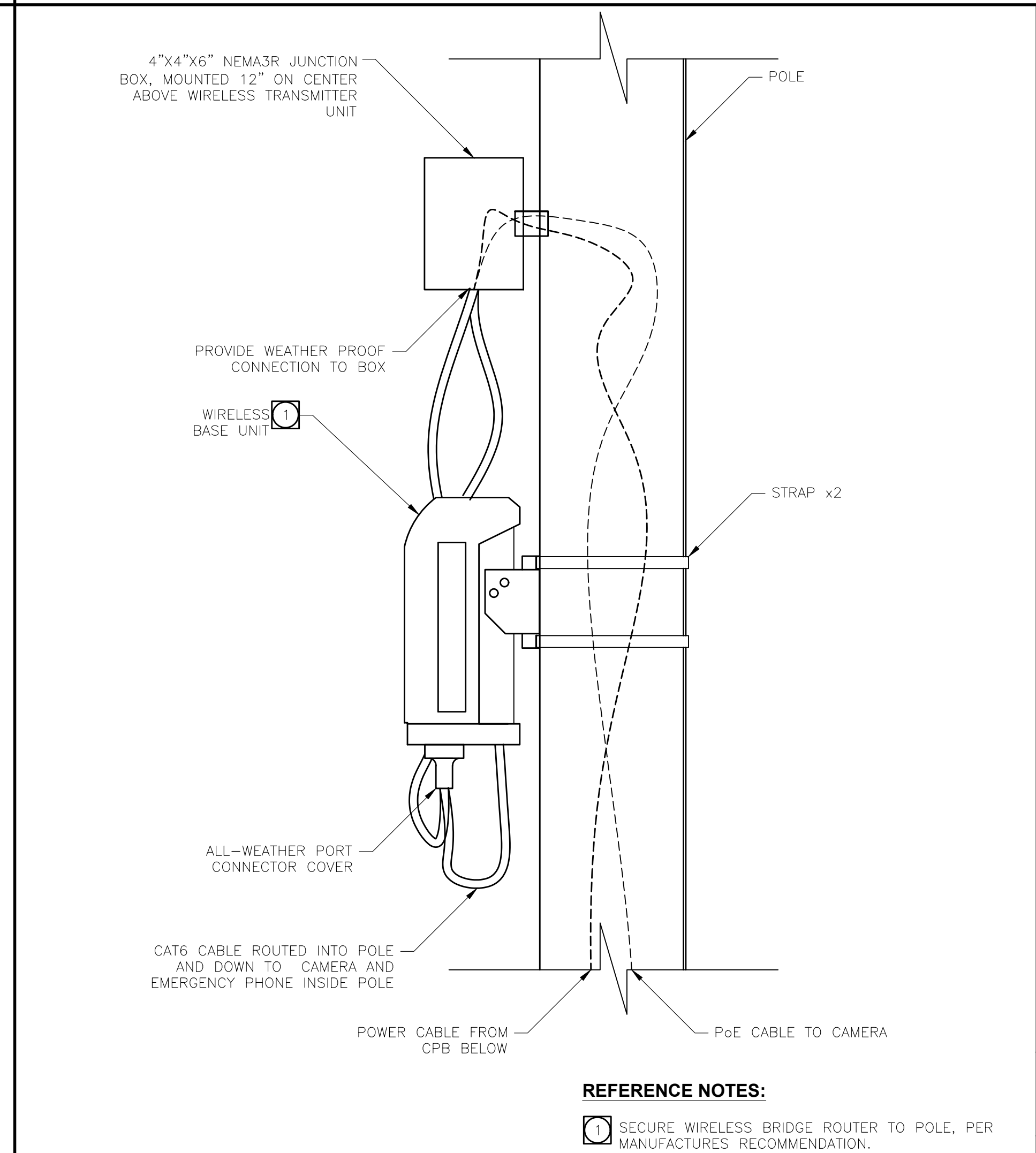
GENERAL NOTES:
 1. PROVIDE FLEX CONDUIT WITHIN EXISTING POLE TO SEPARATE CLASS 1 AND CLASS 2 CIRCUITS.



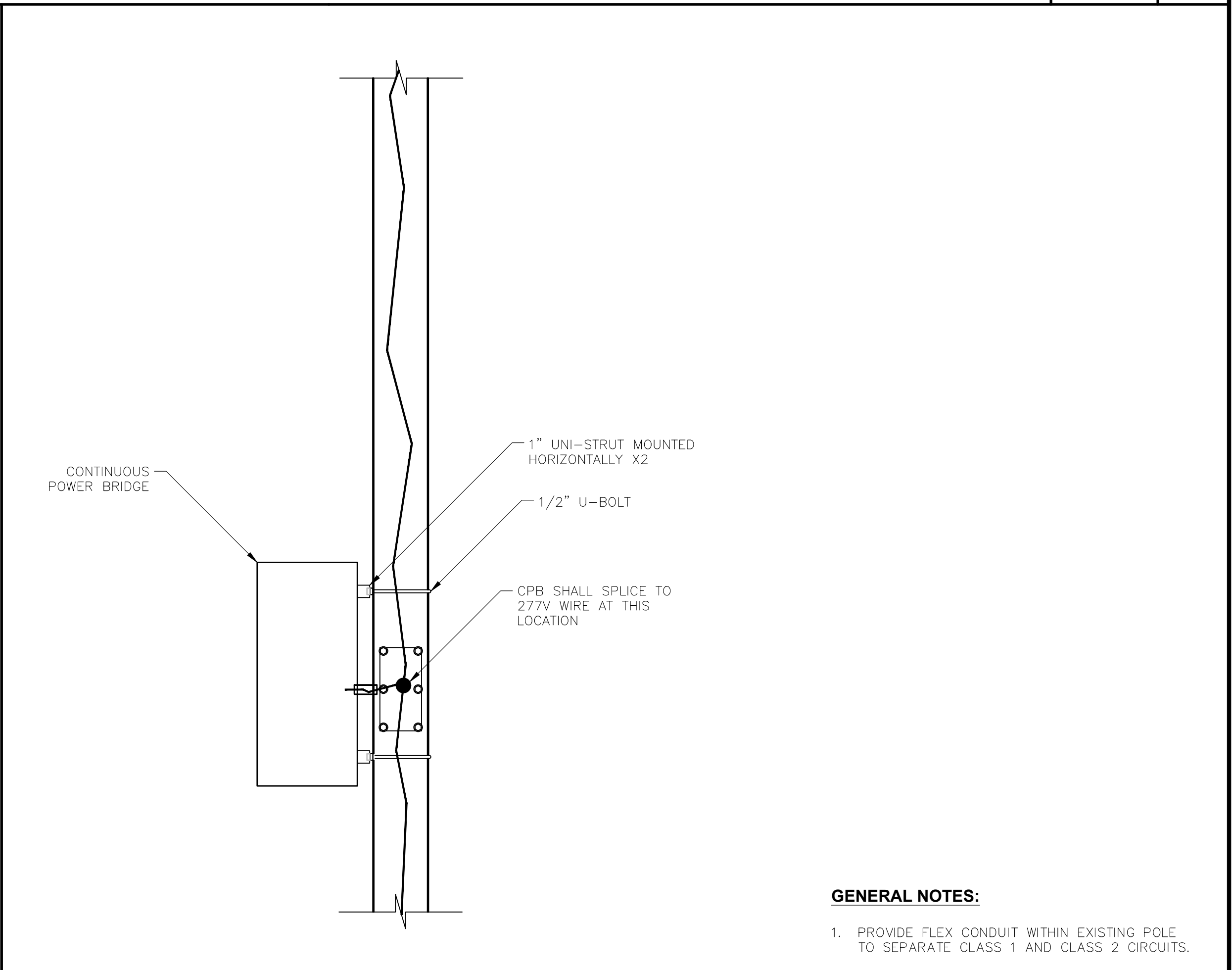
REFERENCE NOTES:
 1. SECURE WIRELESS BRIDGE ROUTER TO POLE, PER MANUFACTURER'S RECOMMENDATION.

GENERAL NOTES:
 1. REFER TO PLANS FOR LOCATIONS.
 2. PROVIDE PAINTING AND FINISHES, OF MATERIALS AND DEVICES, AS APPROVED BY THE CITY.
 3. CONDUIT TO BE 3/4\"/>

PARAPET MOUNTING DETAIL FOR WIRELESS BASE UNIT LOCATED ON BUILDING SCALE: NTS **3**



REFERENCE NOTES:
 1. SECURE WIRELESS BRIDGE ROUTER TO POLE, PER MANUFACTURER'S RECOMMENDATION.



GENERAL NOTES:
 1. PROVIDE FLEX CONDUIT WITHIN EXISTING POLE TO SEPARATE CLASS 1 AND CLASS 2 CIRCUITS.

POLE MOUNTED CABINET FOR TRANSFORMER SCALE: NTS **1**

EXISTING LIGHTING POLE EQUIPMENT MOUNTING DETAIL SCALE: NTS **4**

POLE MOUNTING DETAIL FOR WIRELESS TRANSMITTER UNIT SCALE: NTS **2**

CITY OF MANHATTAN BEACH
 PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
 WIRELESS DETAILS

811
 Know what's below.
 Call before you dig.

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE, TWO WORKING DAYS BEFORE YOU DIG.

SUPPLEMENTAL NOTES:
 1. THE CONTRACTOR SHALL LOCATE, VERIFY AND PROTECT ALL EXISTING UNDERGROUND UTILITIES. DAMAGED UTILITIES SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
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 3. THE CONTRACTOR SHALL DETERMINE THE DEPTH OF THE GAS, SEE, CABLE, SEWER, STORM DRAIN AND WATER AT ALL INTERSECTIONS AND INTERFERENCES PRIOR TO CONSTRUCTION AND AS NOTED ON PLANS.

ENGINEER/ARCHITECT OF RECORD STAMP

TRIAD CONSULTING
 SYSTEM DESIGN GROUP
 2925 Mira Vista Way, Corona 92881
 tel: 949-943-9422
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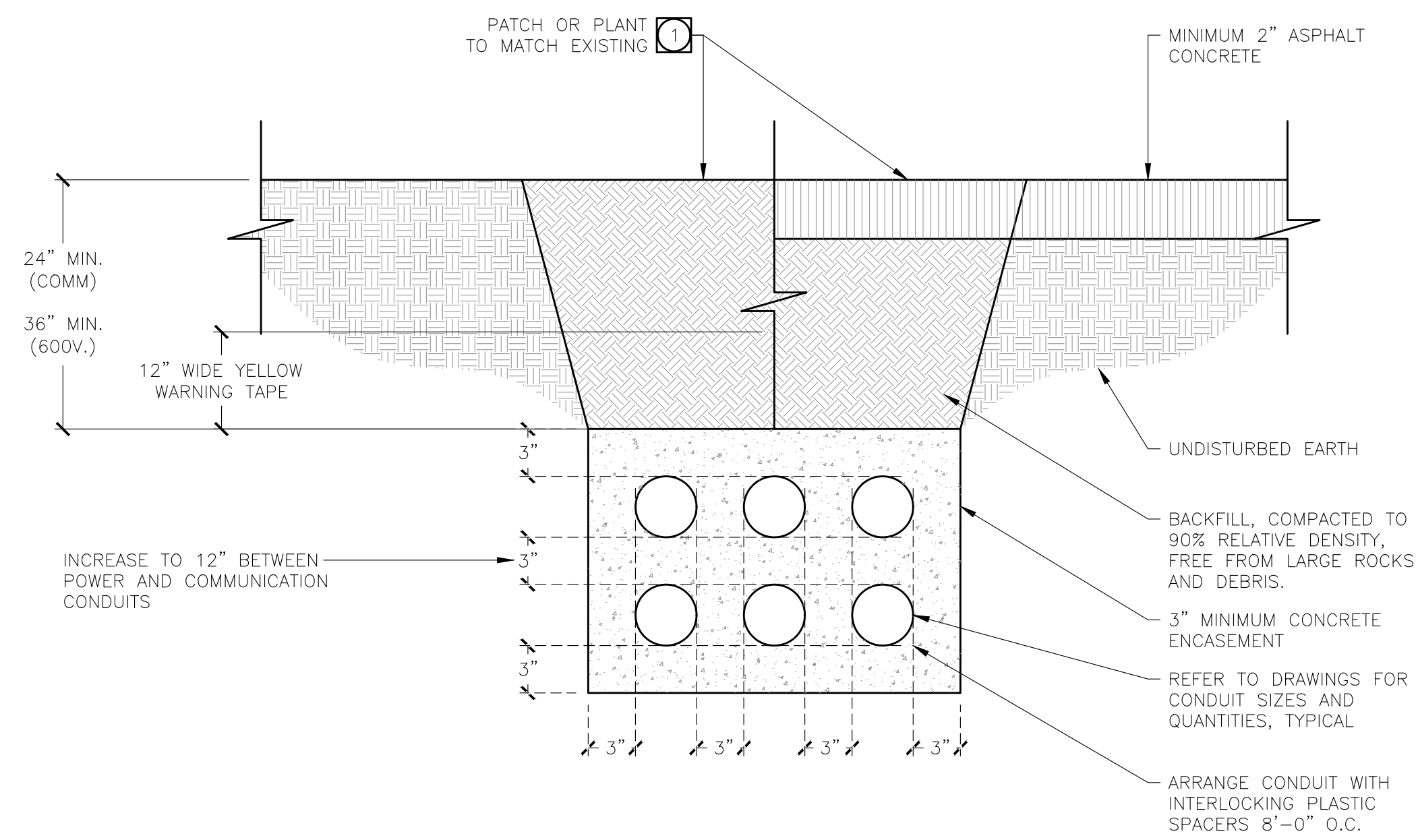
REVIEWED BY	DATE

REVISIONS			
NO.	DESCRIPTION	BY	DATE
ALL PHASES, 60% SUBMITTAL	TRAD	10/12/22	
ALL PHASES, 90% SUBMITTAL	TRAD	03/31/23	
ALL PHASES, 100% FINAL SUBMITTAL	TRAD	6/9/23	

DESIGNED BY: *D.A. Lopez*
 SR. SYSTEMS DESIGNER
 DATE: 7/25/2023

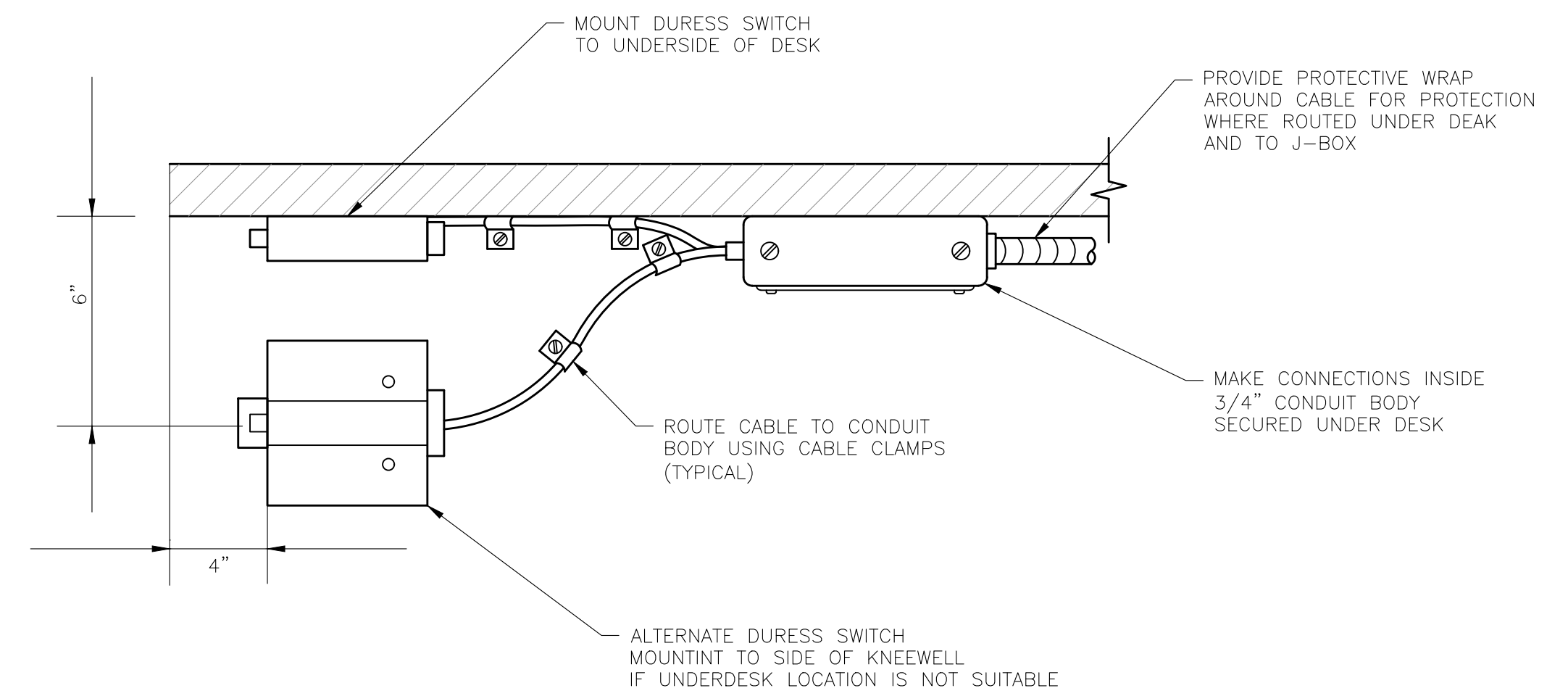
RECOMMENDED BY: *Katherine Doherty*
 CITY ENGINEER
 KATHERINE DOHERTY
 DATE: 7/26/2023

SCALE: AS NOTED
 DATE: 06/09/2023
 SHEET 3 OF 25
 DRAWING NO. **EY514**



REFERENCE NOTES:

- CONTRACTOR SHALL REFER TO CITY OF MANHATTAN BEACH STD MBSI-132A-0 (ST-10) FOR THE PAVEMENT RESTORATION REQUIREMENTS.



CITY OF MB CONDUIT DUCT BANK DETAIL

SCALE: **2**
NTS

UNDER DESK DURESS SWITCH INSTALLATION DETAIL

SCALE: **1**
NTS

CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
MISCELLANEOUS DETAILS

REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	ALL PHASES, 60% SUBMITTAL	TRAD	10/12/22
2	ALL PHASES, 90% SUBMITTAL	TRAD	03/31/23
3	ALL PHASES, 100% FINAL SUBMITTAL	TRAD	6/9/23

REFERENCES	

REVIEWED BY	DATE

DESIGNED BY
D.A. Lopez
SR. SYSTEMS DESIGNER
DATE: 7/25/2023

RECOMMENDED BY
Katherine Doherty
CITY ENGINEER
KATHERINE DOHERTY
DATE: 7/26/2023

SCALE: AS NOTED
DATE: 06/09/2023
DRAWING NO.: EY520
SHEET 2 OF 25

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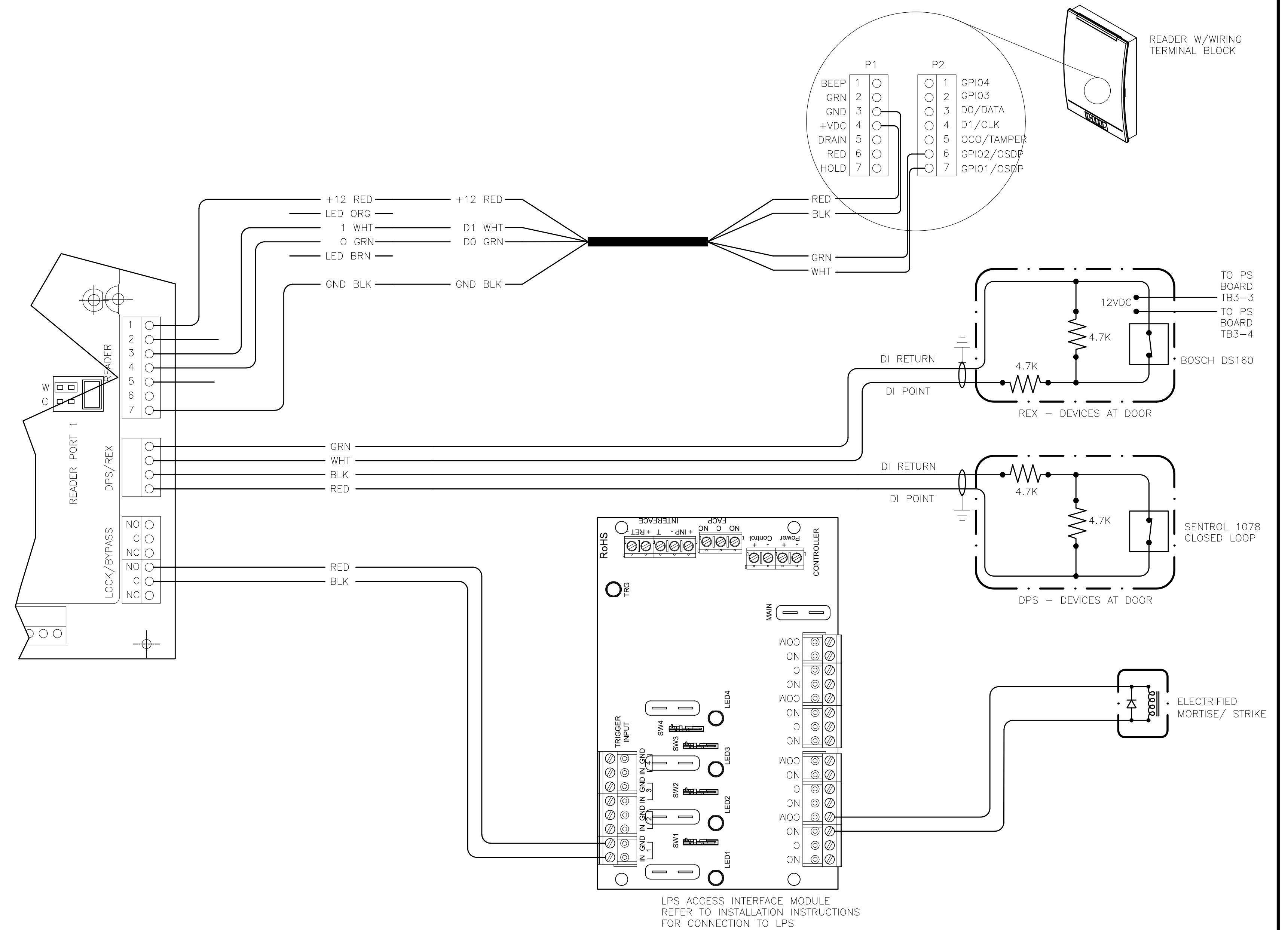
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ENGINEER/ARCHITECT OF RECORD STAMP

DATE SIGNED _____

2925 Mira Vista Way, Corona 92881
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web: www.triadsdg.com



NOT USED

SCALE:

2

TYPICAL WIRING TO ACCESS CONTROL PORT WITH READER/KEYPAD, DPS, REX, AND ELECTRIFIED MORTISE/STRIKE

SCALE:

1

CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
WIRING DIAGRAMS

NO.	DESCRIPTION	BY	DATE
ALL PHASES, 655	TRAD	10/12/22	
ALL PHASES, 908	TRAD	03/31/23	
ALL PHASES, 1008	TRAD	6/9/23	

DESIGNED BY	DATE
D.A. Lopez	7/25/2023

PROJECT MANAGER	DATE
DAVE SKUSEK	7/25/2023

RECOMMENDED BY	DATE
Katherine Doherty	7/26/2023

SR. SYSTEMS DESIGNER	DATE
DANIEL LOPEZ	7/25/2023

SCALE	DATE	DRAWING NO.
AS NOTED	06/09/2023	EY530

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE, TWO WORKING DAYS BEFORE YOU DIG.

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ENGINEER/ARCHITECT OF RECORD STAMP

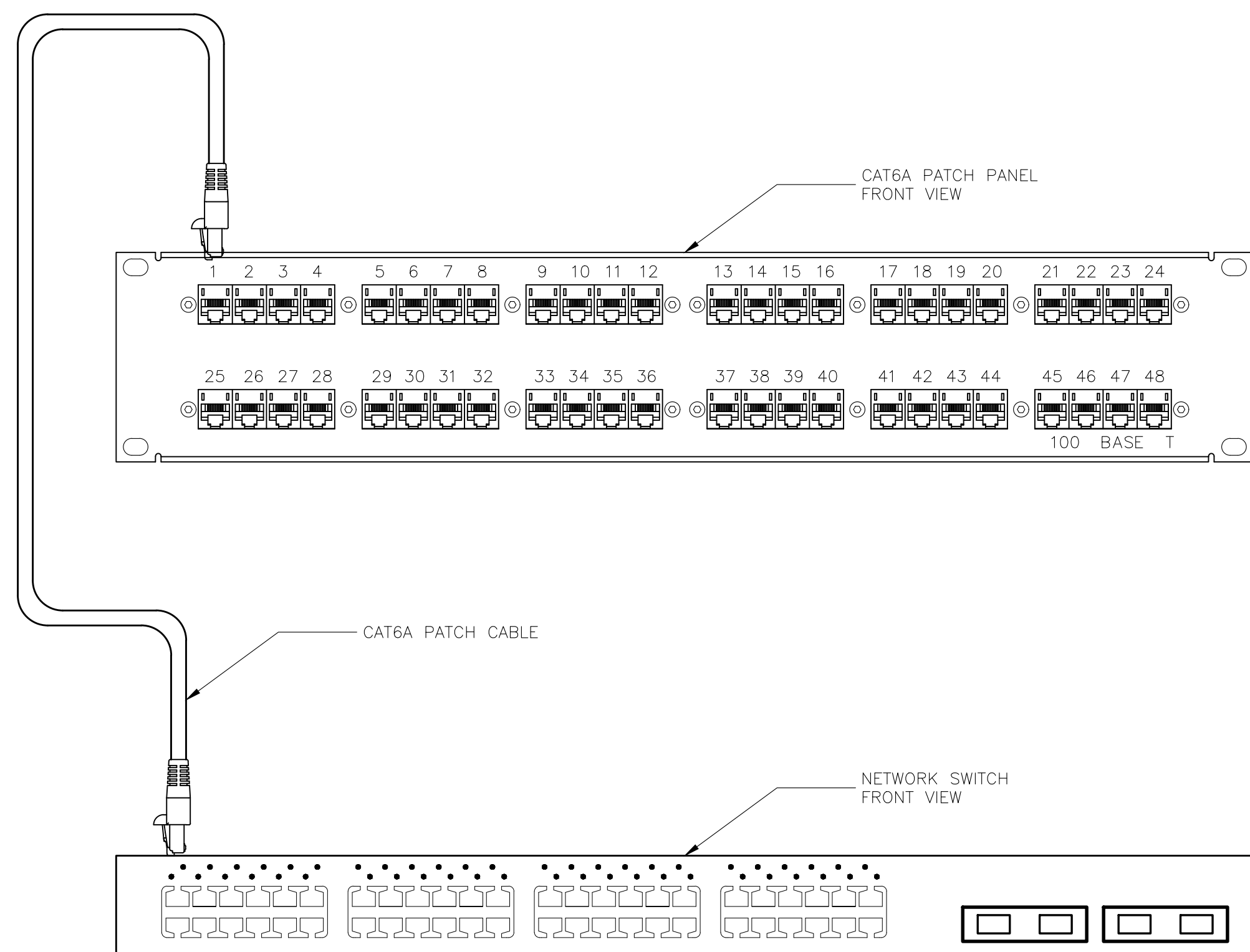
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tel: 949-943-9422
web: www.triadsdg.com

REVIEWED BY	DATE

REFERENCES

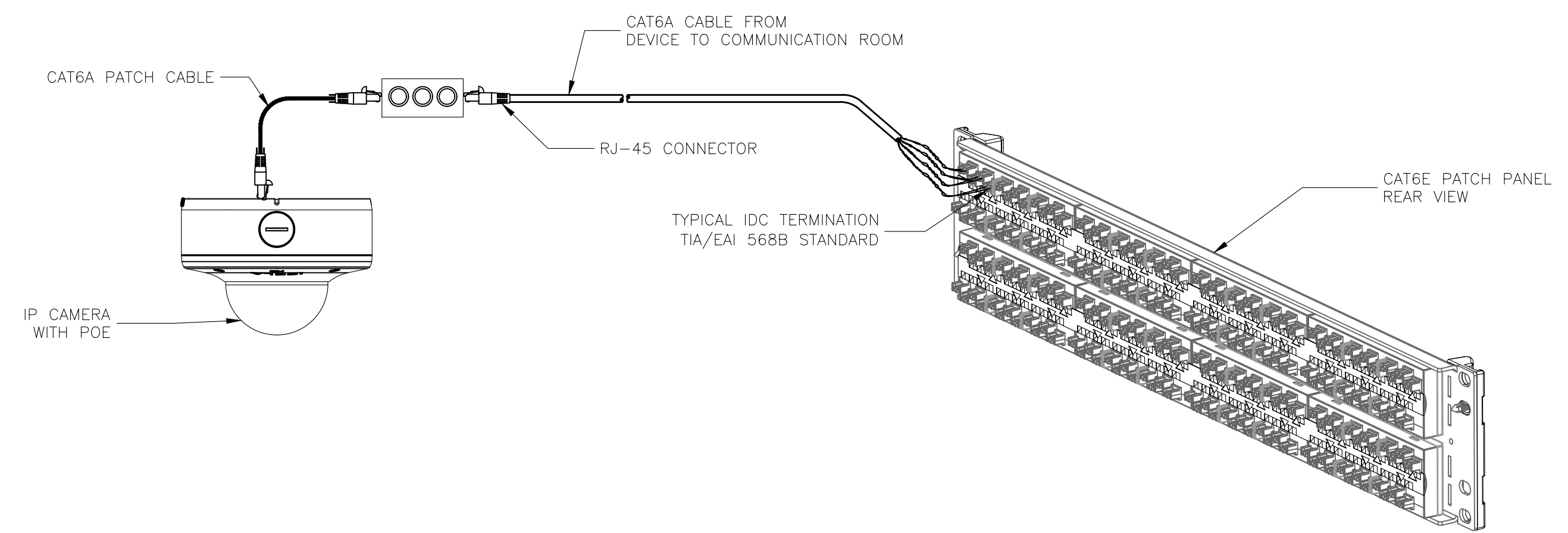
REVISIONS

SHEET	OF
2	25



GENERAL NOTES:

1. CABLING IS NOT INSTALLED IN METAL CONDUIT AND SHALL BE PLENUM RATED.



GENERAL NOTES:

1. COORDINATE PATCH PANEL TERMINATIONS WITH THE OWNER.
2. CABLING THAT IS NOT INSTALLED IN METAL CONDUIT SHALL BE PLENUM RATED.

TYPICAL PATCH CONNECTION FROM PATCH PANEL TO NETWORK SWITCH REFER TO SCHEDULES FOR SPECIFIC PATCH REQUIREMENTS

SCALE: 2

TYPICAL VSS DEVICE CONNECTION DETAIL IP CAMERA WITH POE (POWER OVER ETHERNET)

SCALE: 1 NTS

CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT – ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
TYP. VSS COMPONENT INTERCONNECT DIAGRAMS

REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	ALL PHASES, 60% SUBMITTAL	TR/AD	10/12/22
2	ALL PHASES, 90% SUBMITTAL	TR/AD	03/31/23
3	ALL PHASES, 100% FINAL SUBMITTAL	TR/AD	6/9/23

REFERENCES	

REVIEWED BY	DATE

DESIGNED BY
D.A. Lopez
SR. SYSTEMS DESIGNER
DATE: 7/25/2023

RECOMMENDED BY
Katherine Doherty
CITY ENGINEER
KATHERINE DOHERTY
DATE: 7/26/2023

SCALE: AS NOTED
DATE: 06/09/2023
DRAWING NO.: EY531
SHEET 2 OF 25

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE, TWO WORKING DAYS BEFORE YOU DIG.

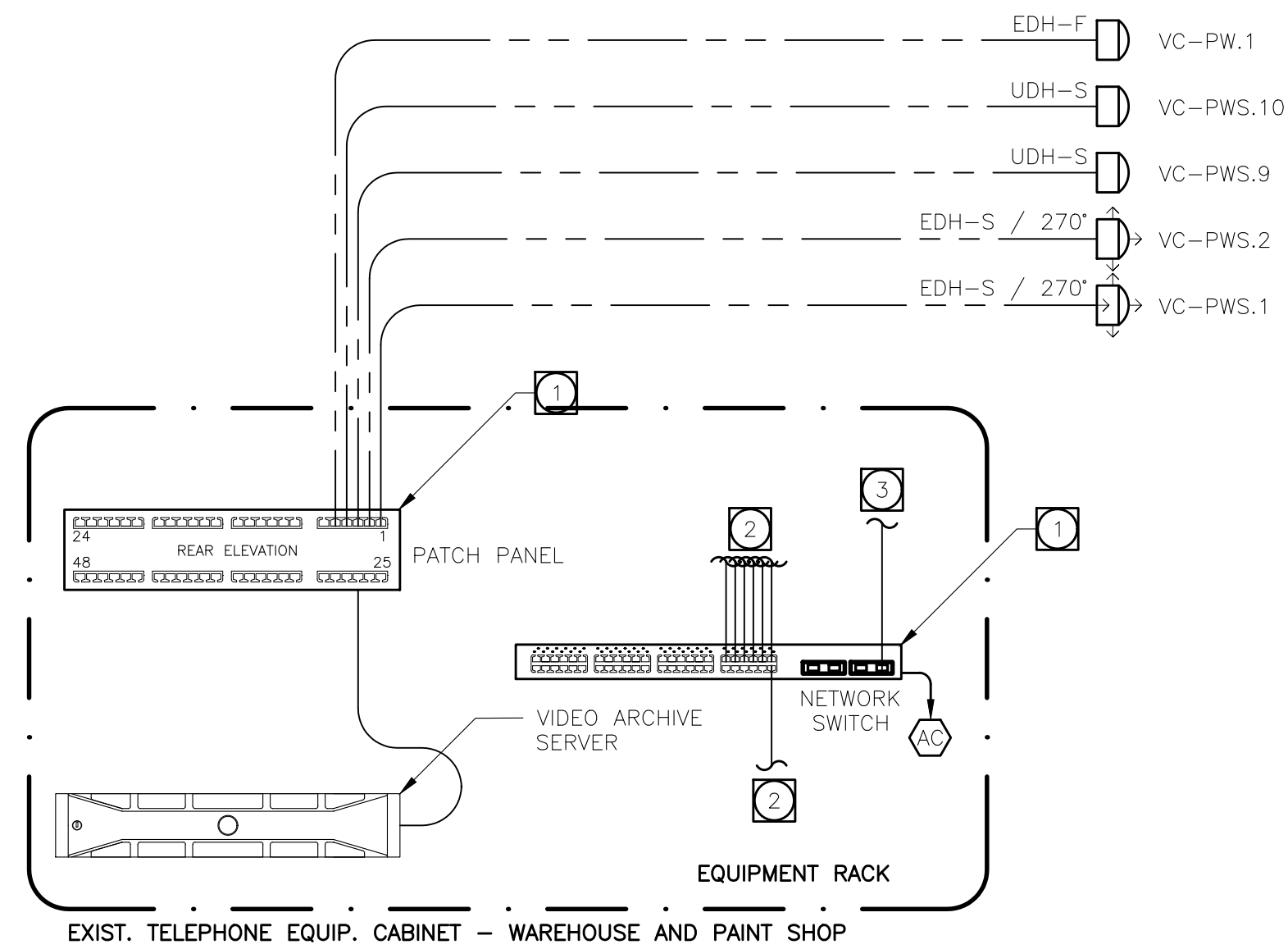
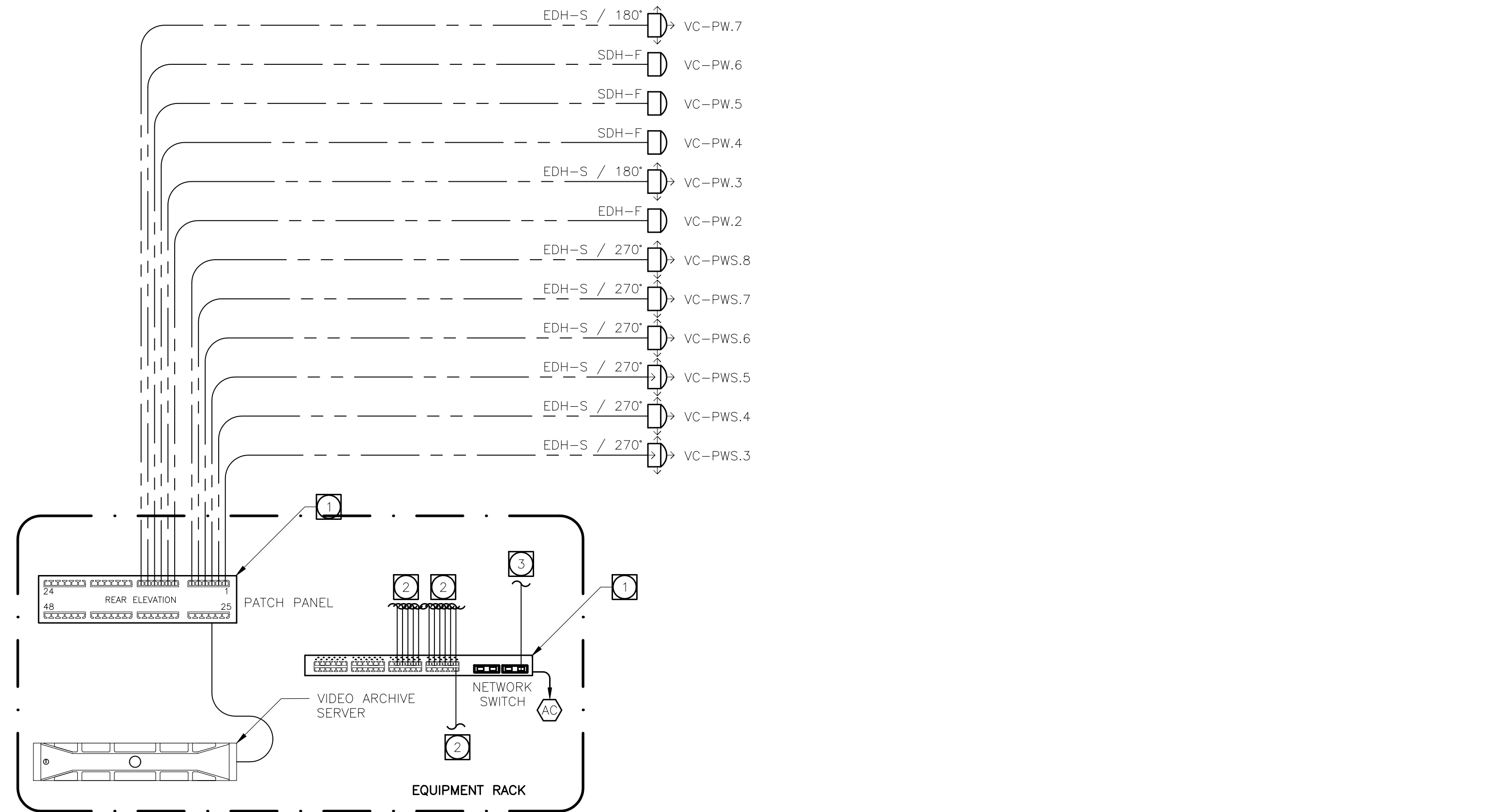
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ENGINEER/ARCHITECT OF RECORD STAMP

DATE SIGNED: _____

2925 Mira Vista Way, Corona 92881
tel: 949-943-9422
web: www.triadsdg.com



REFERENCE NOTES:

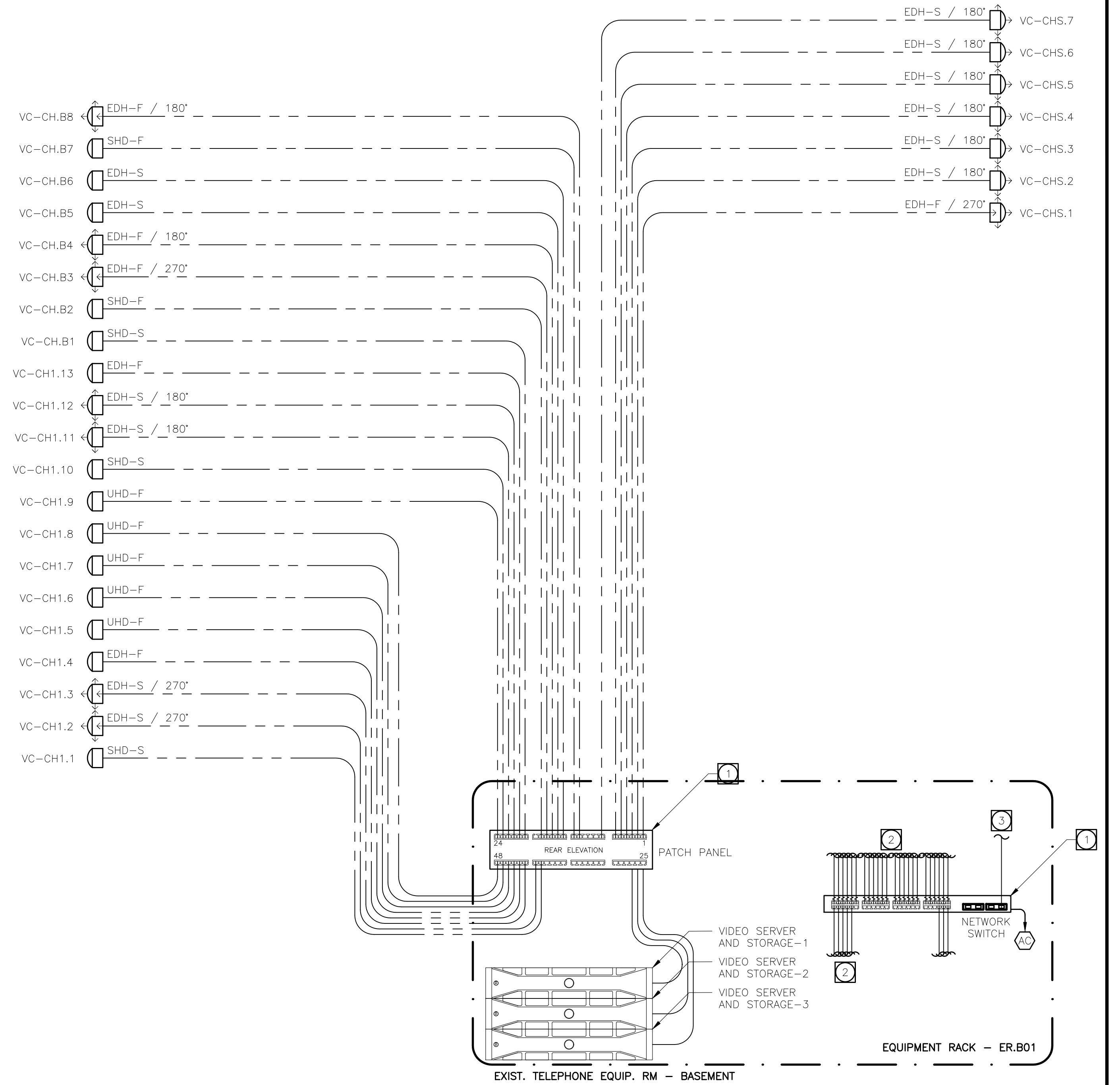
- 1 NETWORK SWITCH AND PATCH PROVIDED BY CLIENT. COORDINATE CONNECTION OF SECURITY DEVICES AND IP ADDRESSES.
- 2 CAT6 PATCH WILL BE INSTALLED BETWEEN PATCH PANEL AND NETWORK SWITCH. CONNECTIONS LINES LEFT OUT FOR CLARITY. INSTALL ONE PATCH CABLE BETWEEN FOR EACH DEVICE TERMINATION.
- 3 EXISTING CITY OF MB NETWORK BACKBONE CONNECTION.

LEGEND:

- - - FIBER OPTIC CABLE
- CAT6 NETWORK CABLE
- RS-232 DATA CABLE

PHASE 1, PUBLIC WORKS VSS SINGLE LINE DIAGRAM

SCALE: 2



REFERENCE NOTES:

- 1 NETWORK SWITCH AND PATCH PROVIDED BY CLIENT. COORDINATE CONNECTION OF SECURITY DEVICES AND IP ADDRESSES.
- 2 CAT6 PATCH WILL BE INSTALLED BETWEEN PATCH PANEL AND NETWORK SWITCH. CONNECTIONS LINES LEFT OUT FOR CLARITY. INSTALL ONE PATCH CABLE BETWEEN FOR EACH DEVICE TERMINATION.
- 3 EXISTING CITY OF MB NETWORK BACKBONE CONNECTION.

LEGEND:

- - - FIBER OPTIC CABLE
- CAT6 NETWORK CABLE
- RS-232 DATA CABLE

PHASE 1, CITY HALL VSS SINGLE LINE DIAGRAM

SCALE: 1

CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION

CITY FACILITIES CAMERA PROJECT
SINGLE LINE DIAGRAM - 1

NO.	DESCRIPTION	BY	DATE
1	PHASE 1, 30% SUBMITTAL	TRAD	03/31/23
2	PHASE 1, 100% FINAL SUBMITTAL	TRAD	6/9/23

DESIGNED BY	DATE
D.A. Lopez	7/25/2023

REVIEWED BY	DATE
David A Skusek	7/25/2023

RECOMMENDED BY	DATE
Katherine Doherty	7/26/2023

NO WORK SHALL BE DONE ON THIS SITE UNTIL USA AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE, TWO WORKING DAYS BEFORE YOU DIG.

SUPPLEMENTAL NOTES:

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ENGINEER/ARCHITECT OF RECORD STAMP

2925 Mira Vista Way, Corona 92881
tel: 949-943-9422
web: www.triadsdg.com

REVIEWED BY	DATE

REFERENCES

SCALE	DATE
AS NOTED	06/09/2023

DRAWING NO.
EY600

CITY OF MANHATTAN BEACH

BID DOCUMENTS

PROJECT NO. D-944
BID NO. E1279-23C

City Facility Security Cameras
Public Works Yard and City Hall
Fire Department and Police Department

JULY 2023



CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT
EDUARDO PECH
1400 HIGHLAND AVENUE
MANHATTAN BEACH, CA 90266

Katherine Doherty, City Engineer C76589

TRIAD SIGNATURE – Dave Skusek

NOTICE INVITING BIDS	NIB-1
INSTRUCTIONS TO BIDDERS	I-1
CHECKLIST FOR BIDDERS	I-6
BID	B-1
CONTRACT	C-1
PAYMENT BOND (LABOR AND MATERIALS).....	C-5
PERFORMANCE BOND	C-7
WARRANTY BOND	C-9
PART 1 – GENERAL PROVISIONS	1-1
SECTION 0. GENERAL PROVISIONS DEFINED	1-1
SECTION 1. GENERAL, TERMS, DEFINITIONS, ABBREVIATIONS, UNITS OF MEASURE, AND SYMBOLS	1-1
SECTION 2. SCOPE OF THE WORK	1-4
SECTION 3. CONTROL OF THE WORK	1-22
SECTION 4. CONTROL OF MATERIALS	1-28
SECTION 5. LEGAL RELATIONS AND RESPONSIBILITIES	1-29
SECTION 6. PROSECUTION AND PROGRESS OF THE WORK	1-37
SECTION 7. MEASUREMENT AND PAYMENT	1-41
SECTION 8. FACILITIES FOR AGENCY PERSONNEL	1-52
SECTION 9. CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLAN....	1-52
SECTION 10. ADDITIONAL TERMS	1-58
PART I – SPECIAL INSTRUCTIONS.....	I-1
PART II – STANDARD AND SPECIAL TECHNICAL PROVISIONS.....	II-1
STANDARD PART 6 - TEMPORARY TRAFFIC CONTROL.....	6-1
SPECIAL TECHNICAL PROVISIONS.....	10-1
APPENDIX I PROGRESS PAYMENT REQUEST FORM	APPENDIX I-1
APPENDIX II DAILY REPORT.....	APPENDIX II-1
APPENDIX III APPLICABLE CITY STANDARD PLANS	APPENDIX II-1

APPENDIX IV FACILITY ACCESSMENT ENVIRONMENTAL REPORT APPENDIX IV-1
APPENDIX V CONSTRUCTION PLANS APPENDIX V-1

**NOTICE INVITING BIDS
FOR**

**City Facility Security Camera Project
Public Works Yard and City Hall
Fire Department and Police Department**

Project number: D-944 Bid Number: E1279-23C

NOTICE IS HEREBY GIVEN that the City of Manhattan Beach, California (“City”) invites sealed Bids for the Project. The City will receive **ELECTRONIC BIDS ONLY** up to 11:00 a.m. on Monday, August 21, 2023, at which time the **ELECTRONIC** bids will be opened and posted on PlanetBids. The deadline to submit questions related to the bid documents is Monday, August 14, 2023 at 9:00 a.m.

Bids shall be received electronically only on the PlanetBids Portal accessible through the City of Manhattan Beach Public Works Department Bid Opportunities webpage at <https://www.manhattanbeach.gov/departments/public-works/bid-opportunities>. To submit your bid electronically and to review Bid tabulation results (“Bid Opening”), please visit the following link: <https://pbsystem.planetbids.com/portal/48136/bo/bo-detail/100955>

Contract Documents in PDF format (including City Special Provisions and Project Plans, but not including Standard Plans, Standard Specifications, or Reference Specifications) shall be obtained from the link/website above.

Total Cost per set: \$106.00

All fees listed above are non-refundable. The Contract Documents must be purchased online; they cannot be purchased or mailed from City Hall. Bidders are solely responsible for on time submission of their electronic bid. The City will only consider bids that have been transmitted successfully and have been issued an ebid confirmation number with a time stamp from the bid management system indicating that the bid was submitted successfully. Transmission of bids by any other means will not be accepted. Bidders shall be solely responsible for informing themselves with respect to the proper utilization of the bid management system, for ensuring the capability of their computer system to upload the required documents, and for the stability of their internet service. Failure of the bidders to successfully submit electronic bids shall be at the bidders’ sole risk and no relief will be given for late and/or improperly submitted bids. Bidders experiencing any technical difficulties with the bid submission process may contact PlanetBids at (818) 992-1771. Neither the City, nor PlanetBids, makes any guarantee as to the timely availability of assistance, or assurance that any given problem will be resolved by the bid submission deadline.

Bids must remain valid and shall not be subject to withdrawal for 90 calendar days after the Bid opening date.

SCOPE OF WORK. The Project includes, without limitation, furnishing all necessary labor, materials, equipment and other incidental and appurtenant Work necessary to satisfactorily complete the Project, as more specifically described in the Contract Documents. This Work will be performed in strict conformance with the Contract Documents, permits from regulatory agencies with jurisdiction, and applicable regulations. The quantity of Work to be performed and materials to be furnished are approximations only, being given as a basis for the comparison of **BIDS**. Actual quantities of Work to be performed may vary at the discretion of the City Engineer.

Time for completion of the Work is 100 total Working Days from the date specified in the Notice to Proceed to Fulfill Preconstruction Requirements and Order Materials, not to exceed 163 Working Days including 21 Working Days for submittals. The Contract Time includes 40 total Working Days for each of the base and additive bid schedules, and 20 total Working Days to fulfill preconstruction requirements, place the order for materials, and to complete construction of the Project (except as adjusted by subsequent Change Orders).

MANDATORY PRE-BID MEETING AND SITE VISIT. A mandatory pre-bid meeting and site visit will be held on Tuesday, August 8, 2023 at 10:00 a.m. Bidders will meet at the Public Works Yard located at 3651 Bell Avenue, Manhattan Beach, CA 90266 to view that location, then travel to the Civic Center located at 1400 Highland Avenue, Manhattan Beach, CA 90266 to view those facilities. Bidders are responsible to pay their own parking related costs (i.e. metered parking, lot entrance fees, etc.), if any required at the site. No allowances for cost adjustments will be made if a Bidder fails to adequately examine the Project site before submitting a Bid.

REGISTRATION WITH THE DEPARTMENT OF INDUSTRIAL RELATIONS. In accordance with Labor Code Sections 1725.5 and 1771.1, no contractor or subcontractor shall be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, unless currently registered and qualified to perform public work pursuant to Section 1725.5 [with limited exceptions for bid purposes only under Labor Code Section 1771.1(a)].

PREVAILING WAGES. In accordance with Labor Code Section 1770 *et seq.*, the Project is a “public work.” The selected Bidder (Contractor) and any Subcontractors shall pay wages in accordance with the determination of the Director of the Department of Industrial Relations (“DIR”) regarding the prevailing rate of per diem wages. Copies of those rates are on file with the Director of Public Works and are available to any interested party upon request. The Contractor shall post a copy of the DIR’s determination of the prevailing rate of per diem wages at each job site. This Project is subject to compliance monitoring and enforcement by the DIR.


BONDS. Each Bid must be accompanied by a cash deposit, cashier’s check, certified check or Bidder’s Bond issued by a Surety insurer, made payable to the City and in an amount not less than ten percent of the total Bid submitted. Personal or company checks are not acceptable. Upon Contract award, the Contractor shall provide faithful performance and payment Bonds, each in a sum equal to the Contract Price, as well as a warranty or maintenance Bond that is valid for one year from Project acceptance in the amount of ten percent of the Contract Price. All Bonds must be issued by a California admitted Surety insurer using the forms set forth in the Contract Documents, or in any other form approved by the City Attorney. Failure to enter into the Contract with the City, including the submission of all required Bonds and insurance coverages, within ten calendar days after the date of the mailing of written notice of contract award to the Bidder, shall subject the Bid security to forfeiture to the extent provided by law.

LICENSES. Each Bidder shall possess a valid **Class “C”** Contractor’s license issued by the California State Contractors License Board at the time of the Bid submission.

RETENTION SUBSTITUTION. Five percent of any progress payment will be withheld as retention. In accordance with Public Contract Code Section 22300 and at the request and expense of the Contractor, securities equivalent to the amount withheld may be deposited with the City or with a State or federally chartered bank as escrow agent, which shall then pay such moneys to the Contractor. Upon satisfactory completion of the Project, the securities shall be returned to the Contractor. Alternatively, the Contractor may request that the City make payments

of earned retentions directly to an escrow agent at the Contractor's expense. No such substitutions shall be accepted until all related documents are approved by the City Attorney.

BIDDING PROCESS. The City reserves the right to reject any Bid or all Bids, and to waive any irregularities or informalities in any Bid or in the bidding, as deemed to be in its best interest.

By: 

Katherine Doherty, City Engineer

7/27/2023

Date

INSTRUCTIONS TO BIDDERS

FORM OF BID. The Bid Schedule, Subcontractor Designation Form, and acknowledgement of receipt of Addenda, if any, shall be submitted using only the online electronic forms through the City of Manhattan Beach Public Works Department Bid Opportunities webpage link to the PlanetBids portal at <https://www.manhattanbeach.gov/departments/public-works/bid-opportunities>. The unit prices for each Bid Item shall be properly entered in the online electronic Bid Schedule.

In addition, each Bidder must scan and submit the following documents with its electronic bid on the City's Bid Forms. (The forms listed below can be downloaded separately on PlanetBids).

1. Completed and Signed Contractor's Statement
2. Completed References Form
3. Completed, Signed, and Notarized Bid Bond
4. Signed Noncollusion Declaration Form
5. Evidence satisfactory to the City indicating the capacity of the person(s) signing the Bid to bind the Bidder

Any Bid not accompanied by a Contractor's Statement completed with all information required and bearing the signature of the Bidder's duly authorized representative under penalty of perjury may be deemed non-responsive and rejected. If the City determines that any information provided by a Bidder in the Contractor's Statement is false or misleading, or is so incomplete as to be false or misleading, the City may reject the Bid submitted by such Bidder as being non-responsive.

DELIVERY OF BIDS. The Bid shall be delivered by the time and date and to the place specified in the Notice Inviting Bids, through the City of Manhattan Beach Public Works Department Bid Opportunities webpage link to the PlanetBids portal at <https://www.manhattanbeach.gov/departments/public-works/bid-opportunities>. Paper copies will not be accepted. No oral, faxed, emailed, or telephonic Bids or alternatives will be considered. Bidders are solely responsible for ensuring that their Bids are received in proper time. Accepted Bids shall become the property of the City.

AMENDED BIDS. Unauthorized conditions, limitations or provisions attached to a Bid may cause the Bid to be deemed incomplete and non-responsive.

WITHDRAWAL OF BID. A Bid may be withdrawn without prejudice upon written request by the Bidder filed with the City Clerk before the Bid submission deadline. Bids must remain valid and shall not be subject to withdrawal for 90 Days after the Bid opening date.

BIDDER'S SECURITY. Each Bid shall be accompanied by cash, a certified or cashier's check payable to the City, or a satisfactory Bid Bond in favor of the City executed by the Bidder as principal and an admitted surety insurer as Surety, in an amount not less than ten percent of the amount set forth in the Bid. The cash, check or Bid Bond shall be given as a guarantee that, if selected, the Bidder will execute the Contract in conformity with the Contract Documents, and will provide the evidence of insurance and furnish the specified Bonds, within ten calendar days after the date of delivery of the Contract Documents to the Bidder. In case of the Bidder's refusal or failure to do so, the City may award the Contract to the next lowest responsible bidder, and the cash, check, or Bond (as applicable) of the lowest Bidder shall be forfeited to the City to the extent permitted by law. No Bid Bond will be accepted unless it conforms substantially to the form provided in these Contract Documents.

QUANTITIES APPROXIMATE. Any quantities shown in the Bid form or elsewhere herein shall be considered as approximations listed to serve as a general indication of the amount of Work or

materials to be performed or furnished, and as basis for the Bid comparison. The City does not guarantee that the actual amounts required will correspond with those shown. As deemed necessary or convenient, the City may increase or decrease the amount of any item or portion of Work or material to be performed or furnished or omit any such item or portion, in accordance with the Contract Documents.

ADDENDA. The City Engineer may, from time to time, issue Addenda to the Contract Documents. The City shall post all documents to PlanetBids at

<https://www.manhattanbeach.gov/departments/public-works/bid-opportunities>. Bidders are responsible for ensuring that their information and email address utilized in the Planet Bids Vendor Portal is current and accurate. It is also the Bidder's responsibility to actively check PlanetBids and email for the issuance of Addenda. Each Bidder is responsible for verifying that it has received any and all Addenda issued. Bidders must acknowledge receipt of all Addenda, if any, using the Addenda Acknowledgement Form included in these Bid Documents. Failure to acknowledge receipt of all Addenda may cause a Bid to be deemed incomplete and non-responsive.

COMPETENCY OF BIDDERS. In evaluating Bidder responsibility, consideration will be given not only to the financial standing, but also to the general competency of the Bidder for the performance of the Project. Each Bidder shall set forth in the designated area of the Bid form a statement of its experience. No Contract will be executed with a Bidder that is not licensed and registered with the DIR in accordance with State law, and with any applicable specific licensing requirements specified in these Contract Documents. These licensing and registration requirements for Contractors shall also apply to all Subcontractors.

BIDDER'S EXAMINATION OF SITE AND CONTRACT DOCUMENTS. The Bidder, at its sole cost and expense, is required to carefully examine the Contract Documents and the Project site to become fully acquainted with the conditions affecting the Work. The failure of a Bidder to receive or examine any of the Contract Documents or to inspect the site shall not relieve such Bidder from any obligation relating to the Bid, the Contract, or the Work required under the Contract Documents. The City assumes no responsibility or liability to any Bidder for, nor shall the City be bound by, any understandings, oral representations or oral agreements of the City's agents, employees or officers concerning the Contract Documents, or the Work made prior to execution of the Contract. By submitting a Bid, Bidder represents: (1) that Bidder has read and understands the Contract Documents; (2) the Bid is made in compliance with the Contract Documents and is based upon the labor, materials, equipment, and systems required by the Contract Documents; (3) that Bidder understands that all labor, materials, equipment, and systems to be furnished for the Work shall be furnished for the prices bid; (4) that it has visited the Project site, familiarized itself with the local conditions under which the Work is to be performed; (5) that it is fully experienced, qualified and competent to perform the Work set forth in the Contract Documents; (6) that it shall not damage or endanger and shall preserve and protect adjacent properties; (7) that it is properly equipped, organized, and financed to perform the Work; (8) that it is properly permitted and licensed by the California Contractors State Licensing Board to perform the Work; (9) that it has familiarized itself with all conditions bearing upon transportation, disposal, handling, and storage of materials; (10) that it has familiarized itself with the availability of labor, water, electric power, and roads; (11) that it has familiarized itself with uncertainties of weather, or similar physical conditions at the Project site; (12) that it has familiarized itself with the character of equipment and facilities needed preliminary to and during performance of the Work; (13) that it has familiarized itself with the staging and material storage constraints of the Project site and surrounding buildings and will confine its staging and storage operations to approved areas; and (14) that it will coordinate its construction activities with the other contractors performing work on the Project site, if any, including, but not limited to, any separate contractor retained by the City.

No information derived from an inspection of records or investigation will in any way relieve the Contractor from its obligations under the Contract Documents nor entitle the Contractor to any additional compensation. The Contractor shall not make any claim against the City based upon ignorance or misunderstanding of any condition of the Project site or of the requirements set forth in the Contract Documents. No claim for additional compensation will be allowed which is based on a lack of knowledge of the above items. Bidders assume all risks in connection with performance of the Work in accordance with the Contract Documents, regardless of actual conditions encountered, and waive and release the City with respect to any and all claims and liabilities in connection therewith, to the extent permitted by law.

The omission of any portion or item of Work from the Bid that is reasonably inferable from the Contract Documents is not a basis for adjustment of the Contract Price or the Contract Time.

DISQUALIFICATION OF BIDDERS. No Person shall be allowed to make, file or be interested in more than one Bid for the Project. A Person that has submitted a sub-bid to a Bidder, or that has quoted prices of materials to a Bidder, is not thereby disqualified from submitting a sub-proposal or quoting prices to other Bidders or from making a prime Bid. If there is a reason to believe that collusion exists among the Bidders, all affected Bids will be rejected.

RETURN OF BID SECURITY. The successful Bidder's Bid security shall be held until the Contract is executed. Bid security shall be returned to the unsuccessful Bidders within a reasonable time, which in any case shall not exceed 90 Days after the successful Bidder has signed the Contract.

AWARD OF CONTRACT. The City reserves the right to reject any or all Bids or any parts thereof or to waive any irregularities or informalities in any Bid or in the bidding. The Contract award, if made, will be to the lowest responsible, responsive Bidder and is anticipated to occur within 90 calendar Days after the Bid opening. The Contract award may be made after that period if the selected Bidder has not given the City written notice of the withdrawal of its Bid.

DETERMINATION OF LOWEST BIDDER IF ADDITIVE OR DEDUCTIVE ITEMS. In accordance with Public Contract Code Section 20103.8, the lowest Bid shall be determined by comparing the total Bid price of all Base Bid Items and Additive Alternate Bid Items, using the Engineer's estimate of quantities for the Work as set forth in the Bidder's Proposal. The amount of the contract award will be based on the available budget for the project. It may be only for the Base Bid or if the budget allows, include Additive Bid Items. In the event that any or all of the Alternate Bid Items are not awarded as part of the Contract, the City reserves the right to add any or all of the Alternate Bid Items by Change Order or Construction Change Directive at the prices set forth in the Bid.

TRENCHING. If the Project involves the construction of a pipeline, sewer, sewage disposal system, boring and jacking pits, or similar trenches or open excavations, which are five feet deep or more, then each Bidder must submit, as a Bid item, adequate sheeting, shoring, and bracing, or an equivalent method, for the protection of life or limb, which shall conform to applicable safety orders. This final submission must be accepted by the City in advance of excavation and must include a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from caving ground during the excavation Work. If such plan varies from the shoring system standards, the plan shall be prepared by a registered civil or structural engineer.

LISTING SUBCONTRACTORS. Each Bidder shall submit a list of the proposed Subcontractors on the Project, as required by the Subletting and Subcontracting Fair Practices Act (Public Contract Code Section 4100, *et seq.*).

WORK OF SUBCONTRACTORS. All Bidders are encouraged to disseminate all of the Specifications, Drawings, and other Contract Documents to all persons or entities submitting sub-bids to the Bidder.

INELIGIBLE SUBCONTRACTORS. The successful Bidder is prohibited from performing Work on the Project with any Subcontractor who is ineligible to perform work on a public works project pursuant to Sections 1777.1 or 1777.7 of the California Labor Code. By submitting a Bid, each Bidder certifies that it has investigated the eligibility of each and every listed Subcontractor and has determined that none is ineligible to perform Work pursuant to the Labor Code.

EXECUTION OF CONTRACT. The selected Bidder shall execute the Contract in the form included in these Contract Documents within ten calendar days from the date of delivery of the Contract Documents to the Bidder. Additionally, the selected Bidder shall also secure all insurance and Bonds as herein specified, and provide copies to the City, within ten calendar days from the date of delivery of the Contract Documents to the Bidder. Failure or refusal to execute the Contract or to conform to any of the stipulated requirements shall be just cause for the annulment of the award and forfeiture of the Bidder's security. In such event, the City may declare the Bidder's security forfeited to the extent permitted by law, and the City may award the Contract to the next lowest responsible Bidder or may reject all bids.

SIGNATURES. The Bidder shall execute all documents requiring signatures, and shall cause to be notarized all documents that indicate such a requirement. The Bidder shall provide evidence satisfactory to the City, such as an authenticated resolution of its board of directors or a power of attorney, indicating the capacity of the person(s) signing the Bid to bind the Bidder to the Bid and any Contract arising therefrom.

INSURANCE AND BONDS. The Contractor shall not begin Work until it has given the City evidence of all required insurance coverage (including all additional insured endorsements), a Bond guaranteeing the Contractor's faithful performance of the Contract, and a Bond securing the payment of claims for labor and materials. Where a Contractor has entered into an agreement with a Professional Employment Organization (PEO) to provide human resources, workers' compensation insurance, or other benefits to the Contractor's employees, the Contractor must also submit the agreement with the PEO for review by the City.

TELEPHONES. Bidders are hereby notified that the City will not provide telephones for their use at the time of Bid submission.

INTERPRETATION OF CONTRACT DOCUMENTS. Any Bidder that is in doubt as to the intended meaning of any part of the Contract Documents, or that finds discrepancies in or omissions from the Contract Documents, may submit to the City Engineer a written request for an interpretation or correction not later than the date specified in the Notice Inviting Bids. Requests for clarification received after this date will be disregarded. Please indicate the Project and identification number in the request for clarification. Telephonic requests will not be taken. Any interpretation or correction of the Contract Documents will be made only by a written Addendum. No oral interpretation of any provision in the Contract Documents shall be binding.

TRADE NAMES OR EQUALS. Requests to substitute an equivalent item for a brand or trade name item must be made by written request submitted no later than ten calendar days after the award of contract. Requests received after this time shall not be considered. Requests shall clearly describe the product for which approval is requested, including all data necessary to demonstrate acceptability.

TAXES. Except as may be otherwise specifically provided herein, all sales and/or use taxes

assessed by federal, State or local authorities on materials used or furnished by the Contractor in performing the Work shall be paid by the Contractor. The Bidder shall calculate payment for all sales, unemployment, pension and other taxes imposed by federal, State, and local law and shall include these payments in computing the Bid.

PROTESTS. Any protest of the award of a bid to the apparent lowest responsive and responsible bidder or other bidders must be submitted in accordance with the provisions of the City of Manhattan Beach Public Works Department Bid Protest Procedure Policy 2020-1, available on the City of Manhattan Beach Public Works Department Bid Opportunities webpage at <https://www.manhattanbeach.gov/departments/public-works/bid-opportunities>.

BID SCHEDULE NOTICE

Registered Bidders shall utilize the electronic Bid Schedule on the City of Manhattan Beach Bid Portal with PlanetBids to enter Bid Item prices, Subcontractor List information, to acknowledge receipt of Addenda, if any, and to upload scanned copies of other required Bid Forms for submittal.

The link to register to become a Registered Bidder and electronically bid on this Project can be found at the following address:

<https://www.manhattanbeach.gov/departments/public-works/bid-opportunities>

CHECKLIST FOR BIDDERS

The following information is required of all Bidders at the time of Bid submission:

- _____ Completed and Signed Bid Schedule, including cover sheet (page B-1)
- _____ Completed and Signed Contractor's Statement
- _____ Completed References Form
- _____ Completed Subcontractor Designation Form
- _____ Completed, Signed and Notarized Bid Bond or Other Security Form
- _____ Signed Noncollusion Declaration Form
- _____ Signed copies of all Addenda (if any)
- _____ Evidence satisfactory to the City indicating the capacity of the person(s) signing the Bid to bind the Bidder

Failure of the Bidder to provide all required information in a complete and accurate manner may cause the Bid to be considered non-responsive.

BID

CITY OF MANHATTAN BEACH

City Facility Security Camera Project
Public Works Yard and City Hall
Fire Department and Police Department

TO THE HONORABLE MAYOR AND CITY COUNCIL OF THE CITY OF MANHATTAN BEACH:

The undersigned, as Bidder, declares that: (1) this Bid is made without collusion with any other person and that the only persons or parties interested as principals are those named herein; (2) the undersigned has carefully examined the Contract Documents (including all Addenda) and the Project site; and (3) the undersigned has investigated and is satisfied as to the conditions to be encountered, the character, quality and quantities of Work to be performed, and the materials to be furnished. Furthermore, the undersigned agrees that submission of this Bid shall be conclusive evidence that such examination and investigation have been made and agrees, in the event the Contract be awarded to it, to execute the Contract with the City of Manhattan Beach to perform the Project in accordance with the Contract Documents in the time and manner therein prescribed, and to furnish or provide all materials, labor, tools, equipment, apparatus and other means necessary so to do, except as may otherwise be furnished or provided under the terms of the Contract Documents, for the following stated unit prices or lump-sum price as submitted on the Bid herein.

This Bid is made with the full knowledge of the kind, quantity, and quality of the materials and Work required and, if it is accepted by the City, the Bidder shall enter into a Contract and furnish the bonds, insurance, and other documents as required by the Contract Documents within ten calendar days after award of the Contract. The Bidder agrees that failure to execute and return the Contract or the required faithful performance bond, labor and materials payment bond, warranty bond, and insurance certificates to the City within the ten calendar day period shall be sufficient cause for the rescission of the award and forfeiture of the Bid Security to the City to the extent permitted by law.

Accompanying this Bid is cash, a cashier's check, a certified check or a Bid Bond in an amount equal to at least ten percent of the total aggregate Bid price based on the quantities shown and the unit prices quoted. The undersigned further agrees that, should it be awarded the Contract and thereafter fail or refuse to execute the Contract and provide the required evidence of insurance and Bonds within ten calendar days after delivery of the Contract to the undersigned, then the cash, check or Bid Bond shall be forfeited to the City to the extent permitted by law.

CITY OF MANHATTAN BEACH

BID SCHEDULE FOR

**City Facility Security Camera Project
Public Works Yard and City Hall
Fire Department and Police Department**

Bidder's Name: _____

Bidder's Address: _____

To the Honorable Mayor and Members of the City Council:

In compliance with the Notice Inviting Bids, the undersigned hereby agrees to execute the Contract to furnish all labor, materials, equipment and supplies for the Project in accordance with the Contract Documents to the satisfaction and under the direction of the City Engineer, at the following prices:

Base Bid Items as Follows:

BASE BID SCHEDULE:

ITEM NO.	CODE	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICES	EXTENDED AMOUNT
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PUBLIC WORKS YARD AND CITY HALL

1	%	Mobilization (5% maximum of Total Bid Price)	LS	1	\$	\$
2		Special Project Site Maintenance and Public Convenience and Safety	LS	1	\$	\$5,000
3		Conduit, Boxes, Connectors, Fittings, Supports, Anchors	LS	1	\$	\$
4		Cameras, Lens, Housings, Mounts, Two-Way Communications Devices, Cables, Connectors	LS	1	\$	\$

5		Video/Audio Processing Equipment For Field Devices, Terminations, Power Supplies, Connections To Network Switch	LS	1	\$	\$
6		Headend Video/Audio Processing Equipment, Servers, Digital Storage, Workstations, Monitors, Connection To Network Switch, Terminations	LS	1	\$	\$
7		Engineering, Programming, And System Testing	LS	1	\$	\$

ADDITIVE BID SCHEDULE "A":

FIRE DEPARTMENT AND POLICE DEPARTMENT

A1	%	Mobilization (5% maximum of Total Bid Price)	LS	1	\$	\$
A2		Conduit, Boxes, Connectors, Fittings, Supports, Anchors	LS	1	\$	\$
A3		Cameras, Lens, Housings, Mounts, Two-Way Communications Devices, Cables, Connectors	LS	1	\$	\$
A4		Video/Audio Processing Equipment For Field Devices, Terminations, Power Supplies, Connections To Network Switch	LS	1	\$	\$
A5		Headend Video/Audio Processing Equipment, Servers, Digital Storage, Workstations, Monitors, Connection To Network Switch, Terminations	LS	1	\$	\$
A6		Engineering, Programming, And System Testing	LS	1	\$	\$

A7		Maintenance contract/Agreement; Software upgrades and patches, quarterly inspections, spare parts and on-call services	LS, 3 year term	1	\$	\$
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NOTES:

- 1) In the CODE column (S) denotes a specialty item, (%) denotes progress payments for that lump sum item will be allowed based on the percentage of completion in each pay period, and (C) denotes payments will be made after the completion of the lump sum item.
- 2) In the UNIT column (LS) denotes a lump sum item. See Section 7 of the General Provisions for details.
- 3) Estimated quantities are for the purpose of Bid comparison only; payments will be made on the basis of actual measurement of Work completed, except for lump sum (LS) items. For lump sum items, see Note 1. The Bid Price shall include, but not limited to, sales tax and all other applicable taxes and fees.
- 4) Items may be adjusted or deleted. Therefore, regardless of total actual volume (percentage) compared to estimated quantities, the unit prices provided above by the Bidder shall be applied to the final quantity when payment is calculated for these items. No adjustment in the unit prices will be allowed. The City reserves the right to not use any of the estimated quantities; and if this right is exercised, the Contractor will not be entitled to any additional compensation. Cost of all export of material shall be included in the above unit costs; no additional compensation will be granted for such expenses.

Bid Item Descriptions

Bid Items 1 and A1: Mobilization (5% maximum of Total Bid Price)

Work under this item shall include, but not be limited to, all labor, tools, equipment and material costs for preparatory work and operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of all offices, buildings, construction yards, sanitary facilities, and any other facilities necessary for work on the project; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project site, as well as the related demobilization costs anticipated at the completion of the project. Refer to the Standard Specifications for Public Works Construction "Greenbook" and Part 9 Special Instructions for information regarding staging and storage. The cost of all bonds and insurance policies, including premiums and incidentals, shall be included in Mobilization. No additional compensation will be allowed for additional mobilizations required, including but not limited to, extra work, or delays discovered during construction operations.

Base Bid Item 1: Special Project Site Maintenance and Public Convenience and Safety

To maintain good public relations, the City may deem it necessary to require special Project site maintenance, public convenience, safety actions, and work to be performed by the Contractor that are over and above those required by the provisions of Section 3-12 and Section 5-7 of the Standard Specifications and these General Provisions. These actions and work shall be as directed by the Engineer in writing and payment for compliance therewith shall be on a cost plus basis for extra work per Section 7-4 of the Standard Specifications and applied against the not-to-exceed bid item

for "Special Project Site Maintenance and Public Convenience and Safety."

Additional Information for Bid Items 3-7 and A2-A6

Interior Wall Mount 1080p Dome: The price shall include hardware, cable (150' for each device), labor, programming and warranty. Hardware shall include camera, mounting hardware, cable support hardware and license. Typical mounting height for interior cameras is 9'-6" AFF or 0'-6" BFC. Unit price should include cost for equipment needed for installation as the designated height. Costs should also include any safety related equipment to provide for worker safety.

Exterior Multi-Imager: The price shall include hardware, cable (175' for each device), labor, programming and warranty. Hardware shall include camera, mounting hardware, cable support hardware and license. Typical mounting height for exterior cameras is 12' to 14'. Unit price should include cost for lift or other equipment needed for installation as the designated height. Costs should also include any safety related equipment to provide for worker safety.

Roof Mounted Multi-Imager: The price shall include hardware, cable (175' for each device), labor, programming and warranty. Hardware shall include camera, mounting hardware, cable support hardware and license. Typical roof mounted camera will be secured to the parapet. Unit price should include cost for equipment needed for installation as the designated location. Costs should also include any safety related equipment to provide for worker safety.

Total Bid Price = Base Bid Schedule Amount Plus (+) Additive Bid Schedule "A" Amount

TOTAL BID PRICE IN DIGITS: \$ _____

TOTAL BID PRICE IN WORDS: _____

The undersigned certifies to have a minimum of three consecutive years of current experience in the type of Work related to the Project and that this experience is in actual operation of the firm with permanent employees performing a part of the Work as distinct from a firm operating entirely by subcontracting all phases of the Work. The undersigned also certifies to be properly licensed by the State as a contractor to perform this type of Work. The undersigned possesses California Contractor's License

Number _____, Class _____, which expires on _____.

Signature: _____ Title: _____ Date: _____

Signature: _____ Title: _____ Date: _____

BIDDER'S PROPOSAL – CONTRACTOR'S STATEMENT

City Facility Security Camera Project
Public Works Yard and City Hall
Fire Department and Police Department

Fill out all of the following information. Attach additional sheets if necessary.

- (1) Bidder's Name: _____
- (2) If the Bidder's name is a fictitious name, who or what is the full name of the registered owner? If the Bidder's name is not a fictitious name, write "N/A" in the response to this question. If you are doing business under a fictitious name, provide a copy of the filed valid Fictitious Business Name Statement.

- (3) Business Address: _____
- (4) Telephone: _____ Email: _____
- (5) Type of Firm – Individual, Partnership, LLC or Corporation: _____
- (6) Corporation organized under the laws of the State of: _____
- (7) California State Contractor's License Number and Class: _____
Original Date Issued: _____ Expiration Date: _____
- (8) DIR Contractor Registration Number: _____
- (9) List the name and title of the person(s) who inspected the Project site for your firm:

- (10) Number of years' experience the company has as a contractor in construction work: _____
- (11) List the names, titles, addresses and telephone numbers of all individuals, firm members, partners, joint ventures, and company or corporate officers having a principal interest in this Bid:

- (12) List all current and prior D.B.A.'s, aliases, and fictitious business names for any principal having interest in this Bid:

(13) List the dates of any voluntary or involuntary bankruptcy judgments against any principal having an interest in this Bid:

(14) For all arbitrations, lawsuits, settlements and the like (in or out of court) that the company or any principal having an interest in this Bid has been involved with in the past five years:

a. List the names, addresses and telephone numbers of contact persons for the parties:

b. Briefly summarize the parties' claims and defenses:

c. State the tribunal (e.g., Superior Court, American Arbitration Association, etc.), the matter number, and the outcome:

(15) Has the company or any principal having an interest in this Bid ever had a contract terminated by the owner or agency? If yes, explain.

(16) Has the company or any principal having an interest in this Bid ever failed to complete a project? If yes, explain.

(17) Has the company or any principal having an interest in this Bid ever been terminated for cause, even if it was converted to a "termination of convenience"? If yes, explain.

(18) For projects that the company or any principal having an interest in this Bid has been involved with in the last five years, did you have any claims or actions:

- a. By you against the owner? Circle one: Yes No
- b. By the owner against you? Circle one: Yes No
- c. By any outside agency or individual for labor compliance?
Circle one: Yes No
- d. By Subcontractors? Circle one: Yes No
- e. Are any of these claims or actions unresolved or outstanding?
Circle one: Yes No

If your answer is "yes" to any part or parts of this question, explain.

(19) Has the company or any of its principals ever been debarred by any agencies? Is yes, please explain.

(20) For all public agency projects in excess of \$15,000.00 that you are currently working on or have worked on in the past two years, provide the following information:

Project 1 Name/Number _____

Project Description _____

Approximate Construction Dates From: _____ To: _____

Agency Name: _____

Contact Person: _____ Telephone: _____

Address: _____

Original Contract Amount: \$_____ Final Contract Amount: \$_____

If final amount is different from original amount, please explain (change orders, extra work, etc.).

Did you or any Subcontractor, file any claims against the Agency?

Circle one: Yes No

Did the Agency file any claims against you? Circle one: Yes No

If you answered yes to either of the above two questions, please explain and indicate outcome of claims.

Project 2 Name/Number _____

Project Description _____

Approximate Construction Date From: _____ To: _____

Agency Name: _____

Contact Person: _____ Telephone: _____

Address: _____

Original Contract Amount: \$_____ Final Contract Amount: \$_____

If final amount is different from original amount, please explain (change orders, extra work, etc.).

Did you or any Subcontractor, file any claims against the Agency?
Circle one: Yes No

Did the Agency file any claims against you? Circle one: Yes No

If you answered yes to either of the above two questions, please explain and indicate outcome of claims.

Project 3 Name/Number _____

Project Description _____

Approximate Construction Dates From: _____ To: _____

Agency Name: _____

Contact Person: _____ Telephone: _____

Address: _____

Original Contract Amount: \$_____ Final Contract Amount: \$_____

If final amount is different from original amount, please explain (change orders, extra work, etc.).

Did you or any Subcontractor, file any claims against the Agency?
Circle one: Yes No

Did the Agency file any claims against you? Circle one: Yes No

If you answered yes to either of the above two questions, please explain and indicate outcome of claims.

Project 4 Name/Number _____

Project Description _____

Approximate Construction Dates From: _____ To: _____

Agency Name: _____

Contact Person: _____ Telephone: _____

Address: _____

Original Contract Amount: \$_____ Final Contract Amount: \$_____

If final amount is different from original amount, please explain (change orders, extra work, etc.).

Did you or any Subcontractor, file any claims against the Agency?

Circle one: Yes No

Did the Agency file any claims against you? Circle one: Yes No

If you answered yes to either of the above two questions, please explain and indicate outcome of claims.

Project 5 Name/Number _____

Project Description _____

Approximate Construction Dates From: _____ To: _____

Agency Name: _____

Contact Person: _____ Telephone: _____

Address: _____

Original Contract Amount: \$_____ Final Contract Amount: \$_____

If final amount is different from original amount, please explain (change orders, extra work, etc.).

Did you or any Subcontractor, file any claims against the Agency?

Circle one: Yes No

Did the Agency file any claims against you? Circle one: Yes No

If you answered yes to either of the above two questions, please explain and indicate outcome of claims.

Project 6 Name/Number _____

Project Description _____

Approximate Construction Dates From: _____ To: _____

Agency Name: _____

Contact Person: _____ Telephone: _____

Address: _____

Original Contract Amount: \$ _____ Final Contract Amount: \$ _____

If final amount is different from original amount, please explain (change orders, extra work, etc.).

Did you or any Subcontractor, file any claims against the Agency?

Circle one: Yes No

Did the Agency file any claims against you? Circle one: Yes No

If you answered yes to either of the above two questions, please explain and indicate outcome of claims.

[Continue to Next Page]

Upon request of the City, the Bidder shall furnish evidence showing a notarized financial statement, financial data, construction experience, or other additional information.

Failure to provide truthful answers to the questions above or in the following References Form may result in the Bid being deemed non-responsive.

Urban Runoff Certification. The Bidder certifies to the City that he/she has trained his/her employees and Subcontractors, if any, for Urban Runoff management and has included sufficient sums in the Bid Price to cover such costs of training as stipulated in the most current Regional Water Quality Control Board requirements, including the Municipal Separate Storm Sewer System National Pollutant Discharge Elimination System (NPDES) Permit. The Contractor is responsible for all clean up and payment of all fines levied as a result of any illegal discharge (as defined in NPDES permit) occurring as a result of the Contractor's Work and/or operations.

I, the undersigned, certify and declare that I have read all the foregoing answers to the Bidder's Proposal – Contractor's Statement and know their contents. The matters stated in the Bidder's Proposal – Contractor's Statement answers are true of my own knowledge and belief, except as to those matters stated on information and belief, and as to those matters I believe them to be true. I declare under penalty of perjury under the laws of the State of California that the foregoing is correct.

Company

Signature: _____

Name: _____

Title: _____

Date: _____

Signature: _____

Name: _____

Title: _____

Date: _____

**DESIGNATION OF SUBCONTRACTORS
[Public Contract Code Section 4104]**

**City Facility Security Camera Project
Public Works Yard and City Hall
Fire Department and Police Department**

List all Subcontractors who will perform Work or labor or render service to the Contractor in or about the construction of the Work or improvement, or a Subcontractor licensed by the State of California who, under subcontract to the Contractor, specially fabricates and installs a portion of the Work or improvement according to detailed drawings contained in the Plans and Specifications, in an amount in excess of one-half of one percent of the Contractor's total Bid or, in the case of bids or offers for the construction of streets or highways, including bridges, in excess of one-half of one percent of the Contractor's total Bid or \$10,000.00, whichever is greater. If all Subcontractors do not fit on this page, attach another page listing all information for all other Subcontractors.

Name under which Subcontractor is Licensed and Registered	CSLB License Number(s) and Class(es)	DIR Contractor Registration Number	Address and Phone Number	Type of Work (e.g., Electrical)	Percentage of Total Bid (e.g., 10%)*

*The percentage of the total Bid shall represent the "portion of the work" for the purposes of Public Contract Code Section 4104(b).

Bond No. _____

BID BOND

City Facility Security Camera Project
Public Works Yard and City Hall
Fire Department and Police Department

KNOW ALL PERSONS BY THESE PRESENTS that:

WHEREAS the City of Manhattan Beach ("City"), has issued an invitation for Bids for the Work described as follows: _____

WHEREAS _____
(Name and address of Bidder)

("Principal"), desires to submit a Bid to City for the Work.

WHEREAS, Bidders are required to furnish a form of Bidder's security with their Bids.

NOW, THEREFORE, we, the undersigned Principal, and _____

(Name and address of Surety)

("Surety"), a duly admitted surety insurer under the laws of the State of California, as Surety, are held and firmly bound unto the City in the penal sum of _____ Dollars (\$ _____), being not less than ten percent of the total Bid price, in lawful money of the United States of America, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the hereby bounded Principal is awarded the Contract for the Work by the City and, within the time and in the manner required by the bidding specifications, enters into the written form of Contract included with the bidding specifications, furnishes the required Bonds (one to guarantee faithful performance and the other to guarantee payment for labor and materials), and furnishes the required insurance coverage, then this obligation shall become null and void; otherwise, it shall be and remain in full force and effect.

In case suit is brought upon this instrument, Surety further agrees to pay all court costs incurred by the City in the suit and reasonable attorneys' fees in an amount fixed by the court. Surety hereby waives the provisions of Civil Code Section 2845.

IN WITNESS WHEREOF, this instrument has been duly executed by Principal and Surety, on the date set forth below, the name of each corporate party being hereto affixed and these presents duly signed by its undersigned representative(s) pursuant to authority of its governing body.

Dated: _____

“Principal”

Name: _____

Address: _____

Telephone No.: _____

Signature: _____

Print Name: _____

Title: _____

Date: _____

Signature: _____

Print Name: _____

Title: _____

Date: _____

“Surety”

Company Name: _____

Address: _____

Telephone No.: _____

Signature: _____

Print Name: _____

Title: _____

Date: _____

NOTE: *This Bond must be dated, all signatures must be notarized, and evidence of the authority of any person signing as attorney-in-fact must be attached.*

**NONCOLLUSION DECLARATION FORM
TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID
[Public Contract Code Section 7106]**

**City Facility Security Camera Project
Public Works Yard and City Hall
Fire Department and Police Department**

The undersigned declares:

I am the _____ of _____, the party making the foregoing Bid.

The Bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The Bid is genuine and not collusive or sham. The Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham Bid. The Bidder has not directly or indirectly colluded, conspired, connived, or agreed with any Bidder or anyone else to put in a sham Bid, or to refrain from bidding. The Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the Bid price of the Bidder or any other Bidder, or to fix any overhead, profit, or cost element of the Bid price, or of that of any other Bidder. All statements contained in the Bid are true. The Bidder has not, directly or indirectly, submitted his or her Bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, Bid depository, or to any member or agent thereof, to effectuate a collusive or sham Bid, and has not paid, and will not pay, any Person or entity for such purpose.

Any person executing this declaration on behalf of a Bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the Bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____ [date], at _____ [city], _____ [state].

Signature: _____

Signature: _____

Printed Name: _____

Printed Name: _____

Date: _____

Date: _____

ADDENDA ACKNOWLEDGMENT FORM
City Facility Security Camera Project
Public Works Yard and City Hall
Fire Department and Police Department

Bidder's Name: _____

The Bidder shall signify receipt of all Addenda here, if any:

Addendum Number	Date Received	Signature

If there are more Addenda than there is room in the chart above, attach another page acknowledging receipt of the Addenda.

CONTRACT

CITY OF MANHATTAN BEACH CONTRACT FOR

City Facility Security Camera Project
Public Works Yard and City Hall
Fire Department and Police Department

THIS CONTRACT ("Contract") is made and entered this _____ day of _____, 20____ ("Effective Date"), by and between the CITY OF MANHATTAN BEACH, a California municipal corporation ("City") and _____, a _____ [Legal Form of Entity and state of formation, e.g., California corporation, limited partnership, limited liability company] ("Contractor"). The Contractor's California State Contractor's license number is _____.

In consideration of the mutual covenants hereinafter set forth, the parties hereto agree as follows:

1. Contract Documents. The Contract Documents consist of this Contract, the Notice Inviting Bids, Instructions to Bidders, Bid (including documentation accompanying the Bid and any post-Bid documentation submitted before the Notice of Award), the Bonds, permits from regulatory agencies with jurisdiction, General Provisions, Special Provisions, Plans, Standard Plans, Standard Specifications, Reference Specifications, Addenda, Change Orders, and Supplemental Agreements. The Contract Documents are attached hereto and incorporated herein by reference.

2. Scope of Services. The Contractor shall perform and provide all materials, tools, equipment, labor, and services necessary to complete the Work in a good and workmanlike manner for the project identified as the Rowell Avenue Sidewalk Gap Closure, between 1st and Curtis Avenue ("Project"), as described in the Contract Documents.

3. Compensation

3.1 Contract Price and Basis for Payment. In consideration for the Contractor's full, complete, and timely performance of the Work required by the Contract Documents, the City shall pay the Contractor for the actual quantity of Work required under the Bid Items awarded by the City performed in accordance with the lump sum prices and unit prices for Bid Items, set forth in the Bidder's Proposal submitted with the Bid. The sum of the unit prices and lump sum prices for the Bid Items, awarded by the City is \$_____ ("Contract Price"). It is understood and agreed that the quantities set forth in the Bidder's Proposal for which unit prices are fixed are estimates only and that the City will pay and the Contractor will accept, as full payment for these items of work, the unit prices set forth in the Bidder's Proposal multiplied by the actual number of units performed, constructed, or completed as directed by the Engineer.

3.2 Payment Procedures. Based upon applications for payment submitted by the Contractor to the City, the City shall make payments to the Contractor in accordance with Section 7 of the Standard Specifications, as modified by Section 7 of the General Provisions

4. Contract Time.

4.1 Initial Notice to Proceed. The City shall issue the “Notice to Proceed to Fulfill Preconstruction Requirements and Order Materials.” The date specified in the Notice to Proceed to Fulfill Preconstruction Requirements and Order Materials constitutes the date of commencement of the Contract Time of **100 Working Days**. The Contract Time includes both the base and additive bid schedules, and the time necessary to fulfill preconstruction requirements, place the order for materials, and to complete construction of the Project (except as adjusted by subsequent Change Orders).

The Notice to Proceed to Fulfill Preconstruction Requirements and Order Materials shall further specify that the Contractor must complete the preconstruction requirements and order materials within **20 Working Days** after the date of commencement of the Contract Time; this duration is part of the Contract Time.

Preconstruction requirements include, but are not limited to, the following:

- Submitting and obtaining approval of Baseline Schedule
- Submitting and obtaining approval of Traffic Control Plans
- Submitting and obtaining approval of the Stormwater Pollution Prevention Plan (SWPPP)/Water Pollution Control Plan (WPCP)
- Submitting and obtaining approval of critical required submittals
- Installation of the approved Project Identification Signs
- Obtaining approved Permits from all applicable agencies
- Obtaining a Temporary Use Permit for a construction yard, if applicable
- Notifying all agencies, utilities, residents, etc., as outlined in the Contract Documents
- Submitting and obtaining approval of a Project Staffing List with contact information and a Project Emergency Contact List.

4.2 Notice to Proceed with Construction. After all preconstruction requirements are met and materials have been ordered in accordance with the Notice to Proceed to Fulfill Preconstruction Requirements and Order Materials, the City shall issue the “Notice to Proceed with Construction,” at which time the Contractor shall diligently prosecute the Work, including corrective items of Work, day to day thereafter, within the remaining Contract Time.

5. Liquidated Damages for Delay and Control of Work.

5.1 Liquidated Damages. The Contractor and the City have agreed to liquidate damages pursuant to Section 6-9 of the General Provisions.

5.2

6. Early Completion.

6.1 City Not Liable for Contractor Failure to Achieve Early Completion. While the Contractor may schedule completion of all of the Work, or portions thereof, earlier than the

Contract Time, the City is exempt from liability for and the Contractor will not be entitled to an adjustment of the Contract Sum or to any additional costs, damages, including, but not limited to, claims for extended general conditions costs, home office overhead, jobsite overhead, and management or administrative costs, or compensation whatsoever, for use of float time or for the Contractor's inability to complete the Work earlier than the Contract Time for any reason whatsoever.

7. Work after Stop Work Notice. Any work completed by the Contractor after the issuance of a Stop Work Notice by the City shall be rejected and/or removed and replaced as specified in the applicable Section of the Special Provisions.

8. Antitrust Claims. In entering into this Contract, the Contractor offers and agrees to assign to the City all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. § 15) or under the Cartwright Act (Business and Professions Code Section 16700 *et seq.*) arising from purchases of goods, services, or materials pursuant to the Contract. This assignment shall be made and become effective at the time the City tenders final payment to the Contractor without further acknowledgment by the parties.

9. Prevailing Wages. The City and the Contractor acknowledge that the Project is a public work to which prevailing wages apply.

10. Workers' Compensation. Labor Code Sections 1860 and 3700 provide that every contractor will be required to secure the payment of compensation to its employees. In accordance with the provisions of Labor Code Section 1861, by signing this Contract, the Contractor certifies as follows:

"I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the Work of this Contract."

11. Titles. The titles used in this Contract are for convenience only and shall in no way define, limit or describe the scope or intent of this Contract or any part of it.

12. Authority. Any person executing this Contract on behalf of the Contractor warrants and represents that he or she has the authority to execute this Contract on behalf of the Contractor and has the authority to bind the Contractor to the performance of its obligations hereunder.

13. Entire Agreement. This Contract, including the Contract Documents and any other documents incorporated herein by specific reference, represents the entire and integrated Contract between the City and the Contractor. This Contract supersedes all prior oral or written negotiations, representations or agreements. This Contract may not be modified or amended, nor any provision or breach waived, except in a writing signed by both parties that expressly refers to this Contract.

14. Counterparts. This Contract may be executed in counterpart originals, duplicate originals, or both, each of which is deemed to be an original for all purposes.

IN WITNESS WHEREOF, the parties hereto have executed this Contract the day and year first above written.

CITY:

City of Manhattan Beach,
a California municipal corporation

By: _____
Name: Bruce Moe
Title: City Manager

ATTEST:

By: _____
Name: Liza Tamura
Title: City Clerk

APPROVED AS TO FORM:

By: _____
Name: Quinn M. Barrow
Title: City Attorney

APPROVED AS TO FISCAL IMPACT:

By: _____
Name: Steve S. Charelian
Title: Finance Director

APPROVED AS TO CONTENT:

By: _____
Name: Erick Lee
Title: Public Works Director

CONTRACTOR:

[Contractor's Legal Name]

By: _____
Name: _____
Title: _____

By: _____
Name: _____
Title: _____

**PROOF OF AUTHORITY TO BIND
CONTRACTING PARTY REQUIRED**

Bond No. _____

**PAYMENT BOND
(LABOR AND MATERIALS)**

KNOW ALL PERSONS BY THESE PRESENTS that:

WHEREAS the City of Manhattan Beach ("City"), State of California, has awarded to _____

_____ ("Principal")
(Name and address of Contractor)

a contract (the "Contract") for the Work described as follows:

City Facility Security Camera Project, Public Works Yard and City Hall, Fire Department and Police Department

(Project Name)

WHEREAS, under the terms of the Contract, the Principal is required before entering upon the performance of the Work, to file a good and sufficient payment Bond with the City to secure the claims to which reference is made in Title 3 (commencing with Section 9000) of Part 6 of Division 4 of the Civil Code.

NOW, THEREFORE, we, the undersigned Principal, and _____

(Name and address of Surety)

("Surety") a duly admitted surety insurer under the laws of the State of California, as Surety, are held and firmly bound unto the City and all contractors, subcontractors, laborers, material suppliers, and other persons employed in the performance of the Contract and referred to in Title 3 (commencing with Section 9000) of Part 6 of Division 4 of the Civil Code in the penal sum of _____ Dollars (\$ _____), for materials furnished or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to this Work or labor, that the Surety will pay the same in an amount not exceeding the amount hereinabove set forth, and also in case suit is brought upon this Bond, will pay, in addition to the face amount thereof, costs and reasonable expenses and fees, including reasonable attorneys' fees, incurred by City in successfully enforcing this obligation, to be awarded and fixed by the court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this Bond shall inure to the benefit of any and all persons, companies, and corporations entitled to file claims under Title 3 (commencing with Section 9000) of Part 6 of Division 4 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this Bond.

Upon expiration of the time within which the California Labor Commissioner may serve a civil wage and penalty assessment against the principal, any of its subcontractors, or both the principal and its subcontractors pursuant to Labor Code Section 1741, and upon expiration of the time within which a joint labor management committee may commence an action against the principal, any of its subcontractors, or both the principal and its subcontractors pursuant to Labor Code Section 1771.2, if the condition of this Bond be fully performed, then this obligation shall become null and void; otherwise, it shall be and remain in full force and effect.

The Surety hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract or the Specifications accompanying the same shall in any manner affect its obligations on this Bond, and it does hereby waive notice of any such change, extension, alteration, or addition.

IN WITNESS WHEREOF, two identical counterparts of this instrument, each of which shall for all purposes be deemed an original hereof, have been duly executed by Principal and Surety, on the date set forth below, the name of each corporate party being hereto affixed and these presents duly signed by its undersigned representative(s) pursuant to authority of its governing body.

Dated: _____

“Principal”

“Surety”

Signature: _____

Signature: _____

Print Name: _____

Print Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

Signature: _____

Print Name: _____

Title: _____

Date: _____

(Seal)

(Seal)

NOTE: *This Bond must be executed in duplicate and dated, all signatures must be notarized, and evidence of the authority of any person signing as attorney-in-fact must be attached. DATE OF BOND MUST NOT BE BEFORE DATE OF CONTRACT.* Surety companies executing Bonds must appear on the Treasury Department’s most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS that:

WHEREAS the City of Manhattan Beach ("City"), has awarded to _____

(Name and address of Contractor) ("Principal")

a contract (the "Contract") for the Work described as follows:

City Facility Security Camera Project, Public Works Yard and City Hall, Fire Department and Police Department

(Project Name)

WHEREAS, Principal is required under the terms of the Contract to furnish a Bond for the faithful performance of the Contract.

NOW, THEREFORE, we, the undersigned Principal, and _____

(Name and address of Surety)

("Surety") a duly admitted surety insurer under the laws of the State of California, as Surety, are held and firmly bound unto the City in the penal sum of _____ Dollars (\$_____), this amount being not less than the total Contract Price, in lawful money of the United States of America, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, successors executors and administrators, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the hereby bounded Principal, his, her or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and provisions in the Contract and any alteration thereof made as therein provided, on the Principal's part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the City, its officers, agents and employees, as therein stipulated, then this obligation shall become null and void; otherwise, it shall be and remain in full force and effect.

As a part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs and reasonable expenses and fees, including reasonable attorneys' fees, incurred by City in successfully enforcing such obligation, all to be taxed as costs and included in any judgment rendered. Surety hereby waives any statute of limitations as it applies to an action on this Bond.

The Surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or of the Work to be performed thereunder or the specifications accompanying the same shall in anywise affect its obligations under this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Work or to the specifications. Surety hereby waives the provisions of California

Civil Code Sections 2845 and 2849. The City is the principal beneficiary of this Bond and has all rights of a party hereto.

IN WITNESS WHEREOF, two identical counterparts of this instrument, each of which shall for all purposes be deemed an original hereof, have been duly executed by Principal and Surety, on the date set forth below, the name of each corporate party being hereto affixed and these presents duly signed by its undersigned representative(s) pursuant to authority of its governing body.

Dated: _____

“Principal”

“Surety”

Signature: _____
Print Name: _____
Title: _____
Date: _____

Signature: _____
Print Name: _____
Title: _____
Date: _____

Signature: _____
Print Name: _____
Title: _____
Date: _____

(Seal)

(Seal)

NOTE: *This Bond must be executed in duplicate and dated, all signatures must be notarized, and evidence of the authority of any person signing as attorney-in-fact must be attached. DATE OF BOND MUST NOT BE BEFORE DATE OF CONTRACT.* Surety companies executing Bonds must appear on the Treasury Department’s most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.

Bond No. _____

WARRANTY BOND

KNOW ALL PERSONS BY THESE PRESENTS that:

WHEREAS the City of Manhattan Beach ("City"), State of California, has awarded to _____
_____ ("Principal")

(Name and address of Contractor)

a contract (the "Contract") for the Work described as follows:

City Facility Security Camera Project, Public Works Yard and City Hall, Fire Department and Police Department

(Project Name)

WHEREAS, under the terms of the Contract, the Principal is required before entering upon the performance of the Work to file a good and sufficient warranty Bond with the City.

NOW, THEREFORE, we, the undersigned Principal, and _____

(Name and address of Surety)

("Surety") a duly admitted surety insurer under the laws of the State of California, as Surety, are held and firmly bound unto the City in the penal sum of _____ Dollars (\$_____)

this amount being not less than 10% of the total Contract Price, lawful money of the United States of America, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the hereby bounded Principal, his, her or its heirs, executors, administrators, successors or assigns, shall remedy, without cost to the City, any defects which may develop during a period of one year from the date of completion and acceptance of the work performed under the Contract, caused by defective or inferior materials or workmanship, and shall indemnify, defend and hold harmless the City, its officers, agents, and employees for any and all claims, demands, causes of action, damages, injuries, liabilities, losses, costs or expenses, including attorneys' fees and costs of defense, which arise out of, pertain to, or relate to such defects or to the Principal's actions or inactions in remedying such defects, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

In case suit is brought upon this bond, Surety further agrees to pay, in addition to the Penal Sum, all costs and reasonable expenses and fees, including reasonable attorneys' fees, incurred by the City in successfully enforcing such obligation, all to be taxed as costs and included in any judgment rendered.

FURTHER, Surety hereby waives the provisions of California Civil Code sections 2845 and 2849. The City is the principal beneficiary of this bond and has all rights of a party hereto.

The Surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the specifications

accompanying the same shall in anywise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the specifications.

IN WITNESS WHEREOF, two identical counterparts of this instrument, each of which shall for all purposes be deemed an original hereof, have been duly executed by Principal and Surety, on the date set forth below, the name of each corporate party being hereto affixed and these presents duly signed by its undersigned representative(s) pursuant to authority of its governing body.

Dated: _____

“Principal”

“Surety”

Signature: _____
Print Name: _____
Title: _____
Date: _____

Signature: _____
Print Name: _____
Title: _____
Date: _____

Signature: _____
Print Name: _____
Title: _____
Date: _____

(Seal)

(Seal)

NOTE: *This Bond must be executed in duplicate and dated, all signatures must be notarized, and evidence of the authority of any person signing as attorney-in-fact must be attached. DATE OF BOND MUST NOT BE BEFORE DATE OF CONTRACT.* Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.

CHECKLIST FOR EXECUTION OF CONTRACT

TO BE SUBMITTED BY SUCCESSFUL BIDDER:

- _____ Two executed copies of the Contract
- _____ Completed, signed and notarized Payment Bond (original) in amount of the Contract
- _____ Completed, signed and notarized Performance Bond (original) in amount of the Contract
- _____ Completed, signed and notarized Warranty Bond (original) in the amount of 10% of the Contract
- _____ Workers' Compensation Certificate with attached Certificate of Insurance
- _____ General Liability insurance certificate naming the City as a co-insured
- _____ Automobile insurance naming the City as a co-insured
- _____ Umbrella/Excess Liability (General aggregate) insurance certificate naming the City as a co-insured, if applicable
- _____ Additional insured endorsement – comprehensive general liability
- _____ Additional insured endorsement – automobile liability
- _____ Additional insured endorsement – excess liability
- _____ Primary and Non-Contributory Endorsement- General Liability Policy
- _____ Waiver of Subrogation - general liability
- _____ Waiver of Subrogation - Worker's Compensation

ALL SUBMITTALS WILL BE RETAINED BY CITY, EXCEPT FOR ONE COPY OF THE FULLY EXECUTED CONTRACT

PART 1 - GENERAL PROVISIONS

SECTION 0. GENERAL PROVISIONS DEFINED

0-1 STANDARD SPECIFICATIONS

The 2021 edition of “Standard Specifications for Public Works Construction”, as amended by the Contract Documents, is incorporated into the Contract Documents by this reference. The Work described herein shall be done in accordance with the provisions of the Standard Specifications, as amended by the Contract Documents.

0-2 NUMBERING OF SECTIONS

The number of sections and subsections in these General Provisions are compatible with the numbering in the Standard Specifications. Subsections of architectural and/or other work may be numbered according to the Construction Specifications Institute (CSI) format.

0-3 SUPPLEMENTATION OF STANDARD SPECIFICATIONS

The Sections that follow supplement, but do not replace, the corresponding provisions in Party 1 (General Provisions) of the Standard Specifications, except as otherwise indicated herein. In the event of any conflict between the Standard Specifications and these General Provisions, these General Provisions shall control.

SECTION 1. GENERAL, TERMS, DEFINITIONS, ABBREVIATIONS, UNITS OF MEASURE, AND SYMBOLS

The provisions below shall supplement, but not replace, those provisions in Section 1 of the Standard Specifications.

1-2 TERMS AND DEFINITIONS

Whenever in the Standard Specifications or in the Contract Documents the following terms are used, they shall be understood to mean the following:

Agency – The City of Manhattan Beach.

Applicable Law – All State, federal, and local laws, statutes, ordinances, codes, rules, and regulations governing the Work.

Bid Item – An item of Work listed on the Bid Schedule.

Board – The City Council of the City of Manhattan Beach.

City – The City of Manhattan Beach

City Council – The City Council of the City of Manhattan Beach

Contract Documents – As defined in Section 1 of the Contract.

Contract Time – The number of Working Days stated in the Contract for the completion of the Work.

County – County of Los Angeles, California

Detour – A temporary route for traffic (vehicular or pedestrian) around a closed portion of a road or travel way.

Engineer – The City Engineer, acting either directly or through properly authorized agents. Such agents shall act within the scope of the particular duties entrusted to them.

Estimated Quantities – The quantities of Work anticipated to be performed, as set forth in the Bid Schedule, designated as units or a lump sum.

Excavation – Any operation in which earth, rock, or other material in the ground is moved, removed, or otherwise displaced by means of tools, equipment, or explosives in any of the following ways: grading, trenching, digging, ditching, drilling, augering, tunneling, scraping, cable or pipe plowing and driving, or any other way (Cal. Gov. Code § 4216).

Final Acceptance- Acceptance of the Work by the City Council and direction to staff to cause recordation of the Notice of Completion, pursuant to Section 3-13.1 these General Provisions.

Inspector – An authorized representative of the City, assigned by the City to make inspections of Work performed by or materials supplied by the Contractor.

Major Item of Work – A bid item amount that is at least 10% of the total contract award amount.

Minor Item of Work – A bid item amount that is less than 10% of the total contract award amount.

Notice of Completion – The notice authorized by Civil Code Section 9204.

Notice to Proceed or Notice to Proceed with Construction – A written notice issued by the City to the Contractor that authorizes the Contractor to perform the Work.

Notice to Proceed to Fulfill Preconstruction Requirements and Order Materials – A written notice issued by the City to the Contractor that authorizes the Contractor to proceed with preconstruction requirements and the acquisition or purchase of materials that are to be incorporated into the Work and establishes the date of commencement of the Contract Time.

Project – See Work.

Punch List – A list of items of Work to be completed or corrected by the Contractor in order to complete the Work as specified in the Contract Documents.

Shop Drawings – All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a Subcontractor, manufacturer, supplier, or distributor, which illustrate how specific portions of the Work shall be fabricated or installed.

State – The State of California.

Submittal – Any drawing, calculation, specification, product data, samples, manuals, requests for substitutes, spare parts, photographs, survey data, traffic control plans, record drawings, bonds or similar items required to be submitted to the City under the terms of the Contract.

Traffic Engineer – The representative of the Engineer who is assigned traffic-related matters.

Work – The construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, services provided or to be provided by the Contractor to fulfill the Contractor's obligations.

Working Day - Any calendar day except Saturdays, Sundays, and the following holidays:

New Year's Day	January 1
Martin Luther King, Jr. Day	3rd Monday in January
Presidents' Day	3rd Monday in February
Memorial Day	Last Monday in May
Independence Day	July 4
Labor Day	1st Monday in September
Columbus Day.....	2nd Monday in October
Veterans' Day.....	November 11
Thanksgiving	4th Thursday in November
Friday after Thanksgiving	4th Friday in November
Christmas Day.....	December 25

If a holiday falls upon a Sunday, the following Monday shall be the day the holiday is observed, and if a holiday falls upon a Saturday, the preceding Friday shall be the day the holiday is observed.

Work Directive – A unilateral written order issued by the City directing the Contractor to continue performance of the Work or a disputed item of Work pending resolution of a claim or dispute concerning the scope of Work.

1-3.3 Institutions

The institutions listed in Section 1-3.3 of the Standard Specifications shall be supplemented by the list below:

<u>Abbreviation</u>	<u>Word or Words</u>
AAN	American Association of Nurserymen
AGCA	Associated General Contractors of America
APWA	American Public Works Association
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
NEC	National Electric Code
NFPA	National Fire Protection Association
SSS	State of California Standard Specifications, Latest edition, Department of Transportation
SSP	State of California Standard Plans, Latest edition, Department of Transportation

1-7 AWARD AND EXECUTION OF THE CONTRACT

1-7.2. Contract Bonds. The following paragraphs shall be added following the seventh paragraph:

The Faithful Performance Bond shall remain in force until the date of recordation of the Notice of Completion. The Labor and Materials Bond shall remain in force until expiration of the time within which the California Labor Commissioner may serve a civil wage and penalty assessment against the principal, any of its Subcontractors, or both the principal and its Subcontractors pursuant to Labor Code Section 1741, and until the expiration of the time within which a joint labor management committee may commence an action against the principal, any of its Subcontractors, or both the principal and its Subcontractors pursuant to Labor Code Section 1771.2.

The warranty or maintenance Bond shall be valid for one year from the date of recordation of Notice of Completion by the County Recorder, in the amount of ten percent of the Contract Price. Other than the details listed herein, the warranty or maintenance Bond shall adhere to the requirements for Bonds in Section 1-7.2 of the Standard Specifications. Nothing herein shall abridge or amend Section 3-13.3 of the Standard Specifications or the related provisions in these Contract Documents.

All Bonds must be submitted using the required forms, which are in the Contract Documents, or on any other form approved by the City Attorney.

SECTION 2. SCOPE OF THE WORK

The provisions below shall supplement but not replace those provisions in Section 2 of the Standard Specifications, unless specifically noted below.

2-1 WORK TO BE DONE

The following paragraphs shall be added at the end of Subsection 2-1:

All work which is defective in its construction or deficient in any of the requirements of the Plans

and Specifications shall be remedied or removed and replaced by the Contractor in an acceptable manner at his own expense. No compensation will be allowed for any work done beyond the lines and grades shown on the Plans or established by the Engineer. Upon failure on the part of the Contractor to comply with any order of the Engineer made under the provisions of this article, the Engineer and the City may cause the defective work to be remedied or removed and replaced at the expense of the Contractor.

Any unauthorized or defective work, defective material or workmanship or any unfaithful or imperfect work that may be discovered before Final Acceptance of work by the Board shall be corrected immediately with no extra charge even though it may have been overlooked in previous inspections and estimates or may have been caused due to failure to inspect the work.

2-2 PERMITS

Before starting any construction work, the Contractor will be required to obtain all necessary permits from the City, which may include obtaining an encroachment permit for Work within the public right-of-way, as well as all other permits required from all other agencies. Should this Project require construction of trenches or excavations which are five feet or deeper and into which a person is required to descend, the Contractor shall obtain a Cal/OSHA permit and furnish the City with a copy before Work can commence on this Project. The Contractor shall bear all cost for fees for all agencies except for the City's permit fees.

Prior to the start of any work, the Contractor shall obtain the applicable AGENCY permits and make arrangements for AGENCY inspections. The AGENCY will issue the permits at no charge to the Contractor. The Contractor shall be responsible for obtaining and paying for any outside agency permits. The Contractor and all subcontractors shall be licensed in accordance with State Business and Professions Code. The Contractor shall also obtain any and all other permits, licenses, inspections, certificates, or authorizations required by any governing body or entity having jurisdiction within the project limits.

The Contractor shall pay all cost incurred by the permit and license requirements.

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the work. All City of Manhattan Beach permits required for the performance of the Contract shall be issued on a "no fee" basis.

2-4 COOPERATION AND COLLATERAL WORK

The Contractor shall be responsible for coordinating all Work with the City's street sweeping, trash pick-up, and street maintenance contractors, emergency services departments, utility companies' crews, and others when necessary. Payment for conforming to these requirements shall be included in other items of Work, and no additional payment shall be made thereof.

2-5 THE CONTRACTOR'S EQUIPMENT AND FACILITIES

The use of excessively loud equipment and warning signals shall be avoided, except in those cases required for the protection of personnel.

2-5.4 Haul Routes

Subsection 2-5.4 of the Standard Specifications shall be deleted and replaced as follows:

The Contractor must obtain the Engineer's approval before using any haul routes. Further detail requirements for haul traffic are delineated in the Special Provisions.

2-6 *CHANGES REQUESTED BY THE CONTRACTOR*

Add the following paragraph:

2-6.1 General

If the Contractor alleges that instructions issued after the date of the Contract will result in increases to the Contract Price or Contract Time, if latent or unforeseen conditions require modification of the Contract Documents, or the Contractor otherwise becomes aware of the need for or desirability of a change in the Work, a Change Order Proposal ("COP") may be submitted to the City in writing, using the forms provided herein in Subsection 2-7.1.1 of the General Provisions, and must specify the reasons for such change, including relevant circumstances and impacts on the construction schedule. The Contractor may request additional compensation and/or time through a COP but not for instances that occurred more than ten calendar days prior to the COP. The Contractor's failure to initiate a COP within such period shall be deemed a waiver of the right to adjustment of the Contract Price or the Contract Time for the alleged change, unless such waiver is prohibited under state law. Any COP that is approved by the City will be incorporated in a Change Order or Construction Change Directive. If the City determines that the Work in question is not a change, the City shall issue a Work Directive, ordering the Contractor to proceed with the Work without delay. If the COP is denied but the Contractor believes that it does have merit, the Contractor may submit a claim to the City.

2-7 *CHANGES INITIATED BY THE AGENCY*

The City reserves the right, without notice to the Surety, to increase or decrease the quantity of any item or portion of the Work described in the Contract Documents or to alter or omit portions of the Work so described, as may be deemed necessary or expedient by the Engineer, without in any way making the Contract void. Such increases, alterations or decreases of Work shall be considered and treated as though originally contracted for, and shall be subject to all the terms, conditions and provisions of the original Contract. The Contractor shall not claim or bring suit for damages, whether for loss of profits or otherwise, on account of any decrease, alteration or omission of any kind of Work to be done.

2-7.1 General

Add the following paragraphs at the end of Subsection 2-7.1:

The City reserves the right to make changes in the Work, including the elimination of any Bid Item, after execution of the Contract and without invalidating the Contract by:

- A. Change Order approved by the City Council, City Manager, Public Works Director, or City Engineer (dollar value of approval authority for each as per City policy); or
- B. Construction Change Directive approved by the City Council, City Manager, Public Works Director, or City Engineer (dollar value of approval authority for each as per City policy);

A change that causes the total value of all changes to exceed the Contract contingency amount established at the time of award of the Contract must be approved by the City Council. No payments in excess of the original Contract Price will be made until a Change Order is approved

in the normal course of business. The City may, at any time, without notice to the Contractor's surety(ies), order changes in the Work within the general scope of the Contract. Such changes in the Work shall not relieve or release the surety(ies) of its (their) obligations under the Performance and Payment Bonds issued for the Project. Changes in the Work made pursuant to this Article 3 shall in no way release any guarantee or warranty provided by the Contractor.

The City may issue a Change Order Proposal Request ("COPR"), in writing, to the Contractor, describing a proposed change to the Work and requesting that the Contractor submit an itemized Change Order Proposal ("COP") to the City. The Contractor shall submit the COP to the City Engineer, using the forms provided herein in Subsection 2-11.2 of these General Provisions, within ten calendar days after the City's issuance of the COPR. If the Contractor fails to submit a COP within such period of time, it shall be presumed that the change described in the City's COPR will not result in an increase to the Contract Price or Contract Time and the change shall be performed by the Contractor without such increases. A COPR does not authorize the Contractor to commence performance of the changed work. The Contractor shall not perform any change until receipt of the City's written approval. If the City approves the Contractor's COP, the City shall issue a Change Order.

Whenever a change is pending, the Contractor shall notify the City if it is necessary to halt other Work in the area of the change that would be affected thereby, until such time as the change is authorized.

Any change to the Contract Price shall be in a sum mutually agreed to by the Contractor and the City. When the cost for Extra Work cannot be agreed upon, the City will pay for Extra Work based on the accumulation of costs as provided for in Subsection 7-4, "Payment for Extra Work," of the Standard Specifications and the General Provisions.

2-7.1.1 Change Order

A Change Order is a written instrument prepared by the City and signed by the City and the Contractor, stating their agreement upon all of the following:

- A. The scope of the change in the Work;
- B. The amount of the adjustment, if any, in the Contract Price; and
- C. The extent of the adjustment, if any, in the Contract Time.

2-7.1.1.1 Accord and Satisfaction

The Contractor's agreement on any Change Order shall be a full compromise and settlement of all adjustments to the Contract Time and Contract Price, and compensation for any and all delay, extended or additional field and home office overhead, disruption, acceleration, inefficiencies, lost labor or equipment productivity, differing site conditions, construction interferences, and other extraordinary or consequential damages (hereinafter called "Impacts"), including any ripple or cumulative effect of the Impacts on the overall Work under the Contract arising directly or indirectly from the performance of Work described in the Change Order. By execution of any Change Order, the Contractor agrees that the Change Order constitutes a complete accord and satisfaction with respect to all claims for schedule extension, Impacts, or any costs of whatsoever nature, character or kind arising out of or incidental to the Change Order. No action, conduct, omission, product failure, or course of dealing by the City shall act to waive, modify, change, or alter the requirement that Change Orders must be in writing, signed by the City and the Contractor, and that such

written Change Orders are the exclusive method for effectuating any change to the Contract Sum and/or Contract Time.

2-7.1.2 Construction Change Directive

A Construction Change Directive is a written order prepared and signed by the City, directing a change in the Work prior to the Contractor's agreement on adjustment, if any, in the Contract Price or Contract Time, or both. The City may, by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Price and Contract Time being adjusted accordingly. Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved. A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order. The City's form of Construction Change directive is provided in Subsection 2-11 of the General Provisions.

2-8 *EXTRA WORK*

Subsection 2-8 of the Standard Specifications shall be deleted and replaced as follows:

New and unforeseen work will be classified as Extra Work only when the Work is not covered and cannot be paid for under any of the various items or combination of items for which a Bid price appears on the Bid. The Contractor shall not do any Extra Work except upon written order from the Engineer.

All Extra Work shall conform to the Plans and Specifications.

The Contractor shall furnish to the Engineer each Subcontractor's signed and detailed estimate of the cost for labor, materials, and equipment, including the markup by such Subcontractor for overhead and profit for Work added or deducted to a Subcontractor's scope of Work. The Contractor shall furnish to the Engineer the sub-Subcontractor's signed detailed estimate of the cost for labor, materials, and equipment, including the markup by such sub-Subcontractor for overhead and profit for Work added or deducted to a sub-Subcontractor's scope of Work. The Contractor shall furnish to the Engineer the vendor or supplier's signed detailed estimate or quotation of the cost to the Contractor for Work added or deducted from a vendor or suppliers scope of Work.

2-10 *DISPUTED WORK*

Delete Subsection 2-10 in its entirety and substitute the following:

In the event of disputed Work, the City shall have the right to unilaterally issue a written Work Directive; and the Contractor shall continue performance pending resolution of the dispute and shall maintain cost data described in Subsection 2-8 of the Standard Specifications and the General Provisions. The City's form of Work Directive is provided in Subsection 2-11 of the General Provisions. Payment shall be made for such disputed Work as is later determined by negotiation between the parties or as is fixed by a court of law.

2-11 *FORMS*

Add Section 2-11 to incorporate the following sample forms, which appear in the succeeding pages. 2-11.1 Change Order Form

2-11.2 Change Order Proposal Forms Sample

- (a) Change Order Proposal Summary Report Sample
- (b) Labor Cost Report Sample
- (c) Labor Rates Report Sample
- (d) Material Cost Report Sample
- (e) Equipment Cost Report Sample
- (f) Special Forces/Services Cost Report Sample

2-11.3 Construction Change Directive Form

2-11.4 Work Directive Form



**CITY OF MANHATTAN BEACH
PUBLIC WORKS DEPARTMENT
Engineering Division**

CONTRACT CHANGE ORDER NO. 1 (Final)

PROJECT NO.: D-944

DESCRIPTION: City Facility Security Camera Project
Public Works Yard and City Hall
Fire Department and Police Department

TO: Construction Company, Inc.

You are hereby instructed to comply with the following changes from the Contract Plans and Specifications:

SUMMARY OF CHANGES		
Description (Detailed Explanation Attached)	Change in Contract Price¹	Change in Work Days
1.	\$0.00	
2. Adjustment in Final Bid Quantities	\$0.00	
Net Change in Contract Price and Work Days	\$0.00	

¹Deduction or decrease in Contract Price is denoted in parentheses.

The following change is hereby made a part of the Contract Documents and shall be performed under the same terms and conditions as required by the original Contract Documents. Except as modified herein, the original Contract Documents and all prior amendments shall remain in full force and effect and all of the terms of the Contract Documents are hereby incorporated in this Change Order.

SUMMARY OF ALL CHANGE ORDERS

ORIGINAL CONTRACT AMOUNT\$000,000.00
CCO1 (FINAL).....\$0.00
TOTAL\$000,000.00

SUMMARY OF WORKING DAYS

FIRST DAY OF WORK:..... Date
CONTRACT WORKING DAYS..... X
TIME EXTENSION: CCO 1 (Final) Y
NEW TOTAL WORKING DAYS:.....X+Y
LAST DAY OF WORK..... New Date



CHANGE ORDER DETAIL

Change Order No.: 1 (Final)

Project No.: D-944

Description: City Facility Security Camera Project
Public Works Yard and City Hall
Fire Department and Police Department

The changes or interpretations described and noted herein are hereby authorized. The signed original of this order is on file in the Department of Public Works. Shown as separate paragraphs: (A) Reason for Change; (B) Description of Change; (C) Change in Contract Costs; and (D) Change in Completion Date.

Item No. 1:

A. Reason for Change:

Due to conditions encountered during construction, modifications to the amount of Work were determined to be appropriate, and the changes were addressed by means of adjusting applicable contract quantities, as outlined below.

B. Description of Change:

ITEM	DESCRIPTION	UNIT	UNIT PRICE	BID OR CURRENT APPROVED QTY	FINAL QTY	CHANGE	CHANGE IN COST ¹
New Item				0	0	0	0.00

¹Deduction or decrease in Contract Price is denoted in parentheses.

C. Change in Contract Cost:

Add \$0.00

D. Change in Completion Date:

Add Y Working Days

Item No. 2:

A. Reason for Change:



B. Description of Change:

ITEM	DESCRIPTION	UNIT	UNIT PRICE	BID OR CURRENT APPROVED QTY	FINAL QTY	CHANGE	CHANGE IN COST ¹
New Item				0	0	0	0.00

¹Deduction or decrease in Contract Price is denoted in parentheses.

C. Change in Contract Cost:
Add \$0.00

D. Change in Completion Date:
No Change.

SIGNATURE PAGE TO FOLLOW:



The original Contract Price was (\$0.00). Contract Change Order No. 1 (Final) increased the Contract Price by (\$0.00). The new Contract Price will be \$00/100, resulting in an increase of approximately 0.00% to the original Contract.

The original Contract Time of X Working Days was extended by Y Working Days per Change Order No. 1 (Final). The last contract Working Day is new Date.

Ordered: _____
Public Works Director

Date: _____

Concurred by: _____
City Engineer

Date: _____

Concurred by: _____
Project Manager

Date: _____

Acceptance by the Contractor:

This Change Order is in full compromise and settlement of all adjustments to Contract Time and Contract Price, and compensation for any and all delay, extended or additional field and home office overhead, disruption, acceleration, inefficiencies, lost labor or equipment productivity, differing site conditions, construction interferences and other extraordinary or consequential damages (hereinafter called "Impacts"), including any ripple or cumulative effect of these Impacts on the overall Work under the Contract arising directly or indirectly from the performance of Work described in this Change Order. By execution of this Change Order, the Contractor agrees that this Change Order constitutes a complete accord and satisfaction with respect to all claims for schedule extension, Impacts, or any costs of any nature, character or kind arising out of or incidental to this Change Order.

Name: _____

Date: _____

Title: _____



CHANGE ORDER PROPOSAL FORM (SAMPLE)

2-11.2(a) CONTRACT CHANGE ORDER PROPOSAL SUMMARY REPORT

Date _____
CCO Proposal No. _____ Contractor _____
Item No. _____ Location _____

General Contractor	AMOUNT
1. Labor Cost.....	\$ _____
2. Material Cost.....	\$ _____
3. Equipment Cost.....	\$ _____
4. Special Forces/Services.....	\$ _____
Subtotal Contractor Cost•	\$ _____
5. Subcontractor/Sub-Subcontractor Name _____	
Labor Cost.....	\$ _____
Material Cost.....	\$ _____
Equipment Cost.....	\$ _____
Subtotal Subcontractor/Sub-Subcontractor Cost	
6. Subcontractor/Sub-Subcontractor Name _____	
Labor Cost.....	\$ _____
Material Cost.....	\$ _____
Equipment Cost.....	\$ _____
Subtotal Subcontractor/Sub-Subcontractor Cost.....	\$ _____
TOTAL CONTRACT CHANGE ORDER COSTS	\$ _____



CHANGE ORDER PROPOSAL FORM SAMPLE

2-11.2(b) LABOR COST REPORT Date

Date _____

CCO Proposal No. _____ Contractor or Subcontractor _____

Item No. _____ Location _____

CLASSIFICATION AND NAME	HOURS	HOURLY RATE	EXTENDED AMOUNTS
Classification:	OT	\$	\$
Name:	REG	\$	\$
Classification:	OT	\$	\$
Name:	REG	\$	\$
Classification:	OT	\$	\$
Name:	REG	\$	\$
Classification:	OT	\$	\$
Name:	REG	\$	\$
Classification:	OT	\$	\$
Name:	REG	\$	\$
TOTAL LABOR			\$

Overhead/profit 20%.....\$ _____

Total labor/overhead/profit\$ _____

Subcontractor's mark-up of total Sub-Subcontractor
labor/overhead/profit (if applicable) 5%.....\$ _____

General contractor's mark-up of total Subcontractor
or Sub-Subcontractor labor/overhead/profit (if applicable) 5%\$ _____

Total.....\$ _____



CHANGE ORDER PROPOSAL FORM SAMPLE

2-11.2(c) LABOR RATES REPORT Date

Date _____

CCO Proposal No. _____ Contractor or Subcontractor _____

Item No. _____ Location _____

CLASSIFICATION:		
TAXABLE BASE:		AMOUNT
Base Hourly Pay		\$
Vacation		\$
TOTAL TAXABLE BASE		\$
TAXES & INSURANCE	PERCENT	AMOUNT
Social Security Tax		\$
State Unemployment Tax		\$
Federal Unemployment Tax		\$
Workmen's Compensation		\$
Liability & Umbrella Insurance		\$
TOTAL TAXES & INSURANCE		\$
FRINGE BENEFITS	AMOUNT	
Pension	\$	
Health & Welfare	\$	
Training	\$	
Other Fringe Benefits	\$	
TOTAL FRINGE BENEFITS	\$	
AMOUNT	\$	



CHANGE ORDER PROPOSAL FORM SAMPLE

2-11.2(d) MATERIAL COST REPORT

Date _____

CCO Proposal No. _____ Contractor or Subcontractor _____

Item No. _____ Location _____

INVOICE NO.	DESCRIPTION	AMOUNT
1.	Material	\$
	Sales Tax (Prevailing Tax Rate) 9.50%	\$
	Subtotal	\$
2.	Material	\$
	Sales Tax (Prevailing Tax Rate) 9.50%	\$
	Subtotal	\$
3.	Material	\$
	Sales Tax (Prevailing Tax Rate) 9.50%	\$
	Subtotal	\$
SUBTOTAL MATERIAL COST		\$

NOTE: An itemized list of materials, manufacturers, serial numbers, invoices, and other pertinent date shall be submitted along with the material cost report.

Overhead/profit 15%..... \$ _____

Total material/overhead/profit \$ _____

Subcontractor's mark-up of total Sub-Subcontractor material/overhead/profit (if applicable) 5% \$ _____

General contractor's mark-up of total Subcontractor or Sub-Subcontractor labor/overhead/profit (if applicable) 5% \$ _____

Total..... \$ _____



CHANGE ORDER PROPOSAL FORM SAMPLE

2-11.2(e) EQUIPMENT COST REPORT

Date _____

CCO Proposal No. _____ Contractor or Subcontractor _____

Item No. _____ Location _____

EQUIPMENT NO. (Description, Type, Size)	HOURS	HOURLY RATE	EXTENDED AMOUNTS
SUBTOTAL EQUIPMENT COST			\$

Overhead/profit 15%..... \$ _____

Total equipment/overhead/profit \$ _____

Subcontractor's mark-up of total Sub-Subcontractor
equipment/overhead/profit (if applicable) 5% \$ _____

General contractor's mark-up of total Subcontractor
or Sub-Subcontractor equipment/overhead/profit (if applicable) 5% \$ _____

Total..... \$ _____



CHANGE ORDER PROPOSAL FORM SAMPLE

2-11.2 (f) SPECIAL FORCES/SERVICES COST REPORT

Date _____

CCO Proposal No. _____ Contractor or Subcontractor _____

Item No. _____ Location _____

INVOICE NO.	DESCRIPTION	AMOUNT
1.		\$
		\$
	Subtotal	\$
2.		\$
		\$
	Subtotal	\$
3.		\$
		\$
	Subtotal	\$
SUBTOTAL MATERIAL COST		\$

NOTE: An itemized list of materials, manufacturers, serial numbers, invoices, and other pertinent data shall be submitted along with the special forces/services cost report.

Overhead/profit 15%.....\$ _____

Total Special Forces/Services/Overhead/Profit\$ _____



2-11.3 CONSTRUCTION CHANGE DIRECTIVE

Distribution to: CITY CONTRACTOR OTHER PROJECT MANAGER

PROJECT:	DIRECTIVE NO.:
	DATE:
	CONTRACT DATE:
TO CONTRACTOR:	CONTRACT FOR:

You are hereby directed to make the following change(s) to this Contract:

PROPOSED ADJUSTMENTS

- The proposed basis of adjustment to the Contract Price is:
 - Lump Sum (increase) (decrease) of \$ _____
 - Unit Price of \$ _____ per _____
 - Daily time and materials records of actual costs plus a overhead and profit, as provided in Subsection 2-8, "Extra Work," the Standard Specifications and the General Provisions, [subject to a Not-To-Exceed Amount of \$ _____].\
 - as follows:
- The Contract Time is proposed to (be adjusted) (remain unchanged). The proposed adjustment, if any, is (an increase of ____ days) (a decrease of ____ days).

If the Contractor disagrees with the proposed adjustments, it must submit its own proposal within ten days of the date of this Construction Change Directive pursuant to Contract Documents or the proposed adjustment will become final and binding on the Contractor.

When signed by the City and received by the Contractor, this document becomes effective IMMEDIATELY as a Construction Change Directive (CCD), and the Contractor shall proceed with the change(s) described above.

Ordered: _____ Date: _____
Public Works Director

Concurred by: _____ Date: _____
City Engineer

Concurred by: _____ Date: _____
Project Manager



2-11.4 WORK DIRECTIVE

Distribution to: CITY CONTRACTOR FIELD OTHER PROJECT MANAGER

PROJECT:	WORK DIRECTIVE NO.:
	DATE:
	CONTRACT DATE:
TO CONTRACTOR:	CONTRACT FOR:

You are hereby directed to continue performance of the following Work, without delay, pending resolution of the dispute concerning such Work and maintain the cost data described in Subsection 2-8, "Extra Work," of the Standard Specifications and the **General Provisions** to the Contract for the performance of such Work:

Neither the issuance of this Work Directive nor the requirement for the Contractor to maintain cost data constitutes approval by the City of a change in the Work or modification of the Contract Documents.

Ordered: _____
Public Works Director

Date: _____

Concurred by: _____
City Engineer

Date: _____

Concurred by: _____
Project Manager

Date: _____

SECTION 3. CONTROL OF THE WORK

3-1 ASSIGNMENT

Any purported assignment without written consent of the City shall be null, void, and of no effect, and the Contractor shall hold harmless, defend and indemnify the City and its officers, officials, employees, agents and representatives with respect to any claim, demand or action arising from or relating to any unauthorized assignment.

If the City opts to consent to assignment, the City's consent shall be contingent upon: (1) a letter from the Surety agreeing to the assignment and assigning all of the Bonds to the assignee without any reduction, or the assignee supplying all new Bonds in the amounts originally required under the Contract Documents; and (2) the assignee supplying all of the required insurance in the amounts required in the Contract Documents. Until the Surety assigns all of the Bonds or the assignee supplies all of the new Bonds, and until the assignee supplies all of the required insurance, an assignment otherwise consented to in writing by the City shall not be effective. Even if the City consents to assignment, no assignment shall relieve the Contractor of liability under the Contract.

3-3 SUBCONTRACTORS

Add the following sections:

3-3.1 Subcontractors shall be listed by the Bidder in accordance with these specifications and must be properly licensed under the laws of the State of California for the type of work which they are to perform. Copies of all Subcontracts shall be made available to the Engineer, upon request.

3-3.2 A Subcontractor whose prosecution of the work is not satisfactory shall be terminated immediately by the Contractor upon the receipt of a written notice by the Engineer. Subcontractors whose work was determined to be unsatisfactory shall not be allowed to perform any work on the job site.

3-5 INSPECTION

The Contractor shall arrange and pay for all off-site inspection of the Work required by any ordinance or governing authorities. The Contractor shall also arrange and pay for other inspections, including tests in connection therewith, as may be assigned or required.

Add the following paragraphs:

3-5.1 Inspection

An inspector shall in no case act as foreman or perform other duties for the Contractor, nor interfere with the Contractor's management of the Work. Any advice which an inspector may give the Contractor shall not be binding to the Engineer or to the City, or release the Contractor from fulfilling all the terms of the Contract.

No partial payment, inspection, taking possession of, or other act made or done by the Engineer or the City with respect to the work prior to final completion and acceptance thereof shall affect or prejudice the right of the Engineer or the City to reject any defective work or material or to require the complete fulfillment of all the provisions of the Contract.

If the Engineer deems it expedient and not in the best interest of the City to correct work injured or done not in accordance with the Contract, the defective work may be accepted subject to an equitable deduction from the Contract Price which may be made therefor by the City upon certification from the Engineer.

Reexamination of any work may be ordered by the Engineer at any time prior to Final Acceptance and, if so ordered, the work must be uncovered by the Contractor. If such work be found in accordance with the Contract, the City will pay the cost of reexamination and replacement. If such work be found defective or not in accordance with the Contract, the Contractor shall pay such costs.

3-7 CONTRACT DOCUMENTS

3-7.1 General

All final locations determined in the field, and any deviations from the Plans and Specifications, shall be marked in red on the control set to show the as-built conditions. This control set of Plans shall also be edited for all Addenda, Requests for Information, Change Orders, field changes not involving cost, and any other variation that occurred during construction. Upon completion of all Work, the Contractor shall return the control set to the Engineer. Final payment will not be made until this requirement is met.

Where a work feature is shown on the drawings or identified in the Specifications but is not specifically indicated as an item in the Bid Schedule, and there is no ambiguity regarding the requirement to construct, install, or construct and install that work feature, the Contractor is required to complete the work feature. All costs to the Contractor for constructing, installing, or both constructing and installing such a work feature shall be included in the Bid.

3-7.2 Precedence of the Contract Documents

The following shall replace Section 3-7.2:

With regard to Section 3-7.2 in the Standard Specifications, the Special Provisions shall control over the General Provisions, and the Notice Inviting Bids and Instructions to Bidders (in that order) shall control over the Bid, such that the order of precedence shall be as follows:

1. Requirements of law.
2. Permits issued by regulatory agencies with jurisdiction.
3. Change Orders and Supplemental Agreements, whichever occurs last.
4. Contract.
5. Addenda.
6. Notice Inviting Bids.
7. Instructions to Bidders.
8. Bid/Proposal.
9. Special Provisions.
10. General Provisions.
11. Plans.
12. Standard Plans.
13. Standard Specifications.
14. Reference Specifications.

3-8 SUBMITTALS.

3-8.1 General

The following paragraphs shall be added at the end of Subsection 3-8.1:

The Contractor shall, at its own expense, transmit to the Engineer for review and acceptance, working drawings, shop drawings, supporting information, and/or other available instructive and descriptive information from the manufacturer, when and as required by the Plans or General Provisions or requested by the Engineer. Shop drawings will not be required for standard items in common use for which adequate manufacturers' literature is available unless otherwise required by the Engineer.

The Contractor shall consecutively number, thoroughly check, approve and sign each submittal and transmit the submittals to the Engineer for review. In the event that certain submittals are submitted without the Contractor's approval signature or are unacceptable to the City, they shall be rejected by the Engineer. The Contractor shall thereafter correct the submittals and resubmit.

In the event that in the process of development of the submittals it is discovered that there are defects and/or errors on the Plans that result in conflict between the Plans and the submittals, or if the submittals show variation from the Plans or other Contract Documents, the Contractor shall thoroughly describe and explain any defects and/or conflicts in its transmittal letter to the Engineer.

The Engineer's review of the submittals will be for general design and arrangement only, and shall not relieve the Contractor from responsibility for errors of any sort in the submittals or of the responsibility for executing the work in accordance with the Contract Documents. The Contractor shall allow a minimum of 20 Working Days for review of submittals. The Contractor shall be solely responsible for the correctness of the submittals, for shop fits and field connections, and for the results obtained by use of such submittals. The Contractor shall verify and be fully responsible for all dimensions and job-site conditions affecting the Work and shall be responsible for furnishing and installing the proper materials required by the Contract Documents.

The Contract Time will not be extended due to the failure of the Contractor to provide submittals as required by the Contract Documents in a timely manner.

3-9 SUBSURFACE DATA

The following paragraphs shall be added at the end of Subsection 3-9:

If the City or its consultants have made investigations of subsurface conditions in areas where the Work is to be performed, such investigations shall be deemed made only for the purpose of study and design. If a geotechnical or other report has been prepared for the Project, the Contractor may inspect the records pertaining to such investigations subject to and upon the conditions hereinafter set forth. The inspection of the records shall be made in the office of the Engineer. It is the Contractor's sole responsibility to determine whether such investigations exist, and the City makes no affirmative or negative representation concerning the existence of such investigations.

The records of any such investigations are made available solely for the convenience of the Contractor. It is expressly understood and agreed that the City, the Engineer, their agents, consultants or employees assume no responsibility whatsoever with respect to the sufficiency or accuracy of any investigations, the records thereof, and the interpretations set forth therein. No warranty or guarantee is expressed or implied that the conditions indicated by any such investigations or records are representative of those existing in the Project area. The Contractor agrees to make such independent investigations and examination as necessary to be satisfied of the conditions to be encountered in the performance of the Work.

The Contractor represents that it has studied the Plans, Specifications and other Contract Documents, and all surveys and investigation reports of subsurface and latent physical conditions, has made such additional surveys and investigations as necessary for the performance of the Work at the Contract Price in accordance with the requirements of the Contract Documents, and that it has correlated the results of all such data with the requirements of the Contract Documents. No claim of any kind shall be made or allowed for any error, omission or claimed error or omission, in whole or in part, of any geotechnical exploration or any other report or data furnished or not furnished by the City.

3-10 SURVEYING

The following paragraph shall be added before the first paragraph of Section 3-10.1:

The Contractor shall verify all dimensions on the drawings and shall report to the City any discrepancies before proceeding with related Work. The Contractor shall perform all survey and layout Work per the benchmark information on the Project Plans. All surveying Work must conform to the Professional Land Surveyors' Act (Business and Professions Code Section 8700 *et seq.*). All Project surveying notes and "cut-sheets" are to be provided to the City after the completion of each surveying activity and all final surveying notes shall be provided before final payment to the Contractor.

The Contractor is responsible for hiring a Surveyor to set survey points to be used for re-establishments of disturbed monuments and submit Corner Records to the County Surveyor. Copy of the submitted Corner Records must be provided to the City prior to actual disturbance of the monuments. The Contractor shall also cause all disturbed survey monuments within the project work area to be re-established at the end of the project. This also includes filing Corner Records and Record of Survey with the County Surveyor within 7 days of substantial completion of the construction work and submitting a copy to the City of the filed paperwork receipt within 2 days of submission. The Contractor is required to provide a copy of the County Surveyor's acceptance within 2 days of receipt from the County Surveyor.

Construction stakes shall be set and stationed by the Contractor at its expense. Unless otherwise indicated in the Special Provisions, surveying costs shall be included in the price of items bid. No separate payment will be made. Re-staking and replacement of construction survey markers damaged as a result of the Work, vandalism, or accident shall be at the Contractor's expense.

3-11 CONTRACT INFORMATION SIGNS

Section 3-11 of the Standard Specifications shall not be incorporated, and shall instead be replaced with the following:

The names, addresses and specialties of the Contractor, Subcontractors, architects or engineers may not be displayed on any signage within the public right-of-way. This signage prohibition includes advertising banners hung from truck beds or other equipment.

3-12 WORKSITE MAINTENANCE

The following paragraphs shall be added at the end of Section 3-12.1:

Clean-up shall be done as Work progresses at the end of each day and thoroughly before weekends. The Contractor shall not allow the Work site to become littered with trash and waste material, but shall maintain the same in a neat and orderly condition throughout the construction operation. Materials which need to be disposed shall not be stored at the Project site, but shall be removed by the end of each Working Day. If the job site is not cleaned to the satisfaction of the Engineer, the cleaning will be done or contracted by the City and shall be back-charged to the Contractor and deducted from the Contract Price.

The Contractor shall make arrangements for storing its equipment and materials. The Contractor shall make its own arrangements for any necessary off-site storage or shop areas necessary for the proper execution of the Work. Approved areas within Work site may be used for temporary storage; however, the Contractor shall be responsible for obtaining any necessary permits from the City. In any case, the Contractor's equipment and personal vehicles of the Contractor's employees shall not be parked on the traveled way or on any section where traffic is restricted at any time.

The Contractor shall deliver, handle, and store products in accordance with the manufacturer's written recommendations and by methods and means that will prevent damage, deterioration, and loss including theft. Delivery schedules shall be controlled to minimize long- term storage of products at the Project site and overcrowding of construction spaces. In particular, the Contractor shall provide delivery and installation coordination to ensure minimum holding or storage times for products recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other sources of loss.

Storage shall be arranged to provide access for inspection. The Contractor shall periodically inspect to ensure products are undamaged and are maintained under required conditions.

The Contractor shall promptly remove from the vicinity of the completed Work, all rubbish, debris, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction. Final Acceptance of the Work by the City will be withheld until the Contractor has satisfactorily complied with the foregoing requirements for final clean-up of the Project site.

All costs associated with the clean-up and storage required to complete the Project shall be the sole responsibility of the Contractor.

Pursuant to the provisions of Section 3-12 and Section 5-7 of the Standard Specifications and these General Provisions, the Contractor is responsible for Project site maintenance and for public convenience and safety. Payment for compliance with these provisions is considered as included in the prices bid for other contract items.

The City, however, to maintain good public relations, may deem it necessary to require special Project site maintenance, and public convenience and safety actions and work to be performed by the Contractor that are over and above those required by the provisions of Section 3-12 and Section 5-7 of the Standard Specifications and these General Provisions.

These actions and work shall be as directed by the Engineer in writing and payment for compliance therewith shall be on a cost plus basis for extra work per Section 7-4 of the Standard Specifications and applied against the not-to-exceed bid item for "Special Project Site Maintenance and Public Convenience and Safety."

The first sentence of Section 3-12.4.2 shall not be incorporated, and shall instead be replaced with the following:

Construction materials and equipment shall not be stored in streets, roads, or highways unless otherwise specified in the Special Provisions or approved by the Engineer.

3-13 COMPLETION, ACCEPTANCE AND WARRANTY

The Contractor shall complete all Work under the Contract within the stipulated Working Days from the Notice to Proceed, as stated in the Contract. The Contractor shall not be allowed to begin any construction activity at the site before the issuance of the Notice to Proceed. Between the period of the Notice of Award and Notice to Proceed, the Contractor shall process Shop Drawings and begin procuring equipment and materials.

3-13.2 Acceptance

The Project will not be considered complete and ready for City Council direction to staff regarding recordation of the Notice of Completion until all Work required by the Contract Documents has been fully completed in compliance with the Contract Documents and all Applicable Laws including, but not limited to, correction or completion of all punch list items, the Work site is cleaned up in accordance with Section 3-12 of the Standard Specifications, the General Provisions, and the Special Provisions, and all of the following items have been received by the Engineer:

1. A form of Notice of Completion, with all information required by the California Civil Code;
2. All written guarantees, warranties, and special warranties if applicable;
3. All "as-builts" and record drawings;
4. Duly completed and executed forms of Conditional Waiver and Release On Final Payment from the Contractor, Subcontractors of any tier, suppliers, and other person eligible to file stop notices in connection with the Work; and
5. Duplicate copies of all operating instructions and manufacturer's operating catalogs and data, together with such field instructions as necessary to fully instruct City personnel in correct operation and maintenance procedures for all equipment installed listed under the electrical, air conditioning, heating, ventilating and other trades. This data and instructions shall be furnished for all equipment requiring periodic adjustments, maintenance or other operation procedures.

The Contractor shall allow at least seven Working Days' notice for final inspection. Such notice shall be submitted to the Engineer in writing.

3-13.3 Warranty

For the purposes of the calculation of the start of the warranty period, the Work shall be deemed to be completed upon the date of recordation of the Notice of Completion. If that direction is contingent on the completion of any items remaining on a punchlist, the Work shall be deemed to be completed upon the date of the Engineer's acceptance of the final item(s) on that punchlist.

The Contractor shall repair or replace defective materials and workmanship as required in Section 3-13.3 of the Standard Specification at its own expense. Additionally, the Contractor agrees to defend, indemnify and hold the City harmless from claims of any kind arising from damage, injury or death due to such defects.

The parties agree that no certificate given shall be conclusive evidence of the faithful performance of the Contract, either in whole or in part, and that no payment shall be construed to be in acceptance of any defective Work or improper materials. Further, the certificate or final payment shall not terminate the Contractor's obligations under the warranty herein. The Contractor agrees that payment of the amount due under the Contract and the adjustments and payments due for any Work done in accordance with any alterations of the same, shall release the City, the City Council and its officers and employees from any and all claims or liability on account of Work performed under the Contract or any alteration thereof.

SECTION 4. CONTROL OF MATERIALS

4-1 GENERAL

The provisions below shall supplement but not replace those provisions in Section 4-1 of the Standard Specifications.

The first paragraph of Section 4-1 is replaced with the following:

Wherever applicable, materials shall conform to the latest Standards of the American Society for Testing Materials. All workmanship in the fabrication, assembly and construction of materials and equipment shall be neat and workmanlike in every respect. All equipment offered shall be of the manufacturer's latest design.

The Contractor and all Subcontractors, suppliers, and vendors shall guarantee that the Work will meet all requirements of this Contract as to the quality of materials, equipment, and workmanship.

4-1.1 PROPERTY RIGHTS IN MATERIALS

Nothing in the Contract shall be construed as vesting in the Contractor any right, title, or interest in material used in the Work after it has been attached or affixed to the Work or the soil. All such material shall become the property of the City upon being so attached or affixed.

4-2 PROTECTION

Add the following at the end of Subsection 4-2:

Materials shall not be stored in the right-of-way unless written permission is given by the Engineer.

4-4 TESTING

Delete Subsection 4-4 in its entirety and substitute the following:

Unless otherwise called for in the Special or General Provisions, all testing of materials will be performed by the City in such number and at such locations as deemed necessary by the Engineer to ensure compliance with the Contract Documents. The cost of all testing that can be performed within 50 miles of the Project will be borne by the City. The cost of all testing that must be performed 50 miles or more from the Project will be borne by the Contractor. The cost of all re-testing will be borne by the Contractor, and the amount due the City for the re-testing will be deducted from the Contract Price via Change Order.

The cost of rework material testing, overtime, travel and other related costs incurred by the City will be deducted from the Contract Price via Change Order.

4-6 TRADE NAMES

If the Contractor requests to substitute an equivalent item for a brand or trade name item, the burden of proof as to the comparative quality and suitability of alternative equipment or articles or materials shall be upon the Contractor, and the Contractor shall furnish, at its own expense, all information necessary or related thereto as required by the Engineer. All requests for substitution shall be submitted, together with all documentation necessary for the Engineer to determine equivalence, no later than ten calendar days after the award of the Contract, unless a different deadline is listed in the Special Provisions.

4-9 RECYCLING OF MATERIALS

Subsection 4-9 is hereby added to the Standard Specifications as follows:

4-9.1 Recycling Requirement

Recycling of Asphalt Concrete, Portland Cement Concrete, Aggregate Base, and Green Waste are required.

The records of disposal, including scale tonnages, shall be furnished to the City on a monthly basis. Failure to comply with the requirements of this Section will result in delay of progress payment.

4-9.2 Contractor's Obligation

The City is committed to a recycling program. If available, it is the obligation of the Contractor, under the Contract, to recycle the waste material through an approved recycling plant. Records and reports of waste recycle will be submitted to the City on a regular monthly basis.

SECTION 5 LEGAL RELATIONS AND RESPONSIBILITIES

The provisions below shall supplement but not replace the provisions in Section 5 of the Standard Specifications.

5-3 LABOR

5-3.1.1 Public Work

Subsection 5-3.1.1 is hereby added to the Standard Specifications as follows:

The Contractor acknowledges that the Project is a “public work” as defined in Labor Code Section 1720 *et seq.* (“Chapter 1”), and that this Project is subject to (a) Chapter 1, including without limitation Labor Code Section 1771 and (b) the rules and regulations established by the Director of Industrial Relations (“DIR”) implementing such statutes. The Contractor shall perform all Work on the Project as a public work. The Contractor shall comply with and be bound by all the terms, rules and regulations described in (a) and (b) as though set forth in full herein.

5-3.2.1 Copies of Wage Rates

Subsection 5-3.2.1 is hereby added to the Standard Specifications as follows:

Pursuant to Labor Code Section 1773.2, copies of the prevailing rate of per diem wages for each craft, classification, or type of worker needed to perform the Project are on file at City Hall and will be made available to any interested party on request. By initiating any Work on this Project, the Contractor acknowledges receipt of a copy of the DIR determination of such prevailing rate of per diem wages, and the Contractor shall post such rates at each job site covered by these Contract Documents.

5-3.2.2 Failure to Pay Prevailing Rates

Subsection 5-3.2.2 is hereby added to the Standard Specifications as follows:

The Contractor shall comply with and be bound by the provisions of Labor Code Sections 1774 and 1775 concerning the payment of prevailing rates of wages to workers and the penalties for failure to pay prevailing wages. The Contractor shall, as a penalty paid to the City, forfeit \$200.00 for each calendar day, or portion thereof, for each worker paid less than the prevailing rates as determined by the DIR for the work or craft in which the worker is employed for any public work done pursuant to these Contract Documents by the Contractor or by any Subcontractor.

5-3.2.3 Debarment or Suspension

Subsection 5-3.2.3 is hereby added to the Standard Specifications as follows:

The Contractor shall not perform Work with any Subcontractor that has been debarred or suspended pursuant to California Labor Code Section 1777.1 or any other federal or State law providing for the debarment of contractors from public works. The Contractor and Subcontractors shall not be debarred or suspended throughout the duration of the Contract pursuant to Labor Code Section 1777.1 or any other federal or State law providing for the debarment of contractors from public works. If the Contractor or any Subcontractor becomes debarred or suspended during the duration of the Project, the Contractor shall immediately notify the City.

5-3.3 Payroll Records

The Contractor shall comply with and be bound by the provisions of Labor Code Section 1776, which requires the Contractor and each Subcontractor to (1) keep accurate payroll records and verify such records in writing under penalty of perjury, as specified in Section 1776, (2) certify and make such payroll records available for inspection as provided by Section 1776, and (3) inform the City of the location of the records. The Contractor has ten days in which to comply subsequent to receipt of a written notice requesting these records, or as a penalty to the City, the Contractor shall forfeit \$100.00 for each Day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Labor Standards Enforcement, these penalties

shall be withheld from progress payments then due.

5-3.4 Hours of Labor

The Contractor acknowledges that eight hours labor constitutes a legal day's work. The Contractor shall comply with and be bound by Labor Code Section 1810. The Contractor shall comply with and be bound by the provisions of Labor Code Section 1813 concerning penalties for workers who work excess hours. The Contractor shall, as a penalty paid to the City, forfeit \$25.00 for each worker employed in the performance of this Project by the Contractor or by any Subcontractor for each calendar day during which such worker is required or permitted to work more than eight hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of Division 2, Part 7, Chapter 1, Article 3 of the Labor Code. Pursuant to Labor Code Section 1815, work performed by employees of the Contractor in excess of eight hours per day, and 40 hours during any one week shall be permitted upon public work upon compensation for all hours worked in excess of eight hours per day at not less than one and one-half times the basic rate of pay.

5-3.5 Apprentices

The following paragraph should be added at the end of Subsection 5-3.5:

The Contractor shall comply with and be bound by the provisions of Labor Code Sections 1777.6 and 1777.7 and California Code of Regulations Title 8, Section 200 *et seq.* concerning the employment of apprentices on public works projects. The Contractor shall be responsible for compliance with these Sections for all apprenticeable occupations. Before commencing Work on this Project, the Contractor shall provide the City with a copy of the information submitted to any applicable apprenticeship program. Within 60 Days after concluding Work, Contractor and each of its Subcontractors shall submit to the City a verified statement of the journeyman and apprentice hours performed under this Contract.

5-3.6 Registration with the DIR

Subsection 5-3.6 is hereby added to the Standard Specifications as follows:

In accordance with Labor Code Sections 1725.5 and 1771.1, no contractor or Subcontractor shall be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, unless currently registered and qualified to perform public work pursuant to Section 1725.5.

5-3.7 Compliance Monitoring and Posting Job Sites

Subsection 5-3.7 is hereby added to the Standard Specifications as follows:

This Project is subject to compliance monitoring and enforcement by the DIR. The Contractor shall post job site notices, as prescribed by regulation.

5-3.8 Subcontractors

Subsection 5-3.8 is hereby added to the Standard Specifications as follows:

For every Subcontractor who will perform Work on the Project, the Contractor shall be responsible for such Subcontractor's compliance with Chapter 1 and Labor Code Sections 1860 and 3700, and the Contractor shall include in the written Contract between it and each Subcontractor a copy of the provisions in this Section 5-3 of the General Provisions and a requirement that each

Subcontractor shall comply with those provisions. The Contractor shall be required to take all actions necessary to enforce such contractual provisions and ensure Subcontractor's compliance, including without limitation, conducting a periodic review of the certified payroll records of the Subcontractor and upon becoming aware of the failure of the Subcontractor to pay its workers the specified prevailing rate of wages. The Contractor shall diligently take corrective action to halt or rectify any failure.

5-3.9 Prevailing Wage Indemnity

Subsection 5-3.9 is hereby added to the Standard Specifications as follows:

To the maximum extent permitted by law, the Contractor shall indemnify, hold harmless and defend (at the Contractor's expense with counsel reasonably acceptable to the City) the City, its officials, officers, employees, agents and independent contractors serving in the role of City officials, and volunteers from and against any demand or claim for damages, compensation, fines, penalties or other amounts arising out of or incidental to any acts or omissions listed in Section 5-3 of the General Provisions by any Person (including the Contractor, its Subcontractors, and each of their officials, officers, employees and agents) in connection with any Work undertaken or in connection with the Contract Documents, including without limitation the payment of all consequential damages, attorneys' fees, and other related costs and expenses. All duties of the Contractor under this Section 5-3.9 shall survive expiration or termination of the Contract.

5-4 INSURANCE

The first paragraph of Section 5-4.1 of the Standard Specifications shall not be incorporated and shall instead be replaced with the following:

The Contractor shall provide and maintain insurance naming the City, its elected and appointed officials, officers, employees, attorneys, agents, designated volunteers, and independent contractors in the role of City officials as insureds or additional insureds regardless of any inconsistent statement in the policy or any subsequent endorsement whether liability is attributable to the Contractor or the City. The insurance provisions shall not be construed to limit the Contractor's indemnity obligations contained in the Contract. The City will not be liable for any accident, loss, or damage to the Work before completion, except as otherwise specified in Section 6-5.

The Contractor shall at all times during the term of the Contract carry, maintain, and keep in full force and effect the insurance referenced in Section 5-4 of the Standard Specifications, as modified below.

The following provisions are hereby added to Section 5-4.1 of the Standard Specifications:

5-4.1.1 Acceptability of Insurers.

The insurance policies required under this Section 5-4 shall be issued by an insurer admitted to write insurance in the State of California with a rating of A:VII or better in the latest edition of the A.M. Best Insurance Rating Guide. Self-insurance shall not be considered to comply with the insurance requirements under this Section 5-4.

5-4.1.2 Additional Insured.

The City, its elected and appointed officials, officers, employees, attorneys, agents, designated volunteers, and independent contractors in the role of City officials, shall be the insured or named as additional insureds covering the Work, regardless of any inconsistent statement in the policy

or any subsequent endorsement, whether liability is attributable to the Contractor or the City. The commercial general and automobile liability policies shall contain an endorsement naming City, its officers, employees, agents and volunteers as additional insureds. This provision shall also apply to any excess/umbrella liability policies.

5-4.1.3 Primary and Non-Contributing.

The insurance policies required under this Section 5-4 shall apply on a primary non-contributing basis in relation to any other insurance or self-insurance available to the City. Any insurance or self-insurance maintained by the City, its officers, employees, agents or volunteers, shall be in excess of the Contractor's insurance and shall not contribute with it. This provision shall also apply to any excess/umbrella liability policies.

5-4.1.4 Contractor's Waiver of Subrogation.

The insurance policies required under this Section 5-4 shall not prohibit the Contractor and the Contractor's employees, agents or Subcontractors from waiving the right of subrogation prior to a loss. The Contractor hereby waives all rights of subrogation against the City.

5-4.1.5 Deductibles and Self-Insured Retentions.

Any deductibles or self-insured retentions must be declared to and approved by the City. At the City's option, the Contractor shall either reduce or eliminate the deductibles or self-insured retentions with respect to the City, or the Contractor shall procure a bond guaranteeing payment of losses and expenses.

5-4.1.6 Cancellations or Modifications to Coverage.

The Contractor shall not cancel, reduce or otherwise modify the insurance policies required by this Section 5-4 during the term of the Contract. The commercial general and automobile liability policies required under the Contract shall be endorsed to state that should the issuing insurer cancel the policy before the expiration date, the issuing insurer will endeavor to mail 30 days' prior written notice to the City. If any insurance policy required under this Section 5-4 is canceled or reduced in coverage or limits, the Contractor shall, within two business days of notice from the insurer, phone, fax or notify the City via certified mail, return receipt requested, of the cancellation of or changes to the policy

5-4.1.7 City Remedy for Noncompliance.

If the Contractor does not maintain the policies of insurance required under this Section 5-4 in full force and effect during the term of the Contract, or in the event any of the Contractor's policies do not comply with the requirements under this Section 5-4, the City may either immediately terminate the Contract or, if insurance is available at a reasonable cost, the City may, but has no duty to, take out the necessary insurance and pay, at the Contractor's expense, the premium thereon. The Contractor shall promptly reimburse the City for any premium paid by the City or the City may withhold amounts sufficient to pay the premiums from payments due to the Contractor.

5-4.1.8 Evidence of Insurance.

At least two Working Days prior to the performance of Services under the Contract, the Contractor shall furnish the City's Risk Manager with a certificate or certificates of insurance and all original endorsements (both of which must reference the same Policy number), evidencing and effecting the coverages required under Section 5-4 of the Standard Specifications, as modified by this

Section 5-4. The endorsements are subject to approval by the City's Risk Manager. The Contractor may provide complete, certified copies of all required insurance policies to the City. The Contractor shall provide proof to the City's Risk Manager that insurance policies expiring during the term of the Contract have been renewed or replaced with other policies providing at least the same coverage. The Contractor shall furnish such proof at least two weeks prior to the expiration of the coverages.

The endorsements are to be signed by a person authorized by that insurer to bind coverage on its behalf. The endorsements must specifically name the City of Manhattan Beach and its elected and appointed officials, officers, employees, attorneys, agents, designated volunteers, and independent contractors in the role of City officials as insureds or additional insureds. The Contractor shall maintain current insurance certificates and endorsements on file with the City's Risk Manager at all times during the term of this Contract. The City reserves the right to require complete, certified copies of all required insurance policies at any time.

Where the Contractor has entered into an agreement with a Professional Employment Organization (PEO) to provide human resources, workers' compensation insurance, or other benefits to the Contractor's employees, the Contractor must also submit the agreement with the PEO. If the evidence of insurance submitted by the Contractor pursuant to this Section 5-4 evidences that the insurance is provided by the PEO, all such PEO-provided insurance coverages and indemnities must comply with the requirements of these Contract Documents.

5-4.1.9 Indemnity Requirements not Limiting.

Procurement of insurance by the Contractor shall not be construed as a limitation of Contractor's liability or as full performance of the Contractor's duty to indemnify the City under Section 5-8 of the Contract.

5-4.1.10 Subcontractor Insurance Requirements.

The Contractor shall require each of its Subcontractors that perform Services under the Contract to maintain insurance coverage that meets all of the requirements of this Section -5-4.

5-4.1.11 Replacement Insurance

The Contractor agrees that it will not cancel, reduce or otherwise modify the insurance coverage. The Contractor agrees that if it does not keep the required insurance in full force and effect, and such insurance is available at a reasonable cost, the City may take out the necessary insurance and pay the premium thereon, and the repayment thereof shall be deemed an obligation of the Contractor and the cost of such insurance may be deducted, at the option of the City, from payments due the Contractor. This shall be in addition to all other legal options available to the City to enforce the insurance requirements.

5-4.1.12 Subcontractors

The Contractor shall ensure all Subcontractors and their employees are listed as additional insureds on all of the Contractor's insurance.

The provisions below shall supplement but not replace those provisions in Sections 5-4.2, 5-4.3, and 5-4.4 of the Standard Specifications.

5-4.2 General Liability Insurance

Instead of the minimum limits listed in Section 5-4.2 of the Standard Specifications, the Contractor

shall procure and at all times during the term of the Contract carry, maintain, and keep in full force and effect Commercial General Liability Insurance with a minimum limit of \$2,000,000.00 per occurrence for bodily injury, personal injury and property damage and a general aggregate limit of \$2,000,000.00 per project or location. If the Contractor is a limited liability company, the commercial general liability coverage shall be amended so that the Contractor and its managers, affiliates, employees, agents and other persons necessary or incidental to its operation are insureds.

5-4.3 Workers' Compensation Insurance

Workers' Compensation Insurance as required by the State of California and Employer's Liability Insurance with a minimum limit of \$1,000,000.00 per accident for bodily injury or disease. If the Contractor has no employees while performing the Work under the Contract, a Workers' Compensation policy is not required, but the Contractor shall execute a declaration that it has no employees.

5-4.4 Automobile Insurance

Instead of the minimum limits listed in Section 5-4.4 of the Standard Specifications, the Contractor shall procure and at all times during the term of the Contract carry, maintain, and keep in full force and effect Automobile Liability Insurance for any owned, non-owned or hired vehicle used in connection with the performance of the Contract with a combined single limit of \$2,000,000.00 per accident for bodily injury and property damage. If the Contractor does not use any owned, non-owned or hired vehicles in the performance of the Work under this Contract, the Contractor shall obtain a non-owned auto endorsement to the Commercial General Liability policy required by Subsection 5-4.2.

5-4.5 Insurance Requirements not Limiting

Subsection 5-4.5 is hereby added to the Standard Specifications as follows:

If the Contractor maintains broader coverage and/or higher limits than the minimums required above, the City requires and shall be entitled to the broader coverage and/or the higher limits maintained by the Contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the City. No representation is made that the minimum insurance requirements of this Contract are sufficient to cover the obligations of the Contractor under this Contract.

5-4.6 NOT USED

5-7 SAFETY

The provisions below shall supplement but not replace those provisions in Subsection 5-7 of the Standard Specifications.

5-7.8 Steel Plate Covers

5-7.8.1 General

The Contractor shall cover all openings, trenches and excavations at the end of each Work Day with steel plate covers.

5-8 INDEMNIFICATION

The following indemnity provisions shall supersede the indemnity in Section 5-4.1 of the Standard

Specifications.

5-8.1 Contractor's Duty.

To the fullest extent permitted by law, the Contractor shall, at its sole cost and expense, defend, hold harmless and indemnify the City and its elected officials, officers, attorneys, agents, employees, designated volunteers, successors, assigns and those City agents serving as independent contractors in the role of City officials (collectively "Indemnitees"), from and against any and all damages, costs, expenses, liabilities, claims, demands, causes of action, proceedings, expenses, judgments, penalties, liens, and losses of any nature whatsoever, including fees of accountants, attorneys, or other professionals and all costs associated therewith and the payment of all consequential damages (collectively "Liabilities"), in law or equity, whether actual, alleged or threatened, which arise out of, are claimed to arise out of, pertain to, or relate to the acts or omissions of the Contractor, its officers, agents, servants, employees, Subcontractors, materialmen, contractors or their officers, agents, servants or employees (or any entity or individual that the Contractor shall bear the legal liability thereof) in the performance of the Contract, including the Indemnitees' active or passive negligence, except for Liabilities arising from the sole negligence or willful misconduct of the Indemnitees, as determined by final arbitration or court decision or by the agreement of the Parties. The Contractor shall defend the Indemnitees in any action or actions filed in connection with any Liabilities with counsel of the Indemnitees' choice, and shall pay all costs and expenses, including all attorneys' fees and experts' costs actually incurred in connection with such defense. The Contractor shall reimburse the Indemnitees for any and all legal expenses and costs incurred by Indemnitees in connection therewith.

5-8.1.1 Taxes and Workers' Compensation

The Contractor shall pay all required taxes on amounts paid to the Contractor under the Contract, and indemnify and hold the City harmless from any and all taxes, assessments, penalties, and interest asserted against the City by reason of the independent contractor relationship created by the Contract. The Contractor shall fully comply with the Workers' Compensation law regarding the Contractor and the Contractor's employees. The Contractor shall indemnify and hold the City harmless from any failure of the Contractor to comply with applicable Workers' Compensation laws. The City may offset against the amount of any fees due to the Contractor under the Contract any amount due to the City from the Contractor as a result of the Contractor's failure to promptly pay to the City any reimbursement or indemnification arising under this Subsection 5-8.1.1.

5-8.1.2 Subcontractor Indemnity Agreements

The Contractor shall obtain executed indemnity agreements with provisions identical to those in this Section 5-8 from each and every Subcontractor or any other person or entity involved by, for, with or on behalf of the Contractor in the performance of the Contract. If the Contractor fails to obtain such indemnity obligations, the Contractor shall be fully responsible and indemnify, hold harmless and defend the Indemnitees from and against any and all Liabilities at law or in equity, whether actual, alleged or threatened, which arise out of, are claimed to arise out of, pertain to, or relate to the acts or omissions of the Contractor's Subcontractor, its officers, agents, servants, employees, Subcontractors, materialmen, contractors or their officers, agents, servants or employees (or any entity or individual that the Contractor's Subcontractor shall bear the legal liability thereof) in the performance of the Contract, including the Indemnitees' active or passive negligence, except for Liabilities arising from the sole negligence or willful misconduct of the Indemnitees, as determined by final arbitration or court decision or by the agreement of the Parties.

5-8.2 Workers' Compensation Acts not Limiting.

The Contractor's indemnifications and obligations under this Section 5-8, or any other provision of the Contract, shall not be limited by the provisions of any Workers' Compensation act or similar act. The Contractor expressly waives its statutory immunity under such statutes or laws as to the City, its officers, agents, employees and volunteers.

5-8.3 Insurance Requirements not Limiting.

The City does not, and shall not, waive any rights that it may possess against the Contractor because of the acceptance by the City, or the deposit with the City, of any insurance policy or certificate required pursuant to the Contract. The indemnities in this Section 5-8 shall apply regardless of whether or not any insurance policies are determined to be applicable to the Liabilities, tax, assessment, penalty or interest asserted against the City.

5-8.4 Survival of Terms.

The Contractor's indemnifications and obligations under this Section 5-8 shall survive the expiration or termination of the Contract.

5-8.5 Civil Code Exception.

Nothing in this Section 5-8 shall be construed to encompass Indemnitees' sole negligence or willful misconduct to the limited extent that the underlying Contract is subject to Civil Code Section 2782(a) or the City's active negligence to the limited extent that the underlying Contract Documents are subject to Civil Code Section 2782(b), provided such sole negligence, willful misconduct or active negligence is determined by agreement between the parties or by the findings of a court of competent jurisdiction.

5-8.6 Nonwaiver of Rights.

Indemnitees do not and shall not waive any rights that they may possess against the Contractor because the acceptance by the City, or the deposit with the City, of any insurance policy or certificate required pursuant to these Contract Documents. This indemnity provision is effective regardless of any prior, concurrent, or subsequent active or passive negligence by Indemnitees and shall operate to fully indemnify Indemnitees against any such negligence.

5-8.7 Waiver of Right of Subrogation.

The Contractor, on behalf of itself and all parties claiming under or through it, hereby waives all rights of subrogation and contribution against the Indemnitees, while acting within the scope of their duties, from all Claims arising out of or incident to the activities or operations performed by or on behalf of the Contractor regardless of any prior, concurrent or subsequent active or passive negligence by Indemnitees.

SECTION 6. PROSECUTION AND PROGRESS OF THE WORK

The provisions below shall supplement but not replace those provisions in Section 6 of the Standard Specifications.

6-1 CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK

6-1.1 Construction Schedule

In addition to the construction schedule required pursuant to Section 6-1.1 of the Standard Specifications after notification of the Contract award and before any start of the Project, as well as the revised construction schedule in advance of beginning revised operations, the Contractor shall submit an updated construction schedule with its monthly invoice every month. Progress payments shall be contingent upon the receipt of monthly updated construction schedules.

One week before the scheduled pre-construction meeting, the Contractor must submit a construction schedule to the Engineer for review and approval. The Contractor shall make revisions as required by the Engineer. The schedule must account for all subcontract work, as well as the work of the Contractor, submittals, coordination with the other contractors performing concurrent work and the Traffic Control Plan. The Contractor shall update this Construction Schedule when directed by the Engineer, or when:

- a. A Change Order significantly affects the Contract completion date or the sequence of construction approach or activities; or
- b. The actual sequence of the Work, or the planned sequence of the Work, is changed and does not conform to the Contractor's current accepted Project construction schedule.

6-1.1.1 Pre-Construction Conference

Subsection 6-1.1.1 is hereby added to the Standard Specifications as follows:

Approximately five Days before the commencement of Work at the site, a pre-construction conference will be held at the City and shall be attended by the Contractor's Project manager, its on-site field superintendent, and any Subcontractors that the Contractor deems appropriate. Attendance by the Contractor and any Subcontractors designated is mandatory.

Contractor shall submit its 24-hour emergency telephone numbers to the Engineer for approval a minimum of two Working Days before the pre-construction conference. Unless previously submitted to the Engineer, the Contractor shall bring to the pre-construction conference copies of each of the following:

- 1) Construction Schedule.
- 2) Procurement schedule of major equipment and materials and items requiring long lead time.
- 3) Shop drawing/sample submittal schedule.
- 4) Preliminary schedule of values (lump sum price breakdown) for progress payment purposes.
- 5) Written designation of the on-site field superintendent and the Project manager. Both daytime and emergency telephone numbers shall be included in the written designation.

The purpose of the conference is to designate responsible personnel and establish a working relationship. The parties will discuss matters requiring coordination and establish procedures for handling such matters. The complete agenda will be furnished to the Contractor before the meeting date. The Contractor shall be prepared to discuss all of the items listed below.

- 1) The Contractor's construction schedule.
- 2) Notification of local residents before starting any Work and keeping them informed throughout the Project.
- 3) Procedures for transmittal, review, and distribution of the Contractor's submittals.
- 4) Processing applications for payment.
- 5) Maintaining record documents.
- 6) Critical Work sequencing.
- 7) Maintaining sewage service during construction, including proposed by-passes.

- 8) NPDES requirements, if any.
- 9) Field decisions and Change Orders.
- 10) Use of Project site, office and storage areas, security, housekeeping, and the City's needs.
- 11) Major equipment deliveries and priorities.
- 12) Traffic control.
- 13) Any other item that the City representative states is relevant to the meeting.

6-1.1.2 Weekly Progress Meetings

Subsection 6-1.1.2 is hereby added to the Standard Specifications as follows:

Progress meetings will be held each week during the course of the Project. The meeting location, day of the week and time of day will be mutually agreed to by the City and the Contractor. The Contractor shall provide a two-week "look ahead" schedule for each meeting. The construction manager will preside at these meetings and will prepare the meeting agenda, meeting minutes and will distribute minutes to all persons in attendance. As the Work progresses, if it is determined by agreement of the attendees, that weekly meetings are not necessary, the weekly progress meetings may be changed to bi-weekly progress meetings.

6-2 *PROSECUTION OF THE WORK*

Add the following as Section 6-2.1:

6-2.1 Excess Cost of City Personnel and Inspection Personnel

For any overtime or emergency work beyond a regular eight-hour day and for any work performed on Saturday, Sunday, or holidays, the charges for City personnel and City consultants/independent contractors, including inspection, required on the job site shall be the responsibility of the Contractor and all costs therefor shall be deducted from the payments due the Contractor. The cost of City personnel and City consultants/independent contractors shall be computed pursuant to the actual costs incurred by City, including but not limited to, overtime costs, fringe benefits, and overhead costs.

6-3 *TIME OF COMPLETION*

6-3.2 Contract Time Accounting

Add the following at the end of Subsection 6-3.2:

The Contract Time for completion of the Work, including corrective items of Work, shall be in accordance with Section 4 of the Contract. Contract Time extensions, when granted by the Engineer, will be in Working Days and in accordance with the Contract Documents, and will be set forth in writing via Change Order.

Add the following as Section 6-3.2.1:

6-3.2.1 Hours of Work

The Contractor shall not conduct any operations or perform any Work pertaining to the Project outside the working days and hours as defined in Section 10-8 Working Days and Hours. In the event that the Contractor abuses the hours of work requirement, a written warning will follow. After each additional warning, a \$200.00 penalty will be deducted from the Contract amount.

6-4 DELAYS AND EXTENSIONS OF TIME

Add the following at the end of Subsection 6-4:

Unless otherwise agreed in writing, an adjustment to the Contract time by reason of a Change Order shall be agreed to at the time the Change Order is issued and accepted by the Contractor. If the Change Order does not reserve the right of the parties, or either of them, to seek an adjustment to the Contract time, then the parties forever relinquish and waive such right and there shall be no further adjustments to the Contract time.

6-4.2 Extensions of Time

Add the following at the end of Subsection 6-4.2:

In the event it is deemed appropriate by the City to extend the time for completion of the Work, any such extension shall not release any guarantee for the Work required by the Contract Documents, nor shall any such extension of time relieve or release the Sureties on the Bonds executed. In executing such Bonds, the Sureties shall be deemed to have expressly agreed to any such extensions of time. The amount of time allowed by an extension of time shall be limited to the period of the delay giving rise to the same as determined by the City. Notwithstanding any dispute which may arise in connection with a claim for adjustment of the Contract time, the Contractor shall promptly proceed with the Work.

6-4.3 Payment for Delays

Add the following at the end of Subsection 6-4.3:

Notwithstanding any other terms and conditions of the Contract Documents, the City shall have no obligation whatsoever to increase the Contract Price or extend the time for delays.

Unless compensation and/or mark up is agreed upon by the City, the Contractor agrees that no payment of compensation of any kind shall be made to the Contractor for damages or increased overhead costs caused by any delays in the progress of the Contract, whether such delays are avoidable or unavoidable or caused by any act or omission of the City or its agents. Any accepted delay claim shall be fully compensated for by an extension of time to complete the performance of the Work.

This Section shall not apply to compensable delays caused solely by the City. If a compensable delay is caused solely by the City, the Contractor shall be entitled to a Change Order that: (1) extends the time for completion of the Contract by the amount of delay caused by the City; and (2) provides equitable adjustment, as determined by the City, to the Contractor.

6-6 SUSPENSION OF THE WORK

6-6.1 General

Add the following paragraph following paragraph at the end of Subsection 6-6.1:

In the event a suspension of work is ordered because of failure on the part of the Contractor to carry out orders given or to perform any provisions of the Work, such suspension of work shall not relieve the Contractor of its responsibility to complete the work within the time limit set forth herein and shall not be considered cause for extension of the time for completion, and further, such suspension of work shall not entitle the Contractor to any additional compensation.

6-8 TERMINATION OF THE CONTRACT FOR CONVENIENCE

In addition to the reasons for termination listed in Section 6-8 of the Standard Specifications, which allow termination upon any written notice, the City may cancel the Contract for any other reason or for no reason upon 30 Days' written notice. The rest of the procedure outlined in Section 6-8 shall apply to such situation, including the Contractor's required immediate notification of Subcontractors and suppliers and the payment. In no event (including termination for impossibility or impracticability, due to conditions or events beyond the control of the City, for any other reason or for no reason) shall the total amount of money to Contractor exceed the amount which would have been paid to the Contractor for the full performance of the services described in the Contract.

Furthermore, some of the City's projects are funded in whole or in part by funds other than the City's General Fund. If this Project is funded by such external funds in whole or in part, or if those external funds are terminated or reduced at any time and for any reason or for no reason at all, and the City determines at its discretion that no other funding is available for continuation of this Project, the City will not be obligated to continue funding for the services contained in these Contract Documents and may terminate the Project immediately. The City shall reimburse the Contractor for its work satisfactorily completed until the termination date. In no event shall the total amount of money to the Contractor exceed the amount which the City has received in funding from its external source. The Special Provisions may include further details in this regard.

6-9 LIQUIDATED DAMAGES

For the purposes of the calculation of the start of the liquidated damages, the Work shall be deemed to be completed when the same has been completed in accordance with the Plans and Specifications therefor and to the satisfaction of the Engineer, and the Engineer has certified such completion in accordance with Section 3-13.1 of the Standard Specifications. The liquidated damages value is hereby amended to be \$250 per day

SECTION 7. MEASUREMENT AND PAYMENT

The provisions below shall supplement but not replace those provisions in Section 7 of the Standard Specifications.

7-1 MEASUREMENT OF QUANTITIES OF UNIT PRICE WORK

7-1.1 General

Add the following at the end of Subsection 7-1.1:

All items of Work which are not designated on the Bid Schedule by the letters "F" or "LS" or words "Final" or "Lump Sum" shall have final pay quantities measured and paid for in accordance with the Standard Specifications and these General Provisions.

7-1.2 Methods of Measurement

Add the following at the end of Subsection 7-1.2:

The Contract Price shall constitute full compensation for all labor, equipment, materials, tools and incidentals required to complete the Project as outlined in these Contract Documents and as directed by the Engineer.

7-2 LUMP SUM WORK

Delete the first sentence of Subsection 7-2 and substitute the following:

Items of Work which are designated by the letters "LS" or the words "Lump Sum" in the Estimated Quantities column of the Bid Schedule shall be paid for at the price indicated in the Bid, unless the dimensions of the Work, as shown on the Plans, are revised by the Engineer. If such dimensions are revised and such revisions result in an increase or decrease in the quantity of such Work, the final payment for the lump sum item will be revised in proportion to the change in dimensions authorized by Change Order.

Add the following at the end of Subsection 7-2:

The Contractor shall submit a Work item breakdown of the Bid, described in the second paragraph of Subsection 7-2, "Lump Sum Work," of the Standard Specifications, within ten Working Days after award of the Contract and/or at any other time as required by the Engineer.

No guarantee is made regarding the amount of Work required to complete a lump sum item of Work.

7-2.1 Progress Payments for Lump Sum Items of Work

The word "Complete" in the Estimated Quantities column of the Bid Schedule for a lump sum item of Work shall mean that payment for that item will only be made after all Work for that item has been completed. The "%" symbol in the Estimated Quantities column of the Bid Schedule for a lump sum item of Work shall mean that progress payments for that item will be allowed based on the percentage of completion as determined by the Engineer in each pay period, typically every 30 days. (See Subsection 7-3.2 of the Standard Specifications and these General Provisions.)

7-3 PAYMENT

7-3.1 General

Add the following at the end of Subsection 7-3.1:

In accordance with Public Contract Code Section 7107, if no claims have been filed and are still pending, the amount deducted from the final estimate and retained by the City will be paid to the Contractor except such amounts as are required by law to be withheld by properly executed and filed notices to stop payment, or as may be withheld for any other lawful purposes.

Whenever the Contractor is required to perform work or furnish equipment, labor, tools, and materials of any class for which no price is fixed in the proposal, it shall be understood that such work, equipment, labor, tools, and materials shall be provided without extra charge, allowance, or direct payment of any kind. The cost of performing such work or furnishing such equipment, labor, tools, and materials shall be included in the unit bid prices in the proposal most closely related to the work and no additional compensation will be made thereof.

If any portion of the work done or materials furnished under the Contract shall prove defective or not in accordance with the Specifications and Contract drawings, and if the imperfection in the same is not of sufficient magnitude or importance to make the work dangerous or undesirable, the Engineer shall have the right and authority to retain the work instead of requiring it to be removed and reconstructed, but he shall make such deductions therefor in the payment due the Contractor as may be just and reasonable.

Delete the tenth paragraph of Subsection 7-3.1 and substitute the following:

Not later than 60 days from the date of Final Acceptance, the five percent deducted and retained from each progress estimate (see Subsection 7-3.2 of the Standard Specifications and these General Provisions) by the City will be paid to the Contractor except such amounts as are required by law to be withheld by properly executed and filed notices to stop payment, or as may be authorized by the Contract to be further retained.

7-3.2 Partial and Final Payment

7-3.2.1 Monthly Closure Date and Invoice Date

Subsection 7-3.2.1 is hereby added to the Standard Specifications as follows:

The Contractor shall prepare and submit the form attached herewith (see Appendix I), or its own form in an identical format, to the Engineer for all requests for progress payments for the work performed in accordance with the provisions of the Contract during the preceding month. The progress payment request shall be submitted monthly, and a maximum of one progress payment request may be submitted each month. The Contractor shall submit a Conditional Waiver and Release Form (Civil Code Section 8132) with the applicable monthly progress payment request. Progress payment requests associated with work completed prior to June 30th (the end of the City's fiscal year), must be submitted no later than July 30th.

7-3.2.2 Payments

Subsection 7-3.2.2 is hereby added to the Standard Specifications as follows:

The City shall make payments within 30 Working Days after receipt of the Contractor's undisputed and properly submitted payment request, including an updated construction schedule pursuant to Section 6-1.1 of the General Provisions. The City shall return to the Contractor any payment request determined not to be a proper payment request as soon as practicable, but not later than seven Working Days after receipt, and shall explain in writing the reasons why the payment request is not proper. Acceptance by the Contractor of the payment made in accordance with the final estimate shall be a release to the City, its officers, agents, and employees excepting only claims against the City for any amount withheld by it at the time of such payment.

7-3.2.3 Retention

Subsection 7-3.2.3 is hereby added to the Standard Specifications as follows:

The City shall withhold not less than five percent from each progress payment. The City shall withhold not less than five percent of the Contract Price from the Final Payment Amount (defined in Section 7-3.2.4) until at least 35 days after recordation of the Notice of Completion, or recordation of a notice of cessation, but not longer than the period permitted by Public Contract Code Section 7107.

In addition to retained percentage and liquidated damages, the City may withhold payments to the Contractor including for defective work not remedied and other valid claims against the Contractor.

7-3.2.4 Final Invoice and Payment

Subsection 7-3.2.4 is hereby added to the Standard Specifications as follows:

Whenever the Contractor shall have completely performed the Contract in the opinion of the Engineer, the Contractor shall submit to the Engineer a written statement of the final quantities of Contract items in the form of the final invoice, which must have an identical format to the progress payment request form attached herewith (see Appendix I). Upon receipt of the final payment request, the Engineer shall check the quantities included therein and shall authorize a payment amount, which in the Engineer's opinion shall be just and fair, covering the value of the total amount of Work done by the Contractor, less all previous payments and all amounts to be retained under the provisions of the Contract Documents ("Final Payment Amount"). The Contractor shall submit a Conditional Waiver and Release form (Civil Code Section 8136) with the Final Payment request. The Engineer shall then request that the City accept the Work and that the City Clerk be authorized to file, on behalf of the City in the office of the County Recorder, a Notice of Completion of the Work herein agreed to be done by the Contractor. In addition, the final payment will not be released until the Contractor returns the control set of Plans and Specifications showing the redlined as-built conditions.

Final payment requests associated with work completed prior to June 30th (the end of the City's fiscal year), must be submitted no later than July 30th.

7-3.2.5 Substitute Security

Subsection 7-3.2.5 is hereby added to the Standard Specifications as follows:

In accordance with Public Contract Code Section 22300, the Contractor may request that it be permitted to substitute securities in lieu of having retention withheld by the City from progress payments when such payments become due or, in the alternative, the Contractor may request that the City make payments of earned retentions directly to an agreed upon designated escrow agent at the Contractor's expense. If the Contractor selects either one of these alternatives, the following shall control.

7-3.2.5.1 Substitution of Securities for Performance Retention

Subsection 7-3.2.5.1 is hereby added to the Standard Specifications as follows:

At some reasonable time before any progress payment would otherwise be due and payable to the Contractor in the performance of Work under these Contract Documents, the Contractor may submit a request to the City in writing to permit the substitution of retentions with securities equivalent to the amount estimated by the City ("estimated amount of retention") to be withheld. The Contractor shall deposit such securities with the City or may, in the alternative, deposit such securities in escrow with a State or federally chartered bank in California, as the escrow agent, at the Contractor's expense. Such securities will be the equivalent or greater in value of the estimated amount of retention. If the Contract is modified by written Modifications or Change Orders or the Contractor otherwise becomes entitled to receive an amount more than the Contract Price at the time the securities are deposited, the Contractor shall, at the request of the City, deposit with the City or escrow agent, whichever is applicable, additional securities within a reasonable time so that the amount of securities on deposit with the City or escrow agent is equivalent or greater in value than the amount of retention the City would otherwise be entitled to withhold from progress payments due or to become due to the Contractor as the Work progresses. The City shall withhold any retention amount that exceeds the security amount until the additional securities are deposited and, if the deposit is with an escrow agent, the City has confirmation from that escrow agent of the new total value of securities. Upon satisfactory completion of the Contract, which shall mean, among other things, that the City is not otherwise entitled to retain proceeds from progress payments as elsewhere provided in the Contract or under applicable law, the securities shall be returned to the Contractor. The City shall, within its sole discretion, determine whether the amount of the securities on deposit with the City or escrow agent is equal to or greater

than the amount of estimated retention of progress payments that could otherwise be held by the City if the Contractor had not elected to substitute same with securities.

7-3.2.5.2 Deposit of Retention Proceeds with an Escrow Agent

Subsection 7-3.2.5.2 is hereby added to the Standard Specifications as follows:

As an alternative to the substitution of securities, as provided above, or the City otherwise retaining and holding retention proceeds from progress payments, the Contractor may request the City to make payments of retentions earned directly to an escrow agent with the same qualifications as required in Section 7-3.2.5.1 above and at the expense of the Contractor. At its sole expense, the Contractor may direct the investment of such retention payments into only such securities as mentioned in Section 7-3.2.5.3 below and shall be entitled to interest earned on such investments on the same terms provided for securities deposited by the Contractor. Upon satisfactory completion of the Contract, which shall mean when the City would not otherwise be entitled to withhold retention proceeds from progress payments had the Contractor not elected to have such proceeds deposited into escrow, the Contractor shall be allowed to receive from the escrow agent all securities, interest and payments deposited into escrow pursuant to the terms of this Section. The Contractor shall pay to each Subcontractor, not later than ten Days of receipt of payment, the respective amount of interest earned, net of costs attributed to retention withheld from each Subcontractor, on the amount withheld to ensure performance of the Contractor.

7-3.2.5.3 Subcontractor Entitlement to Interest

Subsection 7-3.2.5.3 is hereby added to the Standard Specifications as follows:

If the Contractor elects to receive interest on any moneys withheld in retention by the City, then the Subcontractor shall receive the identical rate of interest received by the Contractor on any retention moneys withheld from the Subcontractor by the Contractor, less any actual pro rata costs associated with administering and calculating that interest. In the event that the interest rate is a fluctuating rate, the rate for the Subcontractor shall be determined by calculating the interest rate paid during the time that retentions were withheld from the Subcontractor. If the Contractor elects to substitute securities in lieu of retention, then, by mutual consent of the Contractor and the Subcontractor, the Subcontractor may substitute securities in exchange for the release of moneys held in retention by the Contractor. The Contractor shall pay each Subcontractor, not later than ten Days after receipt of escrow moneys, the amount owed to each Subcontractor from the moneys plus the respective amount of interest earned, net of costs attributed to the retention held from each Subcontractor, on the amount of retention withheld to ensure performance of the Subcontractor.

7-3.2.5.4 Securities Eligible for Investment

Subsection 7-3.2.5.4 is hereby added to the Standard Specifications as follows:

Securities eligible for investment shall include those listed in Government Code Section 16430, bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed upon between the Contractor and the City. The Contractor shall be the beneficial owner of any securities substituted for any monies withheld and shall receive any interest thereon.

7-3.2.5.5 Escrow Agreement for Security Deposits in Lieu of Retention

Subsection 7-3.2.5.5 is hereby added to the Standard Specifications as follows:

The escrow agreement that shall be used for the deposit of securities in lieu of retention shall substantially conform to the form prescribed in Public Contract Code Section 22300(f).

7-3.2.5.6 Inconsistencies with Prevailing Statutory Requirements

Subsection 7-3.2.5.6 is hereby added to the Standard Specifications as follows:

If there is any inconsistency between or differences in Public Contract Code Section 22300 and the terms of this provision, or any future amendments thereto, Section 22300 shall control.

7-3.5.2. Increases of More than 25 Percent

Delete Subsection 7-3.5.2 in its entirety and substitute the following:

Should the actual quantity of a Major Item of Work covered by a Contract Unit Price and constructed in conformance with the Plans and Specifications exceed the Bid quantity by more than 25%, a Change Order will be issued and payment for the quantity in excess of 25% of the Bid quantity will be made on the basis of an adjustment to the Contract Unit price mutually agreed to by the City and the Contractor or pursuant to Subsection 7-3.7 "Agreed Prices."

For Minor Items of Work, the Contractor will be paid using the Contract Unit Price, regardless of whether the actual quantity of the Minor Item of Work covered by a Contract Unit Price exceeds the bid quantity by more than 25%.

7-3.5.3 Decreases of More than 25 Percent

Delete Subsection 7-3.5.3 in its entirety and substitute the following:

Should the actual quantity of a Major Item of Work covered by a Contract Unit Price and constructed in conformance with the Plans and Specifications be less than 75% of the Bid quantity, an adjustment in payment will not be made unless so requested in writing by the Contractor. If the Contractor so requests, a Change Order shall be issued and payment shall be made on the basis of an adjustment to the Contract Unit Price mutually agreed to by the City and the Contractor, or pursuant to Subsection 7-3.7 "Agreed Prices"; however, in no case will payment be less than would be made for the actual quantity at the Contract Unit Price.

For Minor Items of Work, the Contractor will be paid using the Contract Unit Price, regardless of whether the actual quantity of the Minor Item of Work covered by a Contract Unit Price is less than 75% of the Bid quantity.

7-3.5.4 Changes for Items Not Covered by Unit Prices

Subsection 7-3.5.4 is hereby added to the Standard Specifications as follows:

Payment for any change for an Item of Work not covered by a Contract Unit Price shall be made pursuant to Subsection 7-4 "Payment for Extra Work."

7-4 PAYMENT FOR EXTRA WORK

7-4.1 General

Add the following at the end of Subsection 7-4.1

Any change in the Work for an Item of Work not covered by a Contract Unit Price that involves both

added and deleted Work shall be paid on the basis of the net total cost. The cost of deleted Work not covered by a Contract Unit Price shall be determined by the Engineer based on the schedule of lump sum prices submitted by the Contractor in accordance with Subsection 7-2, "Lump Sum Work," of the Standard Specifications and the General Provisions.

7-4.2.1 Labor

Delete Subsection 7-4.2.1 in its entirety and substitute the following:

The cost of labor will be the actual cost for wages prevailing locally for each craft or type of worker (including foreman when authorized by the Engineer) performing the Extra Work at the time the Extra Work is done, plus liability insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs, as well as assessments or benefits required by lawful collective bargaining agreements.

To the actual wages, as defined above, will be added a labor surcharge set forth in the California Department of Transportation publication entitled "Labor Surcharge and Equipment Rental Rates" that is in effect on the date upon which the Extra Work is performed. The labor surcharge shall constitute full compensation for all payments imposed by State and federal laws and for all other payments made to, or on behalf of, the workers, other than actual wages, subsistence and travel paid to the workers. The labor surcharge includes Workers' Compensation, Social Security, Medicare, Federal Unemployment, State Unemployment, and State Training taxes.

Except when direct supervision is provided by working foremen whose time is included in accordance with Subsection 7-4.2.2, the cost of direct supervision of Extra Work, when such direct supervision is provided exclusively for the Extra Work and not in conjunction with or at the same time as supervision for other Work, and when approved in advance in writing by the Engineer, may be charged to the Extra Work. Such cost includes only the actual cost of supervision labor, plus payroll taxes, insurance, and pension costs. The cost of transportation, use of vehicle, and other costs incurred by supervision will not be allowed.

7-4.2.2 Materials

Add the following to the end of Subsection 7-4.2.2:

If the Contractor does not furnish satisfactory evidence of the cost of the materials from the actual supplier thereof within **7 days** following delivery of materials to the Work site, the Engineer reserves the right to establish the cost of the materials at the lowest current wholesale prices at which the materials were available, in the quantities concerned, delivered to the location of the Work site, less any discounts.

7-4.2.3 Tool and Equipment Rental

Delete Subsection 7-4.2.3 in its entirety and substitute the following:

No payment will be made for individual pieces of equipment or tools not listed in the California Department of Transportation publication entitled "Labor Surcharge and Equipment Rental Rates" that is in effect on the date upon which the Extra Work is performed and that have a replacement value of \$200.00 or less, whether or not consumed by use. Such equipment or tools shall be considered to be small tools.

The Contractor will be paid for the use of equipment at the rental rates listed for such equipment in the Labor Surcharge and Equipment Rental Rates publication that is in effect on the date upon

which the Extra Work is performed.

Move in and out, or minimum charges other than the hourly rate, shall not apply to equipment available from the force already on the Project site.

For equipment that is rented from a local equipment agency, the Contractor will be paid at the hourly rate shown on the rental agency invoice or agreement for the time the equipment is used on Extra Work. If a minimum equipment rental amount is required by the local equipment rental agency, the actual amount charged will be paid to the Contractor.

If it is deemed necessary by the Engineer to use equipment not listed in the Labor Surcharge and Equipment Rental Rates publication, a suitable rental rate for that equipment will be established by the Engineer. The Contractor may furnish any cost data that might assist the Engineer in the establishment of the rental rate. If the rental rate established by the Engineer is \$10.00 per hour or less, the provisions above concerning rental of equipment from a local equipment agency shall apply. Rental time will not be allowed while equipment is inoperative due to breakdowns.

When owner operated equipment is used to perform Extra Work to be paid on a force account basis, the Contractor will be paid for the equipment and operator as follows:

1. Payment for the equipment will be made at the rental rates listed for such equipment in the Labor Surcharge and Equipment Rental Rates publication that is in effect on the date upon which the Extra Work is performed.

2. Payment for the cost of labor will be made in conformance with the provisions in Subsection 7-4.2.1 "Labor" of the General Provisions.

7-4.3 Markup

Delete Subsection 7-4.3 in its entirety and substitute the following:

The markup for overhead and profit on Extra Work shall be in accordance with the following schedule.

7-4.3.1 Work by Contractor.

The following percentages shall be added to the Contractor's costs and shall constitute the markup for all overhead and profit:

- 1) Labor 20%
- 2) Materials 15%
- 3) Equipment Rental 15%
- 4) Other Items and Expenditures..... 15%

To the sum of the costs and markups provided for in this subsection, one percent shall be added as compensation for bonding.

7-4.3.2 Work by Subcontractor.

For Extra Work performed by a Subcontractor, the markup established in Subsection 7-4.3.1 of the General Provisions shall be applied to the Subcontractor's costs. An additional five percent shall be added to the Subcontractor's final cost, which shall reimburse the Contractor for administrative costs, including overhead and profit.

7-4.3.3 Work by Sub-Subcontractor.

Subsection 7-4.3.3 is hereby added to the Standard Specifications as follows:

For Extra Work performed by a sub-Subcontractor, the markup established in Subsection 7-4.3.1 of the General Provisions shall be applied to the sub-Subcontractor's costs. An additional ten percent shall be added to the sub-Subcontractor's final cost, five percent of which shall reimburse the Contractor for administrative costs, including overhead and profit, and five percent of which shall reimburse the Subcontractor for administrative costs, including overhead and profit.

7-4.3.4 Work by Specialist.

Subsection 7-4.3.4 is hereby added to the Standard Specifications as follows:

If the Engineer and the Contractor agree that a service or an item of Extra Work cannot be performed by the forces of the Contractor or those of any of its Subcontractors or sub-Subcontractors, such service or Extra Work item may be performed by a specialist. Invoices for such services or items of Extra Work calculated on the basis of current market prices may be accepted without complete itemization of labor, material, and equipment rental costs when it is impracticable and not in accordance with the established practice of the special service industry to provide such complete itemization.

If the Contractor is required to perform Extra Work that requires a fabrication or matching process in a fabrication or machine shop facilities away from the Project site, the charges for that portion of the Extra Work performed in such facility may, by agreement between the Contractor and Engineer, be accepted as a specialist billing.

For Extra Work performed by a specialist, 15% shall be added to the specialist's invoice price less a credit to the City for any cash or trade discount offered or available, whether or not such discount may have been taken; such percentage shall reimburse the Contractor for administrative costs, including overhead and profit.

7-4.3.5 Work not Covered by Unit Prices.

Subsection 7-4.3.5 is hereby added to the Standard Specifications as follows:

Markup for overhead and profit on any change in the Work for an Item of Work not covered by a Contract Unit Price that involves both added and deleted Work shall be paid, in accordance with this Subsection 7-4.3 of the General Provisions, only if the net cost increases the Contract Price (i.e., if the cost for added Work exceeds the cost for deleted Work).

7-4.4 Daily Reports by Contractor

Delete the first sentence of Subsection 7-4.4 and substitute the following:

The Contractor shall submit daily reports for Extra Work showing all labor, material, and equipment costs incurred.

Add the following at the end of Subsection 7-4.4:

The daily reports shall describe in detail the Extra Work that was performed and the location (station, etc.). Separate daily reports shall be submitted for Extra Work that is performed for more than one location and for different tasks that are performed on the same day. Material charges shall be substantiated by valid copies of vendor's invoices. Such invoices shall be submitted with the daily reports, or if not available, they shall be submitted with subsequent daily reports. The Contractor shall maintain the Contractor's records in such a manner as to provide a clear accounting of the costs.

Upon completion of the Extra Work, the Contractor shall submit a summary of costs, including markup for overhead and profit. All costs shall be in accordance with this Section 7-4 "Payment for Work." The signature of the City's Inspector on a daily report shall indicate agreement with the information reflected therein, not that the Contractor is entitled to payment of the costs in the report. The Engineer shall review the daily reports. The Engineer shall compare the Inspector's records with the completed daily reports furnished by the Contractor and make any necessary adjustments. When the daily reports are agreed upon and signed by both parties, these reports shall become the basis of payment for the Extra Work performed.

7-4.5 Extension of Time

Add the following as Subsection 7-4.5:

If the Contractor is delayed in completing the Extra Work due to a change ordered by the City, the time for completion of Work will be extended in accordance with Section 6-4 of these General Provisions.

7-5 PERMITS

The text of Subsections 7-5 of the Standard Specifications is hereby deleted and replaced with the following:

Prior to the start of any work, the Contractor shall obtain the applicable AGENCY permits and make arrangements for AGENCY inspections. The AGENCY will issue the permits at no charge to the Contractor. The Contractor shall be responsible for obtaining and paying for any outside agency permits. The Contractor and all subcontractors shall be licensed in accordance with State Business and Professions Code. The Contractor shall also obtain any and all other permits, licenses, inspections, certificates, or authorizations required by any governing body or entity having jurisdiction within the project limits.

The Contractor shall pay all cost incurred by the permit and license requirements.

7-6 AUDIT

The City or its representative shall have the option of inspecting and/or auditing all records and other written materials used by the Contractor in preparing its billings to the City as a condition precedent to any payment to the Contractor or in response to a construction claim or a Public Records Act (Government Code Section 6250 *et seq.*) request. The Contractor will promptly furnish documents requested by the City at no cost. Additionally, the Contractor shall be subject to State Auditor examination and audit at the request of the City or as part of any audit of the City, for a period of three and one-half years after Final Acceptance under the Contract. The Contractor shall include a copy of this Section 7-6 in all contracts with its Subcontractors, and the Contractor shall be responsible for immediately obtaining those records or other written material from its

Subcontractors upon a request by the State Auditor or the City. If the Project includes other auditing requirements, those additional requirements will be listed in the Special Provisions.

SECTION 8. FACILITIES FOR AGENCY PERSONNEL

8-1 GENERAL

The following paragraph shall be added following the first paragraph of Section 8-1:

No field offices for City personnel shall be required; however, City personnel shall have the right to enter upon the Project at all times and shall be admitted to the offices of the Contractor to use the telephone, desk and sanitary facilities provided by the Contractor for its own personnel.

Sections 9 and 10 are hereby added to Part 1 of the Standard Specifications, as follows:

SECTION 9. CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLAN

9.1 GENERAL

To ensure that solid waste generated in the City is reduced, reused or recycled, the Contractor shall submit a "Waste Management Plan" (WMP) to the Engineer for review and approval, using the form found at the end of this Section 9. After the WMP has been reviewed by the Engineer, it will be returned to the Contractor in one of the following four status conditions:

- "Approved"
- "Further Explanation Required": The Engineer will return the WMP to the Contractor with questions about the WMP. The Contractor shall resubmit plan with each of the City's questions answered thoroughly.
- "Denied": The Engineer will indicate the reasons for denial. The Contractor shall then re-submit a new WMP that complies with the requirements of this Section or request an Infeasibility Exemption.
- "Infeasibility Exemption Approved"

The Contractor shall follow the WMP and document results during demolition and construction. Final documentation shall be submitted at the end of the project to the Engineer for review of compliance with the original WMP. The amount deducted from the final estimate and retained by the City in accordance with Section 7.3.1 and 7.3.2 shall be withheld until final WMP is submitted to the City and approved by the City.

9-2 DEFINITIONS

- a) "Construction" means the building of any facility or structure or any portion thereof including any tenant improvements to an existing facility or structure.
- b) "Construction and Demolition Debris" means used or discarded materials removed from premises during construction of the Project.
- c) "Conversion Rate" means the rate set forth in the standardized Conversion Rate Table approved by the City Council pursuant to this Section for use in estimating the volume or weight

of materials identified in a Construction and Demolition Waste Reduction and Recycling Plan.

d) "Divert" means to use material for any purpose other than disposal in a landfill. Diversion credit is given for source reduction (waste reduction), recycling, and composting.

e) "Diversion Requirement" means the diversion of at least 65% of the total Construction and Demolition Debris generated by a Project via reduction (source reduction), reuse or recycling, unless the Contractor has been granted an Infeasibility Exemption, in which case the Diversion Requirement shall be the maximum feasible diversion rate established by the Engineer.

f) "Recycling" means the process of collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace.

g) "Renovation" means any change, addition, or modification in an existing structure.

h) "Reuse" means further or repeated use of Construction or Demolition Debris. An example is the reuse of crushed concrete as road base or as aggregate on the construction site.

i) "Salvage" means the controlled removal of Construction or Demolition Debris from project for the purpose of recycling, reuse, or storage for later recycling or reuse.

j) "Construction and Demolition Waste Management Plan" means a completed form, approved by the Engineer for the purpose of compliance with this Section, submitted by the Contractor/Contractor for any Covered or Noncovered Project that indicates the estimated diversion that the Contractor/Contractor anticipates in diverting from disposal.

k) "Construction and Demolition Waste Management Report" means a completed form, approved by the Engineer for the purpose of compliance with this Section, submitted by the Contractor for any Project that documents the disposal and diversion tonnages and destinations.

9-3 *INFEASIBILITY EXEMPTION*

a) Application. If the Contractor experiences unique circumstances that the Contractor believes make it infeasible to comply with the Diversion Requirement, the Contractor shall apply for an exemption at the time that it submits the WMP. The Contractor shall indicate on the WMP the maximum rate of diversion the Contractor believes is feasible for each material and the specific circumstances that the Contractor believes make it infeasible to comply with the Diversion Requirement.

b) The Engineer shall review the information supplied by the Contractor and may meet with the Contractor to discuss possible ways of meeting the Diversion Requirement. Based on the information supplied by the Contractor, the Engineer shall determine whether it is possible for the Contractor to meet the Diversion Requirement.

c) If the Engineer determines that it is infeasible for the Contractor to meet the Diversion Requirement due to unique circumstances, the Engineer shall determine the maximum feasible diversion rate for each material and shall indicate this rate on the WMP submitted by the Contractor. The Engineer shall return a copy of the WMP to the Contractor marked "Infeasibility Exemption Approved."

d) Denial of Exemption. If the Engineer determines that it is possible for the Contractor to meet the Diversion Requirement, the Engineer shall so inform the Contractor in writing. The Contractor will have 15 days to resubmit a new WMP. If the Contractor fails to resubmit a new WMP, or if the

resubmitted WMP does not comply with the requirements of the plan, the Engineer shall deny the WMP.

9-4 DIVERSION PROGRAM

The methodology used to calculate diversion is based on the Title 14, California Code of Regulations, Article 6.1 Solid Waste Generation Study, Section 18722 et seq, and is consistent with CalRecycle measurement protocols. The following equation defines the “Generation-Based Diversion Quantification Methodology”:

$$\begin{aligned} \text{Generation} &= \text{Disposal} + \text{Diversion} \\ \text{Diversion Rate (\%)} &= \frac{\text{Diversion Tons}}{\text{Generation Tons}} \end{aligned}$$

9-5 ADDITIONAL INFORMATION

Other materials to assist the Contractor in completing the WMP can be found on the City’s website at www.manhattanbeach.gov.

- Construction and Demolition Debris Recycling Guide
- Construction and Demolition Recycling Brochure

CITY OF MANHATTAN BEACH
Construction & Demolition Waste Management Plan

Manhattan Beach Municipal Code 5.26 requires construction projects to reuse or recycle 65% of all construction site waste (all demolition and roof tear-off projects, and all construction with a total value of \$100,000).

REQUIRED GOAL: REUSE OR RECYCLE A MINIMUM OF 65% OF ALL PROJECT WASTE

Instructions:

1. Complete entire WMP & submit to the Project Manager as a project submittal.
2. Reuse and/or recycle at least 65% of all construction site waste and keep good records of all facility waste tickets.
3. Submit a copy of this WMP and ALL recycling and landfill facility weight tickets before Final Inspection to the Project Manager as a new project submittal. **A COPY OF THIS WMP AND RECEIPTS OF ALL RECYCLING AND DISPOSAL SHALL BE SUBMITTED BEFORE FINAL PAYMENT WILL BE MADE BY THE CITY.**

Fines for Non-Compliance (MBMC 5.26.020): Demo projects up to \$5,000 and Construction projects up to \$10,000

Project Name: _____

Project Address: _____

Type of Project: Street Improvement Water Main Sewer Main
 Storm Drain Other

Total Bid Price: \$ _____

Requesting Infeasibility Exemption: Yes No

Contractor Name: _____

Contact Name: _____

Address: _____

Contact Phone: _____

Recycler: _____

Recycler Contact: _____

Recycler Address: _____

Recycler Contact Phone: _____

	CITY USE ONLY	
	Application (Date)	Final (Date)
Approved	_____	_____
Further explanation needed (see attached)	_____	_____
Denied	_____	_____
Infeasibility Exemption Approved	_____	_____
Reviewed By	_____	_____

Submit this form and the attached Waste Management Plan Table to: **Project Manager by email or
 Engineering Division, City of Manhattan Beach 3621 Bell Avenue, Manhattan Beach, CA 90266**

CITY OF MANHATTAN BEACH

Construction & Demolition Waste Management Plan Table

Project Name: _____

Total Estimated Waste Generated by Project: _____ (**IN TONS**).
(Ask your hauler, recycler or site cleanup vendor to assist you. Use receipts from your previous jobs for estimates.)

Complete and return with Building Permit Application				Complete and return with receipts prior to final building approval		
Material Type	Estimated Reused/ Recycled	Estimated Disposed/ Landfilled	Vendor or Facility to be Used (Destination)	Actual Reused/ Recycled	Actual Disposed/ Landfilled	Vendor or Facility Used (Destination)
Asphalt & Concrete						
Bricks/Masonry/Tiles						
Building Materials (doors, windows, fixtures, etc.)						
Cardboard						
Concrete Pavement and Grindings						
Drywall (new, unpainted)						
Asphalt Pavement Grindings						
Landscape Debris (Plant & Tree Trimmings)						
Scrap Metal						
Unpainted Wood & Pallets						
Other (painted wood & drywall, roofing, etc.)						
Mixed C&D*						
Trash/Garbage						
TOTAL						

*Mixed C&D is defined as a mixture of three or more materials (e.g., wood, drywall, roofing, etc.) from construction or demolition sites that will be taken to a "qualified" facility for recycling. (See C&D Debris Recycling Guide.)

If you are requesting an infeasibility exemption and the estimated amount reused/recycled is less than 65%, please explain why (attach additional sheets if necessary):

If the actual amount reused/recycled is less than 65%, please explain why:

Prepared by (please print): _____

Date: _____

Contractor Signature: _____

Phone Number: _____

Conversion Rates

The following conversion rates are estimates. The ranges vary widely, depending on how the materials are handled (compacted, loose, chipped, etc.). Use the conversion factors and receipts from any previous projects to help you estimate the potential amount of materials and diversion. Take into consideration the type and load of vehicles that will be used to haul the materials. Ask your hauler or recycler to assist you in estimating these numbers.

Material	Lbs/cy	Tons/cy
Asphalt	1,400 lbs/cy	0.7 tons/cy
Brick	2,430 lbs/cy	1.21 tons/cy
Cardboard	100 lbs/cy	0.05 tons/cy
Concrete	2,600 lbs/cy (Sources range from 1,000 to 4,000)	1.3 tons/cy
Dirt/Soils	2,660 lbs/cy	1.33 tons/cy
Drywall	700 lbs/cy	0.35 tons/cy
Wood (chipped)	300 – 650 lbs/cy	0.15 – 0.3 tons/cy
Mixed C&D Debris	900 lbs/cy	0.45 tons/cy
Mixed Waste/Trash	100 – 350 lbs/cy	0.5 – 0.175 tons/cy

SECTION 10. ADDITIONAL TERMS

10-1 NONDISCRIMINATORY EMPLOYMENT

The Contractor shall not unlawfully discriminate against any individual based on race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, sexual orientation or military and veteran status. The Contractor understands and agrees that it is bound by and will comply with the nondiscrimination mandates of all statutes and local ordinances and regulations.

10-2 NOTICE TO PROCEED

Upon award of the Contract and signing the Contract Documents, the City shall issue the Contractor a Notice to Proceed. The City will not authorize any Work to be done under these Contract Documents before the Contract has been fully executed. Any Work that is done by the Contractor in advance of such time shall be considered as being done at the Contractor's own risk and responsibility, and as a consequence will be subject to rejection.

10-3 CONTRACTOR'S RESPONSIBILITY FOR WORK

Until the final acceptance of the Work by the City as defined in Section 3-13.2 of the General Provisions, by written action of the Engineer, the Contractor shall have the charge and care thereof and shall bear the risk of injury or damage to any part of the Work by the action of the elements, criminal acts, or any other cause. The Contractor shall rebuild, repair, restore and make good all injuries or damages to any portion of the Work occasioned by any cause before its completion and acceptance and shall bear the expense thereof, except for such injuries or damages arising from the sole negligence or willful misconduct of the City, its officers, agents or employees. In the case of suspension of Work from any cause whatever, the Contractor shall be responsible for all materials and the protection of Work already completed, shall properly store and protect them if necessary, and shall provide suitable drainage and erect temporary structures where necessary.

10-4 PROCEDURE IN CASE OF DAMAGE TO PUBLIC PROPERTY

Any portions of curb, gutter, sidewalk or any other City improvement damaged by the Contractor during the course of construction shall be replaced by the Contractor at its own cost. The cost of additional replacement of curb, gutter or sidewalk in excess of the estimated quantities shown in the Bid form and Specifications, and found necessary during the process of construction (but not due to damage resulting from carelessness on the part of the Contractor during its operation), shall be paid to the Contractor at the unit prices submitted in its Bid.

10-5 REMOVAL OF INTERFERING OBSTRUCTIONS

The Contractor shall remove and dispose of all debris, abandoned structures, tree roots and obstructions of any character encountered during the process of excavation. It is understood that the cost of any such removals are made a part of the unit price bid by the Contractor under the item for excavation or removal of existing Work.

10-6 SOILS ENGINEERING AND TESTING

An independent certified materials testing firm must be retained by the Contractor to perform materials tests and applicable special inspections during the Contractor's entire operation to

ascertain compliance with the Contract requirements. . If the initial tests do not meet the Contract requirements, the Contractor shall bear the cost of all subsequent tests.

The Contractor shall provide a copy of the testing and inspection reports to the Engineer within 24 hours upon receipt.

If the City requires other tests or more specific requirements for testing regarding this Project, those details will be included in the Special Provisions.

10-7 ACCESS TO PRIVATE PROPERTY

Unless otherwise stated in the Special Provisions, the Contractor shall be responsible for all fees and costs associated with securing permission to access private property for any portion of the Project.

10-8 WORKING DAYS AND HOURS

The Contractor shall do all Work between the hours of 7:30 a.m. to 4:30 p.m., Monday through Friday. No Work will be allowed on Saturday, Sunday or City holidays listed on the City's website unless specifically mentioned in the Contract Documents or authorized by the City Engineer.

In addition, no Work will be allowed on any election or special election day that may be declared within a 300-foot radius of any voting location or in any location that will disturb access to any voting location, as determined and directed by the City Engineer. If the Work is within the 300-foot radius or disturbs access to any voting location, as determined by the City Engineer, a time extension of one Working Day will be granted for each such Day that Work cannot be performed.

A permit may have other hours or Days for the Contractor to do the Work, and those hours and Days shall supersede any hours and Days written in this Section.

Whenever the Contractor is permitted or directed to perform night Work or to vary the period during which Work is performed during the Working Day, the Contractor shall give 24 hours' notice to the Engineer so that inspection may be provided. Charges to the Contractor for inspection will be incurred as stated in Section 6-2.1.

The timeframe of work shall be in accordance with PART 9 – SPECIAL INSTRUCTIONS.

10-9 CLAIM DISPUTE RESOLUTION

In the event of any dispute or controversy with the City over any matter whatsoever, the Contractor shall not cause any delay or cessation in or of Work, but shall proceed with the performance of the Work in dispute. The Contractor shall retain any and all rights provided that pertain to the resolution of disputes and protests between the parties. The Disputed Work will be categorized as an "unresolved dispute" and payment, if any, shall be as later determined by mutual agreement or a court of law. The Contractor shall keep accurate, detailed records of all Disputed Work, claims and other disputed matters.

All claims arising out of or related to the Contract Documents or the Project, and the consideration and payment of such claims, are subject to the Government Claims Act (Government Code Section 810 *et seq.*) with regard to filing claims. All such claims are also subject to Public Contract Code Section 9204 and Public Contract Code Section 20104 *et seq.* (Article 1.5), where applicable. The Contract hereby incorporates those provisions as though fully set forth herein. Thus, the Contractor or any Subcontractor must file a claim in accordance

with the Government Claims Act as a prerequisite to filing a construction claim in compliance with Section 9204 and Article 1.5 (if applicable), and must then adhere to Article 1.5 and Section 9204, as applicable, pursuant to the definition of "claim" as individually defined therein.

10-10 THIRD PARTY CLAIMS

The City shall have full authority to compromise or otherwise settle any claim relating to the Project at any time. The City shall timely notify the Contractor of the receipt of any third-party claim relating to the Project. The City shall be entitled to recover its reasonable costs incurred in providing this notice.

10-11 COMPLIANCE WITH LAWS

The Contractor shall comply with all applicable federal, State and local laws, ordinances, codes and regulations in force at the time the Contractor performs pursuant to the Contract Documents.

10-12 CONTRACTOR'S REPRESENTATIONS

By signing the Contract, the Contractor represents, covenants, agrees, and declares under penalty of perjury under the laws of the State of California that: (a) the Contractor is licensed, qualified, and capable of furnishing the labor, materials, and expertise necessary to perform the services in accordance with the terms and conditions set forth in the Contract Documents;

(b) there are no obligations, commitments, or impediments of any kind that will limit or prevent its full performance under the Contract Documents; (c) there is no litigation pending against the Contractor that could adversely affect its performance of the Contract, and the Contractor is not the subject of any criminal investigation or proceeding; and (d) to the Contractor's actual knowledge, neither the Contractor nor its personnel have been convicted of a felony.

10-13 CONFLICTS OF INTEREST

The Contractor agrees not to accept any employment or representation during the term of the Contract or within 12 months after acceptance as defined in Section 3-13.2 of the General Provisions that is or may likely make the Contractor "financially interested," as provided in Government Code Sections 1090 and 87100, in any decisions made by the City on any matter in connection with which the Contractor has been retained pursuant to the Contract Documents.

10-14 APPLICABLE LAW

The validity, interpretation, and performance of these Contract Documents shall be controlled by and construed under the laws of the State of California, excluding California's choice of law rules. Venue for any such action relating to the Contract shall be in the Los Angeles County Superior Court.

10-15 TIME

Time is of the essence in these Contract Documents.

10-16 INDEPENDENT CONTRACTOR

The Contractor and Subcontractors shall at all times remain, as to the City, wholly independent contractors. Neither the City nor any of its officials, officers, employees or agents shall have control over the conduct of the Contractor, Subcontractors, or any of their officers, employees, or agents, except as herein set forth, and the Contractor and Subcontractors are free to dispose of all portions of their time and activities that they are not obligated to devote to the City in such a manner and to such Persons that the Contractor or Subcontractors wish except as expressly provided in these Contract Documents. The Contractor and Subcontractors shall have no power to incur any debt, obligation, or liability on behalf of the City, bind the City in any manner, or otherwise act on behalf of the City as agents. The Contractor and Subcontractors shall not, at any time or in any manner, represent that they or any of their agents, servants or employees, are in any manner agents, servants or employees of the City. The Contractor and Subcontractors agree to pay all required taxes on amounts paid to them under the Contract, and to indemnify and hold the City harmless from any and all taxes, assessments, penalties, and interest asserted against the City by reason of the independent contractor relationship created by the Contract Documents. The Contractor shall include this provision in all contracts with all Subcontractors.

10-17 CONSTRUCTION

In the event of any asserted ambiguity in, or dispute regarding the interpretation of any matter herein, the interpretation of these Contract Documents shall not be resolved by any rules of interpretation providing for interpretation against the party who causes the uncertainty to exist or against the party who drafted the Contract Documents or who drafted that portion of the Contract Documents.

10-18 NON-WAIVER OF TERMS, RIGHTS AND REMEDIES

Waiver by either party of any one or more of the conditions of performance under these Contract Documents shall not be a waiver of any other condition of performance under these Contract Documents. In no event shall the making by the City of any payment to the Contractor constitute or be construed as a waiver by the City of any breach of covenant, or any default that may then exist on the part of the Contractor, and the making of any such payment by the City shall in no way impair or prejudice any right or remedy available to the City with regard to such breach or default.

10-19 TERM

The Contract is effective as of the Effective Date listed, and shall remain in full force and effect until the Contractor has fully rendered the services required by the Contract Documents or the Contract has been otherwise terminated by the City. However, some provisions may survive the term listed within this Section, as stated in those provisions.

10-20 NOTICE

Except as otherwise required by law, any notice or other communication authorized or required by these Contract Documents shall be in writing and shall be deemed received on (a) the day of delivery if delivered by hand or overnight courier service during the City's regular business hours or (b) on the third business day following deposit in the United States mail, postage prepaid, to the addresses listed on the Contractor's Bid and City Hall, or at such other address as one party may notify the other.

10-21 SEVERABILITY

If any term or portion of these Contract Documents is held to be invalid, illegal, or otherwise unenforceable by a court of competent jurisdiction, the remaining provisions of these Contract Documents shall continue in full force and effect.

10-22 REQUIREMENT TO MITIGATE THE SPREAD OF COVID-19

The Contractor and all Subcontractors for the Work shall comply with all applicable Federal, State, Los Angeles County, and City statutes, regulations, orders, and ordinances regarding COVID-19 Infection Prevention. This requirement specifically includes, without limitation, compliance with the “Safety and Health Guidance COVID-19 Infection Prevention in Construction” issued by the California Department of Industrial Relations, Division of Occupational Safety and Health and Safety on October 27, 2020 and as may be amended from time to time by the Department.

Prior to the pre-construction meeting, the Contractor shall submit to the City a “COVID-19 Mitigation Program” implementing these requirements and shall post the COVID-19 Mitigation Program on the project site in a manner designated by the City’s Project Manager. The failure of employees or workers of the Contractor and all subcontractors on the Work to comply with these requirements shall be a default per Section 6-7.1, and may also result in a suspension of the Work pursuant to Section 6-6. Contractor acknowledges that, in the event that the Engineer suspends the Work as a result of such failure by Contractor or one of its subcontractors to comply with these requirements, City is not responsible for the delay, and that pursuant to Section 6-6.1 the Contractor is not entitled to compensation. The Contractor shall also pay to the City the costs and expenses incurred by the City resulting from the failure of employees of the Contractor and all subcontractors on the Work to comply with these requirements including, but not limited to, the salaries and benefits for City employees who are unable to work due to exposure to COVID-19 as a result of such failure, and workers compensation benefits and expenses. Delays in the Work resulting from Contractor’s or its subcontractor’s failure to comply with these regulations shall not be considered an unforeseen event entitling Contractor to an extension of time or payment for delay pursuant to Section 6-4 of the Standard Specifications.

PART I - SPECIAL INSTRUCTIONS

SECTION 0. PROJECT SPECIFIC SCOPE OF WORK

The Scope of Work includes, but is not limited to:

- Furnish and install electric security hardware devices, mounting brackets, power supplies, switches, equipment cabinets, controls, consoles and other components of the system as shown and specified.
- Furnish and install outlets, junction boxes, pull boxes, conduit, connectors, wiring, and other accessories necessary to complete installation.
- Provide pre-testing and acceptance testing of equipment, programming, wiring and installation..

Order or Staging of Work:

Contractor to provide phasing diagram with proposed construction schedule.

SECTION 1. GENERAL

No allowances for cost adjustments will be made if a Bidder fails to adequately examine the Project site.

Should the Contractor be neglectful, negligent, or refuse, fail, or otherwise be unavailable to promptly, satisfactorily, and fully comply with the provisions specified and referred to herein above, the City reserves the right to correct or mitigate any situation, that in the sole opinion of the Engineer, constitutes a serious deficiency or serious case of noncompliance, by any means at its disposal at the Contractor's or permittee's expense, and shall deduct the cost therefor from the Contractor's progress or final payments. Such corrective action taken by the City shall not reduce or abrogate the Contractor's legal obligations and liability for proper traffic control and safety measures and shall not serve to transfer the obligations and liabilities from the Contractor to the City or the City's agents.

Violations of any of the Provisions or provisions of the referenced publications, unless promptly and completely corrected to the satisfaction of the Engineer, shall, at the sole discretion of the City, be grounds for termination of the Contract, or shut down or partial shutdown of the work, without compensation to the Contractor or permittee, or liability to the City, all as prescribed by contractual obligation or State law, whichever is applicable.

SECTION 2. STAKEHOLDERS

The Contractor shall coordinate with the City Departments throughout the project for the department's programming and maintaining public access as needed.

SECTION 3. SCHEDULE

3-1 NOTICE TO PROCEED / COMPLETION OF ALL WORK

Contractor should be prepared for the Notice to Proceed with Construction to be issued by Monday, September 30, 2023, and for all contract work (including demobilization) to be completed by Friday, December 29, 2023.

Any work in the Right-of-Way will require a permit from the City of Manhattan Beach and adhering to City of Manhattan Beach times for any Temporary Traffic controls. Refer Part 6 and Special Provisions for Temporary Traffic Control times and requirements.

Full compensation for compliance with these requirements shall be considered as included in the appropriate bid items.

SECTION 4. COORDINATION OF WORK

4-1 CONSTRUCTION STAGING AREA

Contractor shall be responsible for securing a construction staging area for this project.

The cost of securing a staging area shall be considered as included in the Contract prices paid for the mobilization bid item, and no additional compensation will be allowed therefore.

4-2 DRIVEWAY ACCESS

All driveway access must remain open at all times although flagging operations may be required during work hours. Outside work hours steel plates or other measures may be put in place to facilitate full unrestricted access.

The Contractor shall minimize impacts to nearby driveway approaches and intersection traffic in the vicinity of the work. All open trenches shall be either backfilled or the work area shall be adequately covered with steel plates at the end of each working day. All loose gravel from the plate being secured by temporary AC must be swept and cleaned up to ensure a clean tidy environment on a daily basis.

4-3 WORK SITE CLEANLINESS OUTSIDE OF THE WORK AREA

The Contractor shall keep the pavement in the area around the project area acceptably clean daily. Engineer may require the use of a self-loading motor sweeper with spray nozzles to meet this performance requirement.

Spoils from excavation shall be immediately removed from the project site. Overnight storage of materials removed or equipment shall not be permitted on the traveled roadway surface.

Full compensation for compliance with these requirements shall be considered as included in the appropriate bid items, except as otherwise noted.

4-4 PROJECT WORK PLAN

Contractor shall submit a project work plan that shall include:

1. Work sequence and schedule duration for all required Work.
2. Diagram of work sequence.
3. Listing and layout of equipment to be used on site.
4. Site security measures (as applicable)
5. Traffic Control Plans per Work Sequence (as applicable).
 - Include 'During Work Hours' and 'After Hours'

4-7 DUST AND SOUND CONTROL REQUIREMENTS

Dust Control

Contractor to minimize dust for any wall penetrations or sanding operations utilizing industry best practices.

No separate payment will be made for any work performed or material used to control dust resulting from the contractor's performance of the work. Full compensation for such dust control will be considered as included in the price paid for the various items of work involved.

Sound Control

The contractor shall comply with all local sound control and noise level rules, regulations and ordinances, which apply to any work performed pursuant to the contract.

Full compensation for conforming to the requirements of sound control shall be considered as included in the prices paid for the various contract items of work

PART II - STANDARD AND SPECIAL TECHNICAL PROVISIONS

UNDERGROUND SERVICE ALERT IDENTIFICATION NUMBER FORM

No excavation will be permitted until this form is completed and returned to the City.

Government Code Section 4216 *et seq.* requires a Dig Alert Identification Number to be issued before a permit to excavate will be valid.

To obtain a Dig Alert Identification Number, call Underground Service Alert at **811** a minimum of three (3) Working Days before scheduled excavation. For best response, provide as much notice as possible up to ten (10) Working Days.

Dig Alert Identification Number: _____

Dated: _____

("CONTRACTOR")

By: _____

Printed Name: _____

Title: _____

By: _____

Printed Name: _____

Title: _____

Note: This form is required for every Dig Alert Identification Number issued by Underground Service during the course of the Work. Additional forms may be obtained from the City upon request.

PART 6 - TEMPORARY TRAFFIC CONTROL

The corresponding provisions in Part 6 (Temporary Traffic Control) of the Standard Specifications are incorporated, except as otherwise indicated herein. In the event of any conflict between the Standard Specifications and these Special Provisions, these Special Provisions shall control.

SECTION 600 - ACCESS

600-1 GENERAL

Add the following:

The Contractor shall notify in person and with printed notification, at least ten (10) working days prior to commencing work, to all agencies, businesses, institutions, postal service, residents, hospital, transit agencies, schools, churches, stores, utilities, and waste disposal service fronting or affected by the work. Additional printed notification shall be given not less than forty- eight (48) hours prior to performing any work which will restrict property access, close or partially close the street, or which will restrict or disallow street parking. All schools, churches, hospitals, and businesses shall receive seven (7) working days notification prior to performing any work that will restrict property access.

Appendix VI Sample Notice to Residents requires that the printed notices contain a general description of the work to be done and the date that the work is to be done. The notices shall also include a statement that parking will be restricted as called for on the "NO PARKING" signs to be posted along the street. All public notices must be reviewed and approved by the Engineer prior to its distribution.

The Contractor shall coordinate with the school district for pick-up and drop-off of school children, waste disposal collection, street sweeping, MTA Bus Stops and Zones Dispatcher, the postal service to ensure delivery of mail, and churches for weekly or special activities. The local traffic consists of, but is not limited to, residences, church congregations, post offices, meter readers, transit operators, trash pickup, school buses, and emergency vehicles. The Contractor shall provide a smooth travel way and either a flagger and/or signing to direct traffic. The Contractor shall notify the MTA Bus Stops and Zones Dispatcher and any other affected transit services at least two working days prior to construction and any impacts. Evidence of such notification shall be submitted to the City at least two working days prior to construction and any impacts.

Access to mailboxes shall be maintained at all times such that the postal delivery service is not interrupted. Trash pick-up services shall not be interrupted. Access to vacant and unused property may be restricted when approved by the Engineer. Both vehicular and pedestrian access shall be maintained at all times to all other property except as otherwise specifically authorized in writing by the Engineer.

The Contractor shall obtain a Manhattan Beach City Permit for work performed in the right-of-way, and provide the City with evidence of insurance coverage in compliance with section 7-3 "Insurance" in the General Provisions of the Specifications for this project. Notify the Public Works Inspector at (310) 802-5306, at least 72 hours prior to any construction in right-of-way. At least 72 hours in advance of closing, partially closing or reopening, any street, alley, sidewalk or other public thoroughfare, the Contractor shall notify the Police, Fire, Traffic and Engineering Department and affected residents and business owners. Deviations must first be approved in writing by the Engineer. Fire and Police Dispatch can be reached at (310) 545-4566 prior to starting work or

closing lanes/streets every day. When entering or leaving roadways carrying public traffic, the Contractor's equipment, whether empty or loaded, shall yield to the public traffic at all times, except where the traffic is being controlled by police officers, fire officers, properly trained and experienced flaggers, or at traffic signalized intersections. Contractor shall work closely with all affected businesses to ensure impacts are minimized during work. All work must be coordinated with the adjacent businesses, the Northern Manhattan Beach Business Improvement District, Downtown Business Association, Manhattan Beach Parks and Recreation events, and all affected agencies.

All open trenches shall be covered with non-skid steel plates or temporary asphalt pavement before and after work hours. Steel plates shall be placed securely to avoid tripping hazards and in a way that minimizes movement and noise.

600-2 VEHICULAR ACCESS.

Add the following:

All streets shall remain open to through traffic at all times except when street closure is approved by the Engineer. Per subsection 7-10.1, "Safety", of these special provisions, overnight and long terms street closures can only be approved by City Council, which will require a minimum 4 week lead time. The Contractor shall make provisions to allow local traffic access to the closed streets.

Vehicular access to hospital, business, school, and church driveways shall be maintained at all times during construction. Unless the Contractor makes other arrangements satisfactory to the Engineer and the owners, the following shall also apply to business establishments:

- a) For each establishment (such as, but not limited to, gas stations, markets and other "drive in" businesses) on the corner of an intersection which has a driveway (or driveways) on each intersecting street, the Contractor shall provide vehicular access to at least one driveway on each intersecting street unless otherwise approved in writing by the Engineer.
- b) For each establishment (such as but not limited to motels, parking lots and garages) which has a one way traffic pattern with the appropriate entrance driveway and exit driveway, the Contractor shall provide vehicular access to both the entrance driveway and the exit driveway.
- c) The Contractor shall furnish, install, maintain and remove steel traffic plates at driveways as needed to provide continuous access, and at locations where so requested by the Engineer. No separate payment will be made for steel traffic plates.

600-3 PEDESTRIAN ACCESS.

Replace the second paragraph with the following:

Pedestrian zones and public transportation stops, as well as pedestrian crossings of the Work site at intervals not exceeding 500 feet shall be maintained unless otherwise approved by the Engineer. In addition, no two adjoining streets shall be closed at the same time, except as otherwise approved by the Engineer. When sidewalks are closed, "SIDEWALK CLOSED" signs shall be used at each approach to the closure and an approved alternate route provided. Pedestrians shall not be directed into direct conflict with vehicles operating within the Work site or other traffic. Where it is necessary to divert pedestrians into the parking lane or a street, barricades or temporary traffic barriers shall be provided to separate the pedestrian walkway from the adjacent traffic lane.

SECTION 601 - TEMPORARY TRAFFIC CONTROL FOR CONSTRUCTION AND MAINTENANCE WORK ZONES

601-1 GENERAL

Add the following:

Street closures, detours, lane closures, signs, lights and other traffic control devices shall conform to these Special Provisions; the California Manual on Uniform Traffic Control Devices (California MUTCD – latest edition at the time of bid); the "Work Area Traffic Control Handbook" (WATCH – latest edition at the time of bid); and Section 7-10 and Part 6 of the Standard Specifications. The California MUTCD is available at the following address:

<http://www.dot.ca.gov/hq/traffops/engineering/mutcd/>

In the event of conflict regarding temporary traffic control, the order of precedence shall be as follows:

1. Special Instructions
2. Special Provisions
2. Temporary Traffic Control Plans (to be prepared by the Contractor)
3. California Manual on Uniform Traffic Control Devices
4. Work Area Traffic Control Handbook
5. Standard Specifications

Nothing in the Standard and Special Technical Provisions shall be construed as relieving the Contractor from his or her responsibility to provide for the safety and convenience of traffic and the public during construction.

Unless otherwise approved by the Engineer, the Contractor shall allow passage of public transit coaches through the Work area at all times. For the Metropolitan Transportation Authority (Metro), the Contractor shall notify the Stops and Zones Representative, (213) 922 5190, at least 48 hours prior to construction at bus stop zones to allow Metro to temporarily abandon and relocate bus stop zones within the construction area. Lips greater than one inch created during construction which is to remain overnight shall be ramped with temporary asphalt concrete at a slope not to exceed 1:1. The roadway shall be cold milled and/or paved to full width at the end of each day.

Consistent with the City's Right-of-Way Permit, traffic signal actuation shall be maintained at all times.

601-2 TEMPORARY TRAFFIC CONTROL PLAN.

601-2.1 General.

Replace the subsection with the following:

The Contractor shall prepare and submit a Traffic Control Plan (TCP) in accordance with 3-8.2.

The sheets of the TCP shall display the title, phase identification, name of the firm preparing the TCP, approval block for each jurisdictional agency, north arrow, sheet number, and number of sheets comprising the TCP. General notes and symbol definitions shall be included when required.

The TCP shall graphically show the lists of street segments and street names, buffer spaces, lane configuration and lane width dimensions, advance signing, sign panel dimensions, striping details, transitions, vehicle and pedestrian detour routes and the figures for their typical WATCH application.

The TCP shall be drawn to a scale of 1 inch = 40 feet on common size plan sheets, either 11 inches x 17 inches or 2 feet x 3 feet, as dictated by the length of the Work. The TCP shall conform

to the requirements listed in these Standard Specifications, Special Provisions, California MUTCD, and the Work Area Traffic Control Handbook, and shall be transmitted to the City for approval no later than fourteen (14) calendar days after the date of the Notice to Proceed with Preconstruction Requirements.

601-2.2 Payment.

Replace the subsection with the following:

Full compensation for compliance with the preceding TCP requirements shall be considered as being included in the Traffic Control items in the bid schedule and no additional compensation will be allowed therefor.

601-3 TEMPORARY TRAFFIC CONTROL (TTC) ZONE DEVICES.

601-3.4 Operation and Maintenance.

601-3.4.1 General.

Replace the subsection with the following:

The Contractor shall be responsible for operation and maintenance of the TTC zone devices and services twenty-four (24) hours per day, seven (7) days per week, which includes holidays, from the date of Notice to Proceed to the completion and acceptance of the work. The Contractor shall patrol and monitor the Work site to ensure that the TTC devices are in-place, properly positioned, and operational. The Contractor shall ensure that TTC devices are repaired, replaced, and cleaned as necessary to preserve their appearance and visibility. TTC devices that are damaged shall be repaired or replaced.

601-3 TEMPORARY TRAFFIC CONTROL (TTC) ZONE DEVICES.

601-3.5 Signs and Signage.

601-3.5.1 General.

Replace the third paragraph with the following:

Temporary "No Parking" and "No Stopping" signs shall be installed at least **72** hours before enforcement. Temporary "No Parking" and "No Stopping" signs shall be installed at one-hundred-foot (100') maximum spacing along each side of the affected streets prior to the commencement of the street improvement work and shall be removed along with, equipment, and other obstructions immediately upon completion, suspension, or rescheduling of work that will prohibit parking. The Contractor shall not post signs on trees and utility poles. Where there is metered parking, "NO PARKING-TOW AWAY" signs must be placed on each meter post. The Contractor shall document the day, date, and hours, with the municipal code showing that parking will be prohibited on that particular street. The signs shall meet the requirements of City of Manhattan Beach Standard Plan MBSI-182A of Appendix IV. The printed notices and the "NO PARKING" signs shall be furnished and discarded by the Contractor.

Add the following:

Properly trained and experienced flaggers shall be provided to direct traffic when the traffic is to be interrupted, when two-way traffic is to be reduced to one-way traffic, and at other such times as is necessary to safely pass traffic through or around the work area and when so directed by the Engineer.

601-3.6 Channelizing Devices.

601-3.6.1 General.

Replace the subsection with the following:

Channelizing devices shall include cones, tubular markers (delineators), channelizers, drums, barricades, and temporary barriers. Channelizing devices shall be surface mounted type furnished, placed, and maintained at the locations shown on the TCP or as approved by the Engineer.

When no longer required for the work as determined by the Engineer, channelizers (except channelizers to be left in place), and underlying adhesive used to cement the channelizer bases to the pavement, shall be removed. Removed channelizers and adhesive shall become the property of the Contractor and shall be removed from the site of work.

601-3.6.4 Barricades.

Add the following:

All barricades shall be equipped with flashing warning lights, and all traffic cones shall be no less than 28 in. in height, except that shorter cones, 12 in. minimum height, may be permitted during striping maintenance operations where the only function of the cone is to protect the wet paint from the traffic.

The entire area of orange and white stripes for barricades shall be Type I, engineering grade, or Type II, super engineering grade, retro-reflective sheeting conforming to the requirements of ASTM Designation: D 4956-95.

Type III barricades, no less than 6 ft. in length and equipped with two (2) Type "N" markers each and two (2) portable flashing beacons each, shall be used to close streets, except as otherwise specifically approved by the Engineer for minor maintenance work of no more than one (1) working day's duration, on weekdays, or on holidays only, and limited to the hours between 8:30 a.m. and 3:30 p.m. The barricades shall be placed across the full roadway at each point of closure with the distance between barricades, or between barricades and curbs, not exceeding 3 ft. except that one (1) 11 ft. wide gap between barricades shall be provided at the center of the street. Barricades to the right of the street's center, facing the inbound vehicular traffic, shall also be equipped with one (1) R11-2, "Road Closed" sign, one (1) R11-4, "Road Closed to Thru Traffic," sign, and a Type P warning sign.

601-3.7.5 Portable Changeable Message Signs (PCMS).

Replace the first sentence with the following:

For the duration of the onsite Work, two (2) PCMS shall be furnished, placed, operated, and maintained by the contractor at the locations shown on the approved TCP.

601-3.7.6 Flashing Arrow Signs.

Add the following:

FLASHING ARROW BOARD(S) ARE MANDATORY FOR LANE CLOSURES ON MAJOR STREETS. They shall operate until traffic control is removed.

601-4 TEMPORARY TRAFFIC STRIPING AND PAVEMENT MARKINGS.

601-4.2 Application

Add the following:

- i) Reflectorized (both sides) temporary self-adhesive markers, 4 in. wide, shall be applied to unstriped pavement surface before opening the travel way to public traffic. Reflectorized temporary yellow markers shall be used to delineate the centerline to separate opposing traffic. Reflectorized temporary white markers shall be used to delineate lanes of travel and placed in 24 in. intervals transverse to the road to delineate stop bars and limit lines. The reflectorized temporary markers shall be removed the same day the thermoplastic striping has been placed on the pavement. The removal of the markers shall be done such a way that the pavement is not damaged.

601-5 TRAFFIC LANE WIDTHS.

601-5.2 Lane Widths.

Replace the first paragraph with the following:

Unless otherwise specified or shown on the TCP, two-way vehicular traffic shall be maintained at all times within two (2) 10 ft. wide lanes on streets having an effective roadway width of 40 ft. or more with restricted parking. Other streets of lesser widths may be reduced to one (1) 12 ft. wide lane with work activity being limited to one side at a time, and the one-way vehicular traffic being maintained at all times by properly trained and experienced flaggers. All lane closures shall have flashing arrow signs to provide additional, high level, advanced warning.

Failure of the Contractor to maintain the required lane widths per the Project Specific Scope of Work and Traffic Control of the Special Provisions will result in a permanent payment deduction of \$200 for each Incident that the Contractor fails to comply. An Incident is defined as the issuance of a written Correction Action Notice by the Engineer or his representative to the Contractor.

There will be a limit of one (1) Incident per four (4) hour time period and two (2) incidents per working day. The payment deduction is in addition to the City's right to suspend work per Section 7-10.4.7 of the General Provisions.

SPECIAL TECHNICAL PROVISIONS

CITY FACILITY SECURITY CAMERAS PROJECT PUBLIC WORKS YARD AND CITY HALL FIRE DEPARTMENT AND POLICE DEPARTMENT PROJECT NO. D-944

TECHNICAL SPECIFICATIONS AND REQUIREMENTS

The Technical Specifications are organized into Divisions and Sections using the 49-division format and CSI's MasterFormat, current edition, numbering system.

The Technical Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Contract Documents are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Contract Documents or Technical Specifications to determine numbers and names of Sections in the Contract Documents.

Sections in Division 1 govern the execution of the Work of all Sections in the Technical Specifications.

The Technical Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Language used in the Technical Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Technical Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted. The words "shall", "shall be", or "shall comply with", depending on the context, are implied where a colon is used within a sentence or phrase.

The Technical specifications were prepared by Triad Consulting System Design Group, design consultants for the project.

**Triad Consulting & System Design Group
2925 Mira Vista Way
Corona, CA 92881**

**SECTION 26 0000
ELECTRICAL GENERAL REQUIREMENTS**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. General: Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Special Provisions, apply to this section. Also provide the work in accordance with the Section 28 00 00, Security General Requirements.

1.02 WORK SPECIFIED IN THIS SECTION

- A. Provide Electrical systems, complete and functional. The extent of electrical systems is indicated on Drawings and Schedules and by requirements of this Section and shall include, but not be limited to, the following:
1. Labor, products and tools required to complete the electrical work associated with systems, apparatus, equipment, appliances and machinery specified in these specifications and as shown on the drawings and schedules.
 2. Testing of completed work and instructions of operation personnel as specified.
 3. Installation and products not mentioned but necessary to the completion of the electrical work covered by these Specifications.
- B. The following documents are included as part of the required Electrical Work:
1. Section 26 00 00 - Electrical General Requirements.
 2. Section 26 05 00 - Basic Materials and Methods.

1.03 DISCREPANCIES

- A. In case of conflicts in the requirements of the various laws, ordinances, rules, regulations, and orders bearing upon the performance of the electrical work, the requirements providing the greater safeguard to persons, buildings and contents shall apply.

1.04 REQUIREMENTS OF REGULATORY AGENCIES

- A. Where applicable, also comply with the most recent standards and requirements of governing agencies.
- B. In addition to complying with all other legal requirements, contractor shall comply with the provisions of other Standards and governing Codes and Regulations in effect during the progress of the Work.
1. Drawings and specification requirements shall govern where such requirements exceed Code requirements.

2. Where requirements between governing codes and Regulations vary, the more restrictive provision shall apply.
3. Nothing contained in Contract Documents shall be construed as authority or permission to disregard or violate legal requirements.

1.05 SAFEGUARDS AND PROTECTION

- A. Barriers: Provide and maintain suitable barriers, guards, fences and signs where necessary to accommodate the safety of others relative to and/or for the protection of this work.
- B. Regulations: Comply with all OSHA and all Federal, State, and local regulations and standards pursuant to this work.
- C. Protection: Protect all materials and equipment to prevent the entry or adhesion of any and all foreign material. If necessary, cover equipment with temporary protective material suitable for this purpose.
- D. Finishing: Check, clean and remove defects, scratches, fingerprints and smudges if necessary from all equipment and devices immediately prior to Acceptance of the Installation.
- E. Damage: Replace all damaged or defective material or work at no additional cost prior to Final Acceptance.

1.06 COOPERATION AND COORDINATION

- A. Examine all Contract Documents and ascertain the complete scope of the contracted installation prior to installing any electrical work. Install electrical products in a manner that will avoid space conflict with other products installed.
- B. Coordinate between architectural elements, lighting fixtures, mechanical ducts and piping. Coordinate electrical work for equipment with the final equipment locations.

1.07 NOTIFICATION

- A. Contractor shall not shut off any existing systems. Contractor shall give the City at least two weeks notice of any requirement to shut off or interfere with existing electrical power, alarm, regulating, computer or other service systems. The City will arrange and execute any shutdown. All work including, but not limited to, splicing, connections and terminations necessary to establish or re-establish any system shall be completed by Contractor in close coordination with the City.

1.08 INTERFERENCE WITH THE FACILITY

- A. Transportation and storage of materials at the facility, work involving the facility, and all other matters affecting the habitual use by the City of its buildings, shall be conducted so as to cause the least possible interference's, and at times and in a manner acceptable to the City. Contractor shall make every effort to deliver equipment per the schedule required by

the project.

1.09 GENERAL PRODUCT REQUIREMENTS

- A. Provide Underwriters' Laboratories, Inc. examination and label for all products where such examination and labels are available.
- B. Confirm electrical characteristics of powered equipment specified in other Sections or the Specifications before purchasing Electrical Products related to such powered equipment.
- C. Prior to purchase, examine all Contract Documents and confirm that enclosures to be purchased are of NEMA types compatible with intended use and location where installed.
- D. Products normally shipped as complete package units shall be factory assembled and wired and not built-up in the field.

1.10 SHOP DRAWINGS, MATERIALS LISTS AND SUBMITTAL DATA

- A. Product data - submit product data for the following:
 - 1. Wiring devices and all accessories
 - 2. Circuit breakers
 - 3. Fuses
 - 4. Switches
 - 5. Panel boards (normal, emergency and critical power)
 - 6. Grounding materials
 - 7. Conductors and conduit
 - 8. Additional items as requested.
- B. Shop drawings: Conform to standards set forth in Section 28 00 00 and additional requirements listed below.
 - 1. Shop drawings shall use the same nomenclature indicated on the drawings and must indicate locations where material or equipment is to be installed. A 1/4" minimum scale plan indicating equipment placement shall be submitted for all electrical equipment and other rooms containing floor standing electrical equipment.
 - 2. Shop drawings shall be submitted for the following items:
 - a. Panel boards.
 - b. Consoles and Cabinets
 - c. Security Equipment and Systems
 - d. All other major pieces of equipment and systems.

3. NOTE: Equipment comprising a complete system including, but not limited to, conduits, cables, panel boards, switches and ancillary devices shall be included in a single submittal. Partial submittal will not be acceptable.
4. Test reports and studies: Submit the following in accordance with the requirements listed in the respective sections.
 - a. Reports on electrical and structural testing.

1.11 PRODUCT INSPECTION

- A. The Owner reserves the right to inspect any fabricated material at the site of fabrication prior to shipment and to request notification in sufficient time to make this inspection.
- B. Such inspection at the fabrication site shall not waive the requirements for material to be in acceptable condition, on the job, at time of final inspection.

1.12 ACCEPTABLE MANUFACTURER

- A. Acceptable manufacturers for electrical construction materials, equipment and systems shall be as specified in the appropriate section of the Specification and Drawings. However, a substitute can be submitted for approval if all of the requirements set forth on the electrical construction documents are fulfilled.

1.13 SUBSTITUTIONS

- A. Where shop drawings are being submitted for products that are being substituted for specified products, substituted items shall satisfy all characteristics of the specified items.
- B. For complex products or systems, or both, the availability of qualified service organizations, so located that service can be rendered to the equipment within 24 hours upon receipt of notification, may be a significant factor in considering substitution requests.

1.14 PRODUCT HANDLING AND STORAGE

- A. Verify that there is safe storage for products at the project site prior to authorizing shipment by the manufacturer.
- B. Require manufacturers to crate products so that no damage will occur in shipment.
- C. Leave protective crating and wrapping in place until job site conditions will permit removal with no risk of damage to the product finish from construction processes.
- D. Store equipment received at the site in a dry location during the construction period. Heat storage location when necessary to safeguard products from deterioration while stored.
- E. Protect all products against damage from concrete, plaster, moisture, weather, and mechanical abuse during and after installation.
- F. Receive any City pre-purchased electrical equipment, check each item for completeness,

unload, furnish temporary storage, maintenance care, and relocate to final locations. See other Sections of the Specifications identifying prepurchased items and this equipment.

1.15 PRODUCT QUALITY CONTROL

- A. Nationally recognized and accepted standards for product construction and for testing procedures, applicable to products specified, are a part of these Specifications as specified herein.
1. The Standards of the Institute of Electrical and Electronic Engineers (IEEE)
 2. The Standards of the Underwriters' Laboratories (UL)
 3. The National Fire Protection Association (NFPA)
 4. The National Electrical Manufacturers Association Standards (NEMA)
 5. Insulated Cable Engineer s Association Standards (ICEA)
 6. The American Society for Testing Materials (ASTM)
 7. The National Bureau of Standards
 8. American National Standards Institute (ANSI)
 9. National Electrical Testing Association (NETA)
 10. Building Industry Consulting Service International Standards (BICSI)
- B. Specific standards or testing procedures, or both, may be included as a general reference herein or as a part of the Specifications for products. Such inclusion shall not waive the general requirements for materials to comply with industry standards and tests where applicable.
- C. Where products are specified with no reference to a particular manufacturer's products, the product used shall meet or exceed industry construction and testing procedure standards applicable to the product for life expectancy, performance and safety.
- D. Plans and Specifications quality requirements shall be followed in all instances where such quality requirements exceed industry standards.
- E. Where a manufacturer's product is specified, the intent is to establish definite quality, construction and performance characteristics. The manufacturer's latest published catalog data for the product shall become a part of this Specification as though stated herein to the extent that such data establishes quality desired, testing procedures, safety features, life expectancy, performance characteristics and, in the case of finish material, the general appearance.

1.16 IDENTIFICATION

- A. Products shall be equipped with identification as follows:
1. Manufacturer's attached circuit number identification at each console, cabinet, equipment enclosure, or panel board.
 2. Where not specified otherwise, use permanently attached embossed metal or laminated plastic nameplates to indicate the following:
 - a. Identification of each console, cabinet, equipment enclosure, or panel board.
 - b. Identify signal, alarm and communications cabinets, racks, and other enclosures, using the identification shown on the Drawings.
 - c. Use of remote control devices by identifying the equipment controlled.
 3. Nameplates shall be corrosion-resistant. Shop drawings with dimensions and format shall be submitted to the Owner before installation.
 - a. Attachment to equipment shall be with escutcheon pins, rivets, self-tapping screws or machine screws. Self-adhering or adhesive backed nameplates shall not be used.
 4. Junction, pull boxes and power outlets shall have covers stenciled with box number when shown on the drawings, or circuit numbers according to panel schedules.
 - a. Data shall be lettered in a conspicuous manner with a color contrasting to finish.
 5. Conduit and boxes shall be labeled to identify use as power and communications raceways.
 6. Identification methods shall be approved by the Owner prior to installation.

1.17 GENERAL WIRING REQUIREMENTS

- A. Enclose interior wiring in metal raceways, boxes, outlets, cabinets, wireways, gutters, and other metal enclosures. Use nonmetallic products to enclose wiring only where specified.
- B. Interconnect elements of metal raceway systems so that a continuous equipment ground path is provided.
- C. Install the conductors of each electrical system as identified by use, voltage level, or source, in separate raceways, except where common raceways, enclosures or terminating outlets are required, specified and permitted by code. Include barriers in wireways, pull boxes and other enclosures where separation is required.
- D. Repair or replace damaged products furnished or installed by other trades when damage results from the installation of products included in this work.
- E. Mounting height:
1. If mounting heights are not included on the drawings on symbol list, the following

shall apply. Symbol list and drawing mounting heights shall supersede these dimensions. Mounting heights are to centerlines except as noted:

2. Equipment or Outlets

	Elevations	
a.	Wall mounted switch - general	42" above finished floor
b.	Power Receptacles (general use)	18" above finished floor unless otherwise noted on the drawings
c.	Pushbuttons/Card Readers	42" above finished floor
d.	Cabinets & Panel boards	6'-6" above finished floor to top of cabinet

3. Coordinate mounting height for all electrical devices in public areas with the Owner prior to rough-in.

1.18 CONNECTIONS TO EQUIPMENT

A. Connections to equipment furnished under other Sections shall be part of the electrical Work.

1. Work shall include internal wiring for equipment without factory fabricated wiring; installation, connection and adjustment of bolted drive motors in which the motor is supplied as a separate unit; and connections only for equipment furnished with factory installed internal wiring, except as further limited by the drawings and other portions of the specifications.
2. Work shall include furnishing and installing suitable outlets, disconnecting devices, pushbutton station, electro switches, conduit, junction boxes, wire, and wiring devices necessary for complete electrical installation.
3. Devices and equipment furnished shall be of the same type provided under other specification sections in different Divisions and as specified herein. Location and electrical requirements of such equipment shall be verified prior to furnishing the equipment.

B. Suitability and condition of electrically related equipment specified in other Sections shall be determined in advance of installation. Immediate notice shall be given to the affected parties of damage, unsuitability, or lack of parts.

1.19 DRAWINGS

A. Contract drawings: Work shall be executed in accordance with the contract drawings, reference drawings, and any supplementary addenda, bulletins, or drawings issued by the Owner.

1. Electrical layouts are generally diagrammatic, and do not necessarily indicate all conduit runs or exact locations of outlets or equipment. Wiring diagrams are

schematic in nature; and actual wiring shall be installed from shop drawings or printed instructions issued by equipment manufacturers.

2. Manufacturer's drawings and printed instructions shall be followed in all cases where the makers of devices and equipment furnish directions or details not shown on the drawings or described in the specifications.
3. Drawings are not necessarily prepared to scale, and may be distorted for reasons of clarity in presentation, and shall be followed with sufficient accuracy to coordinate with architectural details, other work and structural limitations.
4. Work installed in a manner contrary to that shown on the drawings shall be removed and reinstalled when so directed by the Owner. Discrepancies and questionable points shall be immediately reported to the Owner for clarification.
5. The Owner reserves the right to make reasonable changes in device locations prior to roughing-in at no additional cost.

1.20 LAYOUT AND INSTALLATION

- A. Layout and installation of electrical work shall be coordinated with the overall construction schedule and work schedules of various trades to prevent delay in completion of the Project.
- B. Dimensions and information regarding accurate locations of equipment, and structural limitations and finish shall be verified with other related Sections.
 1. Be prepared to promptly furnish dimensions and information regarding Electrical Work to other trades and cooperate with them to insure harmony and uninterrupted progress of the Project.
- C. Job conditions: The drawings do not always show offsets, bends, and special fittings, or junction and pull boxes necessary to meet job conditions. These items shall be provided as required.
- D. Accessibility and clearance: Electrical equipment outlets, junction and pull boxes shall be installed in accessible locations, avoiding obstructions, preserving headroom, and keeping openings and passageways clear. Minor adjustments in the locations of equipment may be made where necessary, providing such adjustments do not adversely affect functioning of the equipment.
- E. Structural fittings: Furnish and install the necessary sleeves, inserts, hangers, anchor bolts, and related structural items.
 1. Verify if any 6" and larger openings or holes are required for the Work of this Section, and if so, notify the Owner immediately.
 2. Provide additional penetrations required for electrical work where opening is 6" in diameter or less and provide required sealing and fireproofing.

3. Cutting and patching:
 - a. Structural members shall not be drilled, bored or notched in such a manner that shall impair their structural value. Cutting of holes in structural members, if required, shall be done with core drills and only with the specific approval of the Owner for each instance.
 - b. Walls and other architectural features that require cutting or repair during the installation process shall be returned to their original condition, including the matching of colors and finishes to the satisfaction of Owner, and at no additional cost to the City.
 - c. All additional cutting, patching and reinforcement of construction of building, subject to approval by the Owner, shall be performed under the Section of the specifications covering the particular materials.
4. Painting: Materials shall be free from rust unless specifically allowed by the Owner as an unavoidable field condition.
 - a. Bright metal surfaces shall be free of nicks and scratches.
 - b. Resurface and replace damaged plated finished surfaces.
 - c. Repair and refinish, to the satisfaction of the Owner, painted and plated surfaces using the same type and quality of finish material and workmanship as provided by the manufacturer's finishing process.
 - d. Repair finishes damaged by welding operations by refinishing to match original manufacturer's finish.
5. Sleeves for electrical conduits passing through walls or slabs shall be placed before concrete is poured.
 - a. Where conduits pass through suspended floor slabs, sleeves shall be standard weight galvanized steel pipe extending 2 inches above the finished floor level.
 - b. Where conduits penetrate a waterproof membrane, whether in slab or wall, sleeves shall be cast iron and provided with a flashing clamp device and corrosion resistant clamping bolts.
 - c. Sleeves at other locations shall be either lightweight galvanized steel pipe or galvanized sheet steel. Clearance between conduit and sleeves shall not be less than 1/2".
 - d. Sleeves through waterproof membranes shall be caulked tight and the ends sealed with an approved sealing compound, or shall be of the stuffing box type.
 - 1) Other sleeves shall be packed with glass wool and ends sealed with approved sealing materials.
6. Equipment supports for electrical facilities shall be fastened to the structure by inserts, anchor bolts, expansion anchors, bolting to drilled and tapped structural members, or by welding to the structure. The method of attachment of electrical equipment to structural members shall be the Unistrut Lindapter Connection System unless indicated otherwise.
 - a. Welding shall be done by the electrical arc method with fully competent welders. Supporting members shall be shop coated with a suitable approved oxide primer.
 - b. Surfaces damage by erection shall be touched up with primer to match shop coat. Any drilling of structural members shall be approved by the Owner.

7. Wherever conduits pass through the roof or outer walls, weatherproof seals and counter flashing shall be provided.
 - a. Such flashing shall be properly installed by skilled workmen, and shall include grouting, mastic or tar application, or other means to insure a permanent, waterproof, neat and workmanlike installation.
 8. In new concrete slabs and pads, anchor bolts and inserts shall be galvanized and of adequate size and strength for installation of electrical work and shall be placed in forms before concrete is poured.
 - a. Detail drawings, templates, and anchor bolts for bases shall be furnished in time to avoid delaying work schedules.
 - b. Anchors used in existing slabs shall meet the City's specification standards and shall be approved by the Owner. Wooden or soft metal plugs shall not be used.
- F. Weatherproof Equipment: Electrical devices or equipment located in damp, semi-exposed or exposed areas shall be weather resistant. Enclosure shall comply with NEMA Type 4 or 4X requirements unless noted otherwise on drawings or herein.
1. Surface mounted exterior outlet boxes shall be cast metal with threaded hubs. Pull or junction boxes shall be cast metal with bolted and gasketed covers.
 2. Outlet box covers shall be of a suitable weatherproof type with gaskets, packing glands, weatherproof doors, or other required means to prevent entry of moisture.
 3. Electrical equipment fixtures shall be installed with suitable gaskets.
- G. Seismic protection
1. General:
 - a. Seismic protection criteria: Electrical and mechanical machinery or equipment installations in any Seismic Risk Zone of the Uniform Building Code Seismic Risk Map shall be protected from earthquakes.
 - b. Protection criteria for these zones shall be a Horizontal force Factor not less than required by code or agency, considered passing through the machinery center of gravity in any horizontal direction.
 - c. Unless vibration isolation is required to protect machinery against unacceptable structure transmitted noise and/or vibration, machinery shall be protected from earthquakes by rigid structurally sound attachment to the load supporting structure. The number shall be determined by calculations performed by a Registered Professional Engineer, as verified by the seismic restraint vendor.
 - d. Use protected spring isolators, or separate seismic restraints, to protect vibration isolation machinery.
 - e. Seismic snubbers and protected spring isolators shall be seismic protection-rated along three principal axes, proven by independent laboratory testing or analysis, by an independent, licensed structural engineer.
 2. Equipment: Anchor all equipment, consoles and panel boards by securely bolting them in place to the building structure. Provide bolts, anchors and bracing to

withstand seismic acceleration. The Contractor shall have equipment manufacturer provide weight, center of gravity and method of fastening required for seismic anchoring.

3. For suspended conduits, 2" nominal and larger, provide diagonal bracing to structure at hangers, at changes in direction, and on approximate 30' centers.
4. Support all suspended electrical equipment from structural beams and joists and do not suspend from metal decking unless noted otherwise. Provide all required intermediate support steel to distribute weight between structural elements.
5. The Contractor shall be responsible for the design of his own seismic restraint systems, and shall supply all seismic calculations and details to the Chief Engineer for review. The Contractor shall supply to the Engineer details of the forces exerted by his restraints, anchorages, and other points of attachment.
6. Electrical and mechanical equipment shall be installed in accordance with the following guidelines:
 - a. SMACNA Publication: Guidelines for Seismic Restraints of Mechanical Systems
 - b. NUSIG – National Uniform Seismic Installation Guidelines
7. Contractor shall submit shop drawings for the mounting of equipment, fixtures, cabinets, consoles, conduit and cable support racks. These drawings shall be prepared, stamped and signed by a Structural Engineer registered in the State governing the work.

1.21 WORKMANSHIP

- A. Only workmen with experience and technical qualifications shall perform the work to install the products specified.
- B. Perform installation in a neat and workmanlike manner.
- C. Remove and replace any work, which as judged by the Owner, is not installed in a neat and workmanlike manner.

1.22 MANUFACTURER'S ASSISTANCE

- A. Install electrical products in accordance with manufacturer's printed instructions or recommendations unless otherwise specified.
- B. Provide factory-trained technicians for startup of all major pieces of equipment and systems as well as for trouble-shooting problems with equipment.

1.23 CLEANING

- A. Leave the installed products and site in clean condition and perform the following cleaning operations:

1. Remove rubbish and surplus materials from the site.
2. Remove foreign materials from the interiors of electrical equipment.
3. Remove oil, grease, dust, and paint or plaster spots from the finished surfaces or products.
4. Leave all galvanized surfaces, lighting fixture glassware, plastic lenses and diffusers, in clean condition when job is completed.
5. Replace glass or plastic products that are scratched, cracked, broken, or otherwise defective.

1.24 OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS

- A. Instructions: Contractor shall train City personnel in the operation and maintenance of equipment and systems installed by the Contractor and shall provide typewritten instructions as specified for the operation of major equipment.
- B. Refer to Section 28 00 00, Article 1.11 for training requirements.
- C. Refer to Section 28 00 00, Article 1.10 for Security System operating and maintenance manual requirements.
- D. Following approval and installation of electrical equipment, and prior to acceptance of electrical work, submit two (2) initial and four (4) final copies of operating and maintenance manuals describing operating, servicing and maintenance requirements of electrical equipment with particular emphasis on safety devices and their maintenance and operation. Equipment described in manuals shall include but shall not be limited to the following:
 1. Panelboards
 2. Control Panels
 3. Electrical Systems
 4. Any Special Electrical Equipment
- E. Include as a minimum, but not limited to, the following elements in each manual; however, not necessarily in the order listed:
 1. Printed erection or installation instructions.
 2. Start-up procedures.
 3. Recommended and alternative operation procedures.
 4. Schedule of preventive maintenance procedures.

5. Schedule of spare parts and special tools provided, and schedule of recommended spare parts to be stocked, complete with part number, inventory quantity and ordering information.
6. Complete set of approved shop drawings.
7. Corrected and approved control and wiring diagrams.
8. Data sheet listing pertinent equipment or system information, as well as the addresses and telephone numbers of the nearest sales and service representatives.
9. Equipment and parts guarantees.
10. Factory inspection certification by Manufacturer's representative.

1.25 LOOSE MATERIAL

A. Retain and submit to the Owner with an itemized receipt the following material:

1. All keys properly identified.
2. Wiring diagrams.
3. Instruction books.
4. Service manuals.
5. Special tools furnished with equipment.
6. Loose operating handles.
7. Spare parts.

PART 2 - PRODUCTS
NOT USED

PART 3 - EXECUTION
NOT USED

END OF SECTION

**SECTION 26 0500
ELECTRICAL BASIC MATERIALS AND METHODS**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. General: Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Special Provisions, apply to this section. Also provide the work in accordance with the Section 28 00 00, Security General Requirements and Section 26 00 00, Electrical General Requirements.

1.02 WORK SPECIFIED IN THIS SECTION

- A. Provide Basic Materials and Methods, complete and functional. The extent of Basic Materials and Method is indicated on the Drawings and Schedules and by requirements of this Section and shall include, but is not limited to, the following:

1. Conduits
2. Conductors
3. Fittings
4. Outlet Boxes
5. Junction and Pull Boxes
6. Openings, Chases and Sleeves
7. Cabinets
8. Wiring Devices
9. Device Plates
10. Name Plates
11. Wire way
12. Cable Tray

1.03 SUBMITTALS

- A. Provide Shop Drawings and Equipment Submittals as described in Section 26 0000, "Electrical General Requirements".

1.04 REQUIREMENTS OF REGULATORY AGENCIES

A. In addition, comply with the following:

1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
2. ANSI C80.3 - Electrical Metallic Tubing, Zinc Coated.
3. ANSI C80.5 - Rigid Aluminum Conduit
4. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
5. ANSI/NFPA 70 - National Electrical Code
6. NECA "Standard of Installation."
7. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.
8. NEMA TC 2 - Electrical Plastic Tubing (EPT) and Conduit (EPC-40 and EPC-80)
9. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing

PART 2 - MATERIALS AND PRODUCTS

2.01 CONDUIT

A. General:

1. Where subject to moisture or exposed to weather, do not join steel and aluminum conduit together, or use fittings for conduit which are of different electrolytic interaction
2. Use conductive pipe joint compound to make up threaded conduit joints in earth, concrete, masonry, or where exposed on exterior.
3. Minimum Size: 3/4 inch, unless otherwise specified.
4. Support 1-1/4" and smaller size within 18" of outlets, and 1-1/4" or larger sizes within 36" of terminations. Do not support conduit from ceiling suspension systems, unless noted otherwise. Short lengths of flexible conduit for lighting fixture connections may be supported from ceiling support wires in accordance with code.
5. Use PVC conduit for underground raceways unless noted otherwise.

B. Products: Provide UL listed conduit in conformance with the following specifications:

1. Metal Conduit:

- a. Rigid Steel Conduit: ANSI C80.1.
 - b. Rigid Aluminum Conduit: ANSI C80.5.
 - c. Intermediate Metal Conduit (IMC): Rigid steel.
 - d. Fittings and Conduit Bodies: NEMA FB 1; material to match conduit.
2. PVC Coated Rigid steel conduit: Rigid steel conduits and fittings with a half lap, 40 mil extruded PVC jacket. The jacket shall have high tensile strength, shall be highly resistant to corrosion and shall not oxidize or deteriorate or shrink when exposed to sunlight and weather. The jacket shall be flame retardant and shall not support combustion. The interior of conduits and fittings shall be coated with urethane coating 2-mil thick for protection against corrosion. All metallic hardware used with PVC-coated conduit shall be stainless steel.
 - a. Product Description: NEMA RN 1; rigid steel conduit with external PVC coating, minimum 40-mil thick.
 - b. Fittings and Conduit Bodies: NEMA FB 1; steel fittings with external PVC coating to match conduit.
 3. Electrical metallic tubing: Smooth surface, thin wall, mild steel tube, of uniform thickness and temper, galvanized or sherardized on the outside, and enameled on the interior.
 - a. Product Description: ANSI C80.3; galvanized tubing.
 - b. Fittings and Conduit Bodies: NEMA FB 1; compression type steel; malleable iron or cast aluminum.
 4. Flexible metallic conduit: Interlocking single strip, steel construction, galvanized inside and out, after fabrication.
 - a. Product Description: Interlocked aluminum construction.
 - b. Fittings: NEMA FB 1.
 5. Flexible conduit, liquidtight: Similar to standard flexible metallic conduit, except encased in a liquidtight neoprene or equivalent outer jacket over the flexible steel core with internal spiral ground conductor for sizes up to 1-1/4 inch.
 - a. Product Description: Interlocked steel construction with PVC jacket.
 - b. PVC only type not allowed.
 - c. Fittings: NEMA FB 1.
 6. PVC Conduit: Schedule 40 with factory bends and fittings.
 - a. Product Description: ANSI C80.3; galvanized tubing.
 - b. Fittings and Conduit Bodies: NEMA FB 1; compression type steel; malleable iron or cast aluminum.
- C. Acceptable Manufacturers or Approved Substitute:
1. PVC Coated Rigid steel conduit: Robroy Industries "PLASTI-Bond Red, Ocal Corporation "Ocal-Blue", or approved equal.
 2. Metal Conduit: Carlon Electrical Products, Hubbel Wiring Devices, Thomas & Betts Corp., The Wiremold Co., or approved equal

3. Flexible metallic conduit: Triangle Conduit Co., ACMA Steel Products, or approved equal.
4. Flexible conduit, liquidtight: Anaconda Type U.A. Sealtite, or approved equal.
5. PVC Conduit: Carlon, Kraloy or approved equal.

2.02 CONDUCTORS

- A. Single conductor copper wire with NEC 600-volt insulation shall be used for general wiring in conduit unless otherwise shown on Drawings.
 1. All conductors shall be stranded copper with the exception of manufactured assemblies that are allowed to be solid. Conductors 10-AWG and smaller shall be color-coded type THHN-THWN insulation. Conductors 14-AWG and larger shall be stranded type with THHN-THWN insulation, except as otherwise noted herein or on the Drawings.
 2. Conductors for use in high temperature locations shall be furnished with insulation types complying with Code requirements.
 3. The minimum size conductor for use in power branch circuits shall be 12-AWG. The minimum size conductor for control circuits shall be 14-AWG, unless otherwise shown on the Drawings.
 4. Conductors shall be identified as to load served: All feeders, branch circuits and control shall be tagged in the panel board, in all gutters and in all boxes, at switches, receptacles and other devices. Tagging shall be with adhesive or sleeve type of marker, Brady or Thomas & Betts labels, or Owner approved substitute.
- B. Marking of conductors shall conform to the 2002 National Electrical Code. Marking shall show insulation type, AWG size, voltage rating and manufacturer.
 1. Separate color-coding to differentiate 208/120 versus 480/277 voltage systems shall be implemented. 208/120-volt conductors shall be black, red, blue (phases), white (neutral), green (ground). 480/277-volt conductors shall be brown, orange, yellow (phases), white with brown tracers or grey (neutral), and green (ground). Isolated ground conductors shall be green with yellow stripe.
 2. Unmarked cable and wire shall not be used.
- C. Packages or reels of cable and wire shall be delivered to the job site in unbroken containers and shall not be used until approved.
 1. Signal and other conductors shall be as shown on the drawings or described in other parts of this Division.
 2. Acceptable manufacturers: American Wire Co., Anaconda or approved equal.

2.03 FITTINGS

A. General:

1. Use threaded fittings for rigid metal conduit and compression, watertight fittings for tubing.
2. Use fittings made of the same material as the raceway except:
 - a. Malleable iron and steel are interchangeable.
 - b. Die cast fittings may be used for flexible steel conduit, and for factory-manufactured offsets.
 - c. Use plastic insulated bushings for conduit sizes larger than 1".
 - d. Use insulated throat connectors for electrical metallic tubing.
3. Provide expansion fittings with flexible ground strap in conduit runs crossing building expansion joints.

B. Acceptable Manufacturers or Approved Substitute:

1. General use fittings: Steel City, Thomas and Betts; O.Z./Gedney Co. or approved equal.
2. Sealing fittings: Appleton Electric, Crouse-Hinds, Killark Company or approved equal.
3. Floor terminating fittings: Harvey Hubbell Inc., Steel City, or approved equal.
4. Liquidtight flexible conduit fittings: Thomas and Betts, Appleton Electric, Steel City, or approved equal.
5. Expansion fittings: O.Z./Gedney Co., or approved equal, Type AX8 with Type BJ bonding jumper.
6. Cast metal conduit bodies and fittings: Crouse-Hinds, Appleton Electric, Killark, or approved equal.

2.04 OUTLET BOXES

A. General:

1. Provide outlet boxes in the raceway systems wherever required for pulling wires and cables, making connections, mounting devices or lighting fixtures, and connecting powered equipment.
2. Outlet boxes specified herein refer generally to cast or pressed steel boxes of less than 50 cubic inch internal volume per gang. Refer to paragraph, "Junction and Pull Boxes", for larger box specifications.
3. Do not install boxes smaller than allowed by the applicable Code. Where no outlet box size is indicated or specified, install a box of not less than 4" square by 1-1/2" deep dimensions. In dry locations use pressed galvanized steel boxes, with drilled

and tapped ears, and manufacturer's pre-punched knockouts. In wet locations, unfinished interior locations below 4 feet above floor, and where poured into exterior concrete, use cast metal boxes with threaded hubs.

4. Masonry boxes may be used in dry masonry walls with face edge set flush with the plane of the finished wall surface.
5. Outlet boxes mounted in stud walls shall have a support spanning between studs.

B. Acceptable Manufacturers or Approved Substitute:

1. Pressed galvanized sheet steel boxes: Appleton Electric, Bowers Manufacturing Company, Steel City, or approved equal.
2. Cast aluminum boxes: Crouse-Hinds, Appleton, Killark, or approved equal.
3. Cast iron boxes: Crouse-Hinds, Appleton, Killark, or approved equal.
4. Outlet boxes manufactured to provide mounting for special devices, such as lighting fixtures and similar purposes, are specified with the product affected.

2.05 JUNCTION AND PULL BOXES

A. General:

1. Wherever possible use outlet boxes for junction and pull boxes unless noted otherwise on drawings.
2. Locate interior junction and pull boxes in machine rooms, equipment rooms, storage rooms, electrical rooms and similar utility spaces unless otherwise indicated or approved. Where junction or pull boxes must be used in finished areas, use flush boxes only equipped with prime finished sheet metal plates. Fasten plates to boxes with counter-sunk flat head screws. Provide plates with 3/4" trim all around.
3. Provide pull and junction boxes of Code gauge steel sized as indicated or required. Do not use sectionalized boxes except where indicated. Do not mix feeder and branch circuit conductors in a common pull or junction box.
4. Do not exceed the equivalent of three 90° bends between general wiring pull and junction boxes, and reduce to not more than the equivalent of two 90° bends where telephone or other multi-conductor cable will be installed.

B. Products:

1. Size junction and pull boxes to not less than required by NEC. Increase size above Code requirements where necessary to provide space for pulling, racking or splicing enclosed conductors, or where specified or indicated dimensions exceed Code requirements.

2. Fabricate sheet metal junction and pull boxes of galvanized, Code gauge, sheet steel. Include angle iron framing where required for rigidity. Boxes shall not deflect or deform visibly when covers are removed after conduit and conductors are installed, and any deflection occurring shall not prevent the easy installation and removal of cover attachment screws.
 - a. Sheet steel boxes not over 100 cubic inches in size shall be made from steel not less than 0.0625 inch thick. The wall of a malleable iron box and a die-cast or permanent-mold cast aluminum, brass or bronze box shall not be less than 3/32 inch thick. Other cast metal boxes shall have a wall thickness not less than 1/8 inch.
 - b. Metal boxes over 100 cubic inches in size shall be constructed so as to be of ample strength and rigidity. If of sheet steel, the metal shall not be less than 0.053 inch uncoated.
3. Equip metal junction and pull boxes exposed to weather, and not installed in or below grade, with raintight or weatherproof removable covers. Use boxes constructed to meet NEMA 4X requirement, equivalent gasketed boxes, or boxes of similar design permanently rendered weathertight. Raintight or weatherproof boxes shall use threaded watertight hubs for top or side entry and may use knockouts for bottom entry only. For exterior pull boxes, use a minimum of 14 gage galvanized sheet steel. Apply galvanizing by the hot-dip process after fabrication.
4. Use concrete junction and pull boxes for exterior underground conduit unless otherwise specified or indicated. Equip boxes with metal covers and metal cover mounting rims. Use steel plate or cast iron covers and rims in non-traffic areas, and cast iron covers and rims designed for traffic loading wherever vehicular traffic will occur.
5. For interior junction and pull boxes located in concrete floors, and 24" square or smaller, use cast iron boxes with integrally cast, tapped conduit hubs, and having recessed cover flush in the box trim, placing all elements of the face of the box flush in the plane of the surrounding floor. Equip boxes with watertight covers where so indicated.
6. For interior pull boxes located in concrete floors and larger than 24" square, use precast concrete boxes or form these boxes at the job site. Equip with angle iron cover rim, and with reinforced steel cover plate set flush with the finish floor plane. Specific plan details shall supersede these general requirements.
7. Equip grade level exterior pull boxes with a sump and with knockouts for conduit on sides and ends. Coordinate requirements for conduit on sides and ends. Coordinate requirements for conduit openings with underground conduit requirements. Identify the covers of exterior grade level junction and pull boxes with the word "ELECTRIC" or "COMMUNICATIONS" cast into or otherwise permanently inscribed in the metal of the cover. Equip exterior grade level pull boxes with pull irons where so indicated.
8. Equip surface sheet metal junction and pull boxes with covers aligning with the sides of the boxes and equip flush boxes with covers extending 3/4" all around the perimeter of the back box. Provide sufficient cover attachment screws to ensure that

box covers will contact the surface of the box for the entire perimeter of the enclosure. Use galvanized or cadmium-plated screws or brass screws to attach covers to boxes.

9. Use brass screws to attach junction and pull box covers to interior floor boxes or to boxes located where moisture may be present.
10. Do not use single covers for junction and pull boxes having cover length or width dimension exceeding three feet unless so specified, indicated or approved. Sectionalize covers that exceed three feet in either dimension into two or more sections.
11. The drawings do not necessarily show every pull box required. Additional boxes may be added when desirable to save labor and avoid difficulties and when Code requirements limit the number of bends between boxes.
12. Additional boxes shall be provided as required. Boxes shall be sized according to Code and shall be UL listed.
13. Where stainless steel is indicated or used for any portion of the electrical work, provide ANSI Type 302 or 304, with a satin finish. Provide the finished material free of all burrs. Exposed screws shall be of the same alloy.

C. Acceptable Manufacturers or Approved Equal:

1. Sheet steel junction and pull boxes: Hoffman Engineering Company, Columbia Electric Company, Alwalt Manufacturing Company or Pico Metal Products Company.
2. Cast iron junction and pull boxes: O.Z./Gedney Company, Alhambra Foundry Co., Ltd., Killark Manufacturing Co. or Crouse-Hinds Company.
3. Concrete junction and pull boxes: Brooks Products Inc. or Quickset Company.

2.06 OPENINGS, CHASES AND SLEEVES

A. Products:

1. Sleeves for general use: Use black or galvanized steel pipe or galvanized sheet steel sleeves.
2. Sleeve for exterior walls:
 - a. Below grade: O.Z./Gedney or approved equal
 - b. Above grade: Galvanized steel pipe.

2.07 ACCESS DOORS

- A. Locations: Provide access doors as indicated, specified, or wherever electrical and mechanical work is concealed in wall, partition or nonremovable ceiling construction. Panel locations in public areas shall be approved by the Owner before installation.

- B. Manufacturers: Provide access door as manufactured by Milcor, Elmdor, Dur-Red Products or approved equal.
- C. Fire Rated
 - 1. Door Panel: Form of 20 Gauge thick steel sheet, insulated sandwich type construction.
 - 2. Fire Rating Classification: UL-rated label for area of installation and as required to meet requirements of agencies having jurisdiction.
 - 3. Frame: Form of 16 gauge thick steel sheet of depth and configuration to suit material and type of construction where installed.
 - 4. Automatic Closing Device: Provide automatic closing device for each door.
 - 5. Hinge: Continuous steel piano hinge with stainless steel pin.
 - 6. Lock: Self-latching, with provision for fitting flush standard screw-in type lock cylinder. Provide latch release device operable from inside of door with mortise lock case in door.
- D. Flush Panel
 - 1. Door Panel: Form of 16 gauge thick steel sheet. Reinforce as required to maintain flat surface.
 - 2. Frame: Form of 16 gauge thick steel sheet of depth and configuration to suit material and type of construction where installed. Weld exposed joints and grind smooth.
 - 3. Hinge: Concealed spring hinge to allow panel to open 175 degrees. Provide removable hinge pin to allow removal of panel from frame.
 - 4. Lock: Flush, Allen head operated cam lock.
- E. Finish: Baked-on prime coat over protective phosphate coating. Coordinate color with Owner to match adjacent surfaces.
- F. Size: Provide access doors 24 inches square, unless otherwise indicated, as required to suit opening.
- G. Installation: Install access doors per the manufacturer's instructions, in openings with sides vertical and plumb in wall installations and parallel to ceiling grid or sidewalls when installed in ceiling. Set edge of frames without flanges flush with surrounding finish surfaces. Set frames with flanges to overlap opening with face uniformly spaced from finish surface. Set access doors recessed to accommodate wallboard so that face of wallboard when installed in door will finish in same plane as finish of surrounding material. Adjust doors to open freely, with closed door centered within frame.
- H. Anchorage: Secure frames to adjacent construction using anchors attached to frames or by

use of bolts or screws through frame members. Provide suitable type, size and number of anchoring devices for material surrounding opening, required to maintain alignment, and resist displacement during normal use. Secure fire-rated access doors using approved type anchors.

2.08 CABINETS

A. General:

1. Cabinets for same type of use shall be the product of a single manufacturer.
2. Do not install surface-mounted cabinets in finished areas, unless so indicated. Where conflicting data is indicated, verify mounting requirements prior to ordering cabinets with the Owner.

B. Products:

1. Construct of cold-rolled drawing quality steel, with metal gauges and construction methods conforming to 2008 NEC requirements, and Underwriters' Laboratories and NEMA standards.
2. Finish doors, trims, and back boxes for surface-mounted cabinets in finished areas, by applying a rust-resistant treatment, prime coat, and a final coat of manufacturer's standard enamel or lacquer finish. Galvanize all other sheet metal components of cabinets including back boxes for flush cabinets, except non-ferrous metal parts, or steel parts provided with cadmium plating or equivalent protective plating.
3. Set cabinet doors flush into cabinet trim. Equip trim with adjustable clamps or other approved means to fasten trim to cabinets. Fastening method shall permit adjustment for aligning the trim of flush cabinets to a plumb position. Trim of flush cabinets shall extend not less than 3/4" beyond the perimeter of the back box. Trim for surface cabinets shall be even with the perimeter of the back box.
4. Equip cabinet for use with telephone, alarm or signal systems with a 3/4" thick plywood backboard. Equip cabinets with terminal strips where so specified. Equip cabinets with nameplates with 3/16" high white letters engraved in laminated black micarta, where nameplates are specified or indicated.
5. Surface cabinets shall be furnished without knockouts. Punch or drill required openings during installation. Equip flush back boxes with manufacturer's standard pattern of knockouts.
6. Equip cabinet doors exceeding 40" in height with vertical bolt, three point locking mechanisms.
7. Cabinets over 30" wide shall be furnished with double doors. Vault handle and three point catches shall be furnished for doors 36" or more in height. Trim and hardware of all cabinets shall be of a matching type.

8. Wiring gutters or spaces shall be provided at top, sides and bottom having a minimum dimension of 4" at sides and 8" at top and bottom.
9. Where different systems are served in one cabinet, provide full-height vertical metal barriers to form the section widths as indicated. Terminate all conduits in the proper section of such cabinets.

C. Acceptable Manufacturers:

1. Cabinets for general use - Alwalt Manufacturing Co., Square D, Columbia Manufacturing Co., Hoffman Engineering Company, or approved equal.
2. Cabinets for systems or products, use cabinets furnished by manufacturer with system or product.

2.09 WIRING DEVICES

A. General:

1. Wiring devices shall be of the molded composition type, specification grade, rated at 125 volts, unless otherwise noted or specified. All devices shall be flush mounted unless otherwise noted and with finish matching device plates. Switches for 120-volts circuits shall be keyed identically. Receptacle shall be of NEMA Standard configuration of prongs for each application, using a horseshoe shaped grounding pole.

B. Receptacles: Provide types in accordance with NEMA Standard configuration as shown and hereinafter specified.

1. Duplex receptacles for 120-volts, single-phase service shall be specification grade or better, rated 125 volts, back and side wire. Color shall be brown in mechanical and electrical rooms and ivory in finished areas. Provide 15 amp Hubbell No. 5252 for multiple receptacle circuits. Provide 20A, Hubbell 5352 receptacles for single receptacle circuits fed from 20A circuit breakers.
2. Provide duplex receptacles with isolated ground for branch circuits that are indicated with separate ground wire. Provide 15 amp Hubbell No. IG-5262 for multiple receptacle circuits. Provide 20A Hubbell IG-5362 for single receptacle circuits fed from 20A CB.
3. Double duplex receptacles for 120-volt, single-phase service to be same as duplex receptacles with two duplex receptacles installed in one 4" x 4" outlet box with one 2-gang faceplate.
4. Single receptacles for 120-volt, 3-wire service shall be similar to duplex receptacles. Provide 15 amp Hubbell No. 5251 for multiple receptacle circuits. Provide 20A Hubbell No. 5351 for single receptacle circuits fed from 20A CB.
5. Weatherproof receptacles: In wet areas, weather-exposed areas, areas subject to

hosing down, or where indicated, use individually gasketed cast aluminum cover plates. Outdoor receptacles shall be recessed, 20A-ampere, 125-volt rated. Provide Hubbell CWP8H weatherproof cover plate.

6. For all receptacles of ratings other than 20A, 120V, 2-pole, 3 wire service, provide units similar to those indicated above.

2.10 DEVICE PLATES

- A. Provide plates for all outlet boxes and fitting of all systems except at outlets where fixture canopies are used, as follows:
 1. Provide engraved or etched plates for all pilot switches, control circuit switches, three-gang or larger gang switches, switches from which the equipment being controlled cannot be readily seen, where receptacles are other than standard 15A or 20A, single or duplex receptacles (to indicate amperage, voltage, phases) and for switches or devices as indicated.
 2. Provide galvanized steel plates in all unfinished electrical and mechanical equipment rooms, utility rooms, unfinished areas, and on all indoor surface mounted boxes, fittings, and exposed extension rings.
 3. Galvanized steel plates: Square or rectangular and hot-dip galvanized.
 4. Plastic plates: Provide noncombustible, mar-resistant thermosetting plastic 0.1" thick and of plain style unless otherwise indicated. Finish of outlet plates shall be ivory unless noted otherwise.

2.11 NAMEPLATES

- A. Provide a nameplate for each panel board, terminal cabinet, backboard, individually mounted circuit breaker, disconnect switch, pull box, control panel, contactor, relay, and for all other control devices or major items of electrical equipment, as follows:
 1. Provide laminated plastic nameplates engraved minimum 1/4" high black letters on white background to correspond with the designation on the Drawings. Indicate the load served or controlled and any additional information on the nameplate when such information is shown on the Drawings.
 2. Equipment containing or operating on circuits of more than 150 volts nominal. Provide laminated plastic warning signs engraved in 1/2" high by 3/8" wide white letters on red background to read: "CAUTION - HIGH VOLTAGE" indicating actual voltage unless noted otherwise in Specifications for the equipment.
 3. Attach nameplates to equipment with rivets, bolts, or appropriate sheet metal screws. Glue-on types and pop-rivet types are not acceptable.
 4. Identify all receptacle outlets with DYMO type labels to indicate circuit numbers.

2.12 INDIVIDUAL CIRCUIT BREAKERS

- A. Provide automatic thermal-magnetic units with the indicated rating and complying with applicable requirements, including manufacturer's requirements. Provide breakers indoor in NEMA Type 1 enclosures; outdoors or where indicated to be weatherproof provide NEMA Type "4" or "4X" enclosures.

2.13 WIREWAYS

- A. General:
 - 1. Wireway shall be installed complete with the necessary compliment of fittings, connectors and accessory parts. Wireways shall be of the "lay-in" type without standard knockouts and screw covers for full channel access.
 - 2. Use wireway with 14-gage sheet steel.
 - 3. Cross section dimensions shall be as indicated on the plan.
 - 4. All sheet metal parts shall be coated with a rust inhibitor and finished in baked enamel. All hardware shall be plated to prevent corrosion.
- B. Acceptable manufacturers or approved equal:
 - 1. Square D.
 - 2. Hoppman
 - 3. Circle A-W.
 - 4. Wiegrmann.
- C. Cable Tray
 - 1. Husky
 - 2. P-W
 - 3. B-Line

2.14 FIREPROOFING TAPE

- A. Refer to Section 07 8400 for additional fireproofing requirements.
- B. The tape shall consist of a flexible, conformable fabric of organic composition coated one side with flame-retardant elastomer.
- C. The tape shall be self-extinguishing and shall not support combustion. It shall be arcproof and fireproof.

- D. The tape shall not deteriorate when subjected to water, gases, salt water, sewage, or fungus and shall be resistant to sunlight and ultraviolet light.
- E. The finished application shall withstand a 200-ampere arc for not less than 30 seconds.
- F. Securing tape: Glass cloth electrical tape not less than 7 mils thick, and 3/4-inch wide.

PART 3 - EXECUTION

3.01 RACEWAYS

- A. Close ends and openings against entry of construction debris, until access is required for installation of conductors or pull wires.
- B. Support risers at each floor level.
- C. Arrange riser supports for minimum obstruction of unused openings. Seal unused openings.
- D. Do not install across ventilation openings.
- E. Equip with expansion fittings at building expansion joints.
- F. Minimum cross sectional area not less than code requirements for conductor to be installed.
- G. Install exposed runs perpendicular or parallel to the surfaces, planes, and structural member shapes which define the finished appearance of the construction.
- H. Verify that raceways are unobstructed prior to pulling in conductors.
- I. Do not exceed 250 feet of straight runs between accessible openings in raceway systems, reducing this length by 50 feet for each 90° bend. For telephone or signal system conduit and tubing runs, do not exceed 100 feet between accessible pull points.
- J. Install so that removal covers are accessible and removable without prior removal of other building elements.
- K. Do not cut, notch or drill structural steel for raceways unless prior approval is obtained from the Engineer.
- L. Install surface-mounted raceway tight against building surfaces with minimum space as required for support. Use common supports for parallel surface-mounted raceway in close proximity.

3.02 CONDUITS

- A. Conduit Usage and Locations
 - 1. Exterior areas exposed to direct weather: PVC coated rigid steel.

2. Exterior areas not exposed to direct weather: EMT
 3. Interior areas: EMT
 4. For short runs from J-boxes to surface mounted equipment: Liquidtight flexible conduit.
 5. Below Grade: Concrete encased rigid PVC.
- B. All conduits shall be metallic unless otherwise indicated or noted.
1. All rigid galvanized steel conduits shall be of the threaded type.
 2. Electric metallic tubing shall be used up to maximum size permitted by Code in concealed locations. Exposed power branch circuit conduits lower than 10'-0" above finished floor shall be rigid galvanized steel.
 3. Flexible steel conduit shall be used for short runs from devices, motors or vibrating equipment to junction boxes, and from recessed lighting fixtures to adjacent junction boxes, or branch circuit wiring as approved.
 - a. Where approved, flexible steel conduit may be used when conditions make the use of other conduit impractical.
 - b. Where required by Code or elsewhere herein, a separate ground conductor shall be provided.
 - c. Use liquidtight flexible conduit, where flexible conduit is exposed to weather, oil or moisture and making all equipment connections.
 4. Conduits crossing expansion joints of building shall be provided with suitable expansion fittings or flexible lengths or with runs that parallel joints for a distance of approximately 4 feet before crossing at right angle.
 - a. Conduit shall be concealed in office areas and exposed in unfinished areas.
 - b. Conduit passing through fire rated walls shall be caulked with fire rated caulking.
- C. All conduit installed underground or in contact with soil shall be of the non-metallic type except where specifically indicated otherwise or as required by Utilities or Code enforcement Agencies.
1. Concrete-Encased Non-Metallic Ducts shall be installed for underground feeders, and other runs as designated on the drawings.
 - a. Material shall be PVC.
 - b. Sizes and configuration shall be provided as indicated on the drawings.
 - c. End bells and conduit adapters shall be provided at termination point as required.
 - d. All electrical runs shall be provided with a Code sized ground unless a larger size is noted on drawing.
 2. Rigid PVC conduit (UL listed Schedule 80) shall be used for underground branch circuit, underground telephone lateral extension, and underground signal conduits.

- a. All electrical runs shall be provided with a grounding conductor as indicated on the drawings or required.
- D. All wiring shall be in conduit unless otherwise shown. Conduit shall be concealed in finished areas and may be exposed in unfinished areas.
1. Minimum size of conduit above grade shall be 3/4" unless otherwise noted or approved by the Engineer. Where underground, below grade, beneath slabs and in slabs conduit shall be 1" minimum.
 2. Conduit runs shall be continuous from outlet to outlet, fitting, pull or junction box, to cabinet or panel and shall be mechanically and electrically secured to assure ground continuity.
 3. Conduit shall be cut square, reamed to full size, and shouldered without butting into couplings, or fittings.
 4. Threads shall be of the standard length and diameter for the size of conduit used, and all rigid conduit couplings shall be of the threaded type. Approved conduit unions shall be used when required. Running threads shall not be used.
 5. Furnish and install approved expansion fittings with grounding continuity jumper wherever conduit runs across building expansion or seismic joints.
 6. Conduits shall have a smooth interior free of obstructions, and shall be capped with approved seals during construction. Runs shall be uniformly sloped to eliminate trapped condensation.
 7. Clearance from steam, gas, refrigeration, and hot water pipes shall not be less than 6 inches. Right angles bends in conduit 1 inch and larger, shall be made with standard conduit elbows.
 8. Field made bends shall be made with a hickey or machine bender. Bends shall not be flattened or kinked and shall not materially reduce the internal diameter of the conduit.
 9. Do not reduce conduit sizes where shown as larger than required by Code for conductors indicated to be installed.
 10. Rigid conduit or EMT shall not be attached to vibrating equipment. A short length of liquid tight flexible conduit shall be used.
 11. Conduits installed in anchorages and tunnels shall be secured to Unistrut which shall be anchored to the concrete structure.
 12. Conduit may be exposed in machinery rooms, switchboard or switchgear rooms, electric closets, unfinished areas, or elsewhere if approved as a field condition.
 13. Use cast metal boxes and cast metal fitting for tee or cross connections for exposed

conduit except where pressed steel boxes are permitted by this Specification.

14. For PVC coated rigid steel conduits wrap joints with two layers of 10-mil PVC tape.
 15. For nonmetallic conduit:
 - a. Affix joints to form watertight connections.
 - b. Attach plastic conduit ends, couplings and fittings with solvent.
 - c. Encase buried nonmetallic conduit unless otherwise specified.
- E. Conduit in concrete and masonry:
1. Joints of rigid conduit installed in concrete or masonry shall be made liquid-and-gas-tight, with joint compound, and shall engage not less than five threads.
 2. Conduit in concrete shall be placed so that no portion of conduit or coupling is exposed, and at a sufficient depth to prevent cracking or spalling.
 - a. Do not install, in concrete or masonry, conduit with a diameter larger than 1/4 of the slab thickness or conduit larger than 1" nominal diameter unless approved prior to placement.
 - b. Do not deflect or interfere with slab reinforcement.
 - c. Use sleeves to pass conduit through slabs not on grade and space sleeve on centerlines at least four times the diameter of the largest of adjacent pair of sleeves.
 - d. On steel decking do not use larger than 3/4" conduit in slabs of 2-1/2" minimum thickness and 1" conduit in slabs of 3" or greater thickness.
 3. Metallic conduit shall not be installed underground or in contact with the soil unless specifically required by the serving utilities or the drawings, in which case the conduit shall be rigid steel wrapped and concrete encased.
- F. Exposed conduit shall be parallel with or at right angles to building line, beams, or ceilings.
- G. Support: Conduit shall be supported at intervals of not more than 10-feet, and as specified in this paragraph unless indicated otherwise.
1. Route conduit along existing raceways and supports where possible.
 2. Flexible steel conduit shall be supported at intervals of not more than 3-feet, and within 12-inches of the outlets or wiring enclosures.
 3. Conduit 1-inch and smaller shall be fastened to the building structure with approved pipe straps, or to furring channels or metal studs with 12-AWG zinc-coated iron tie wire.
 4. Nails or metal plumbers tape shall not be used.
 5. Conduit, 1-1/4-inch and larger shall be suspended from the building structure by means of approved pipe hangers, racks, or trapezes.

6. Individual hangers shall be malleable iron split rings. Hanger rods shall be 3/8-inch minimum diameter for 2-inch and smaller conduits.
 7. Hanger and racks shall be attached to concrete with metal inserts set in the forms, and to steel members with beam clamps.
 8. Trapezes and racks shall be sized as necessary with conduits resting on and secured to cross bars. Conduits shall be braced to prevent sway.
 9. Conduits and outlet boxes shall not be attached to ductwork, piping, or mechanical equipment unless approved by the Engineer.
- H. Connection to wiring enclosures: Conduits shall be secured to outlet boxes or wiring enclosures with double locknuts and bushings, or approved fittings except outdoors where weatherproof hubs shall be used.
1. Conduit shall be screwed in and shall engage at least five threads in hub where conduit boxes with threaded hubs are used.
 2. Insulating bushings shall be used for conduits 1-1/4" or larger and for conductors larger than 10-AWG, and in all cases where wiring is subject to vibration.
- I. Vertical cable support shall be furnished and installed at tops of vertical runs exceeding 20-feet in length for conductors 14-AWG and larger, and otherwise where required by Code. Cable supports shall be of the split-wedge type that automatically tightens under the weight of conductors.
- J. Demountable ceiling areas: Conduit installed above ceiling panels shall be supported independently of the ceiling suspension, unless noted otherwise, and in no case will be permitted to interfere with the installation or removal of any ceiling tile.
- K. Conduit Stub outs:
1. Extend underground conduit, which is stubbed out for future use, a minimum of 5' clear beyond building foundation, concrete walks, paving, other utilities, and the like.
 2. Leave ends of underground stub outs 6" clear of concrete envelope. Cap ends of steel conduit and wrap entire exposed portions with Scotchrap No. 50. Plug ends of nonmetallic conduit with Duxseal and cover with gravel and redwood planks for mechanical protection.
- L. Conduit Stubups:
1. Use rigid steel conduit for stubups and risers to grade from other conduits. Cap all stubups for future use.
 2. Conduits stubbed up through concrete floors for connections to freestanding equipment shall be provided with a short elbow and a coupling set flush with the finished floor. Wiring shall be extended in rigid threaded conduit to the equipment,

except that where required, flexible conduit may be used 6" above the floor. Screwdriver-operated threaded flush plugs shall be installed in conduits from which no equipment connections are made. Use oil or grease in threads on plug to prevent sticking.

3. In utility rooms, electrical room, mechanical rooms, and other unfinished areas not accessible to the public, terminate stubups to a minimum of 8" above floor unless otherwise indicated.

M. Empty Conduits:

1. Provide a nylon or polyethylene rope rated 250 lbs. tensile strength in each conduit more than 20' in length and left empty for future use. Not less than 12" of slack shall be left at ends of the conduits.
2. Tag empty conduit at each accessible end identifying the purpose of the conduit and the location of the other end.
3. In wet, corrosive, outdoor or underground locations use brass, bronze or copper No. 16 gauge tags or lead tags secured to conduit ends with No. 16 or larger galvanized wire. Inscribe on the tags, with steel punch dies, clear and complete identifying information.
4. In dry interior locations use metal-rimmed paper tags securely affixed with nylon twine. Inscribe on the tags with India ink, clear and complete identifying information.
5. All unused conduit openings shall be plugged or capped with a suitable device designed for the purpose. Caulking compound shall not be used for plugging empty conduits.

3.03 WIRE

A. General:

1. All wiring and cable for all systems including low voltage, control circuits, and communication systems shall be installed in conduit or raceway unless otherwise noted.
2. Before installing conductors, remove debris and moisture from conduit and equipment enclosures. Use approved wire-pulling compound to facilitate the installation of conductors. Oil, grease or similar substances shall not be used as pulling compound.
3. Leave a minimum of 8" free length of wire at all outlets, junction boxes, and pull boxes for final connection. Where equipment final connections are specifically indicated to be performed under other Sections or by others, provide 15 feet of cable in a neat coil with taped ends at end of conduit.
4. Each circuit shall correspond to the branch circuit number or control circuit number

as indicated. All control wiring shall conform to the wiring diagrams on the Drawings when indicated and the manufacturer's wiring diagrams and shall control the equipment in the manner specified under this and other Sections.

B. Splices:

1. Make joints, splices, taps, and connections for 600-volt conductors with solderless connector. Use only plated copper alloy connector or lugs. Aluminum connector or lugs shall not be used.
2. For copper conductors, the following connectors are acceptable:
 - a. For #10 AWG and smaller: Use 3M, Ideal "Super Nut", or approved equal.
3. Retighten all bolt type connectors 24 to 48 hours after initial installation and before taping.
4. Tape all connections made with noninsulated type connectors with rubber-type tape, 1-1/2 times the thickness of the conductor insulation, then cover with Scotch No. 33 tape.

C. Color coding:

1. Color-code all feeders by means of colored adhesive tape. Each phase shall be the same color throughout the system and shall be different color from other phases and other systems. Color-coding for branch circuit wiring shall be per this Section.

D. Tagging:

1. Neatly arrange and lace conductors in switchboards, panel boards, gutters and terminal cabinets by means of nylon twine, Scotch No. 33 tape, or T&B "Ty-Rap" ties.
2. Main and feeder cables shall be tagged in all boxes, panels, wireways and gutters, and at all terminal blocks. Tags shall identify wire or cable number and equipment served and shall be made of flame resistant material.
3. Tag all spare wires for future use and tape exposed ends in same manner as required for noninsulated connectors.

E. Voltage drop:

1. All branch circuits shall be limited to a maximum voltage drop of 3 percent. Increase branch circuit wire sizes where required to comply with this requirement. All feeders shall be limited to a maximum voltage drop of 2 percent.

3.04 FITTINGS

- A. Install fittings for raceway systems in a manner to insure that equipment ground continuity is maintained.

3.05 OUTLET BOXES

- A. Equip pressed steel outlet boxes with tile ring where installed in brick, tile, marble and similar material, and in masonry block walls. Equip with plaster rings where plaster or drywall finish is indicated. Select rings of proper depth to place front of ring even with the plane of the finish surface. Select style of ring to match device and finish plates to be installed.
- B. Close unused openings in pressed steel boxes with knockout closures and in cast boxes with threaded plugs.
- C. Equip cast metal boxes with gasketed covers except in dry locations, where gasket may be omitted.
- D. Use concrete type boxes where required to clear and not displace reinforcement.
- E. Use multiple gang boxes for grouping devices at one location. Provide barriers between different systems and between adjacent devices when the voltage between adjacent exposed live parts exceeds 300 volts to ground.
- F. Support ceiling outlet boxes flush with the ceiling plane. Use approved bar hanger or other approved means to provide adequate support for lighting fixtures of other products attached to ceiling outlet boxes. Equip boxes with fixture studs where required by the lighting fixtures to be installed. Support boxes in suspended ceiling systems from main runner channels, or joists or other structural members. Do not support from the ceiling suspensions system hanger wires or tile support tees of similar lightweight ceiling components unless the components are designed and approved for this purpose.
- G. Locate outlets required for feeds to equipment in accordance with the requirements of the equipment and with drawings furnished by the equipment supplier.
- H. Equip outlet boxes used as junction boxes with blank device plates if installed flush, and with blank galvanized covers if installed on the surface. Use raised covers on surfaces boxes in finished areas. Flat plates may be used on surfaces boxes in machine rooms, electrical rooms, and similar unfinished areas.
- I. Equip outlet boxes with bushed cover plates where used for telephone systems or other systems requiring an exposed cable connection from the box.
- J. Locate outlet boxes so that they will be accessible. Boxes over suspended ceiling system shall be considered accessible if the ceiling tile removal permits access to such boxes.
- K. Where outlet boxes are used as junction or splice boxes, identify the enclosed circuit numbers with black ink marking pen on the outside surface of the box cover.

3.06 OPENINGS, CHASES AND SLEEVES

- A. Provide openings, chases, cutting, patching, sleeves and other products, necessary to permit the electrical raceways and cables to pass through the structure.

- B. Establish locations for openings, chases and sleeves sufficiently in advance of construction to avoid cutting and patching. Perform any required cutting and patching for electrical work and obtain approval for cutting prior to work being done.
- C. Repair damages to finished work and surfaces caused by cutting, to the satisfaction of the Engineer.
- D. Install sleeves wherever raceways of any type pass through walls or floors above grade, except that sleeves are not required for drywall construction or laid up masonry construction used for interior partitions and not fire related.
- E. Use pipe or sheet steel sleeves for interior dry locations.
- F. Install sleeves with both ends flush with wall surfaces and with upper ends 3" above floor surfaces. Install bottom end of floor sleeves flush with slabs if not concealed by ceiling system. Use steel pipe sleeves through floors.
- G. For conduit passing through interior sleeves in floors or fire-rated walls, use "Fire-Seal" fittings or fire sealant to maintain fire rating integrity.
- H. Core drill existing concrete walls or slabs to pass new runs of conduit or tubing. Seal core drilled openings as described for sleeves.
- I. For exterior wall below grade, conduit entries, use manufacturer fabricated wall entrance seals.

3.07 SURFACE RACEWAYS

- A. Install the products of a single manufacturer throughout the project.
- B. Do not exceed raceway fill requirements as established by code requirements.
- C. Install raceways using screws through back channel of two piece raceways, or single screw clips for one-piece raceways. Use raceway straps for support only after obtaining approval.
- D. Execute installation to ensure good ground continuity.

3.08 CABINETS

- A. Set cabinets at heights indicated or specified. In the absence of such information, set cabinets as not to exceed 6'-6" from finish floor to top of cabinet.
- B. Align the tops of cabinets in sight of each other at a uniform height.
- C. Install cabinets and other enclosure products in plumb with the building construction. Install flush enclosures so that the trim will rest against the surrounding surface material around the entire perimeter of the enclosure.
- D. Where cabinets are poured-in-place concrete wall construction, brace internally with temporary wood or other bracing to prevent deformation of the back or side of the

enclosure.

- E. Do not locate cabinets (or other electrical enclosures) where room doors will touch enclosure face when room door is opened. Locate cabinets (and other enclosures) so that enclosure door can be opened through a minimum 180° arc, except that the arc may be reduced to 130° for enclosures mounted to wireways.

END OF SECTION

**SECTION 26 0526
GROUNDING AND BONDING**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. General: Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Special Provisions, apply to this section. Also provide the work in accordance with the Division 28, Security and Division 26, Electrical.

1.02 WORK SPECIFICIED IN THIS SECTION

- A. Provide complete Electrical Grounding and Bonding work, the extent of which is indicated on the drawings and as specified to include, but not be limited to, the following
1. UPS systems
 2. Panelboards
 3. Outlet boxes
 4. Junction boxes
 5. Metallic conduit
 6. Fixtures
- B. Provide special grounding as indicated for signal systems, and on the drawings.

1.03 APPLICABLE PUBLICATIONS

- A. General: The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. National Fire Protection Association (NFPA)
- C. 70-87. National Electrical Code (NEC)
- D. Underwriters Laboratories, Inc. (UL)
1. 83-83 Thermoplastic-Insulated Wires and Cables - 8/14/85
 2. 44-83 Rubber-Insulated Wires and Cables - 8/5/85
 3. 467-84 Grounding and Bonding Equipment - 4/30/85

1.04 QUALITY ASSURANCE

- A. Comply with standards set for in Section 26 0000, Article 1.15

1.05 SUBMITTALS

- A. Comply with standards set for in Section 26 0000, Article 1.10.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Provide Wiring, conduit, cable, busses, connector and other materials required for the continuance of the existing grounding system as indicated, specified and required.
- B. Ground Rods: ¾" X 10' copper clad unless noted otherwise on drawings.
- C. Grounding conductors: Insulated copper conductors, type THWN. Bare copper softdrawn, #4/0 unless noted otherwise on drawings.
- D. Connectors
 - 1. UL listed and of materials complying with use of requirement of NEC Article 250.
 - 2. Multi-bolt solderless compression clamps: High strength electrical bronze with silicon bronze clamping bolts and hardware. Bolts, nuts and lock washers and similar hardware designed not to damage ground wire.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Make good contact at all electrical equipment, outlet boxes and wherever the conduit run is broken. Permanently and effectively ground all metallic conduits, fixtures, motors and other equipment as required by all applicable codes and regulations.
- B. All connections to building steel and to grounding counter post shall be exothermic type.
- C. All raceway grounding and bonding wires shall be green insulated copper conductor.
- D. All equipment including transformers, conduit system, motors and other apparatus shall be grounded in accordance with NEC Art. 250 unless noted otherwise on drawings.
- E. Ground rods shall be driven in quantities and lengths as required to produce a maximum of one ohm, unless noted otherwise in drawings to ground when measured at the building or bus connection point.

END OF SECTION 26 0526

**SECTION 28 0000
SECURITY GENERAL REQUIREMENTS**

PART 1 - GENERAL

1.01 SECURITY CONSULTANT OF RECORD

- A. The Consultant of Record for this project is:
Triad Consulting & System Design Group
2925 Mira Vista Way
Corona, CA 92881
(949) 943-9422

1.02 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions, City of Manhattan Beach Standard Terms and Special Provisions, apply to this section. Also, provide the work in accordance with Division 26, Electrical.

1.03 DESCRIPTION

- A. General Description: This specification section covers general requirements to provide and test a complete low-voltage Unified Security Platform comprising a Video Surveillance System (VSS), Electronic Access Control System (EACS) and Security Intercom System (SIS). Following is an outline of the project scope.
- B. Furnish and install electric security hardware devices, mounting brackets, power supplies, switches, equipment cabinets, controls, consoles and other components of the system as shown and specified.
- C. Furnish and install outlets, junction boxes, pull boxes, conduit, connectors, wiring, and other accessories necessary to complete the system installation. Requirements shall be in accordance with Division 26 Electrical.
- D. Provide pre-testing and acceptance testing of equipment, programming, wiring and installation.
- E. Related Sections: Requirements that relate to this section are included in, but not limited to, the following sections {select as appropriate}
1. Division 7 Section 07 8400 for Firestopping requirements
 2. Division 26 for Electrical requirements
 3. Division 28 Section 28 0513 for Security Cable requirements
 4. Division 28 Section 28 2300 for Video Surveillance System requirements

1.04 SCOPE OF WORK

Project Specifications

June 2023 – 100% Design

TCSDG
Security General Requirements
Section 28 0000

- A. Provide systems and services as described herein and completed per the approved schedule.
- B. Systems: Provide the following work complete per the contract schedule, and with acceptable engineering and installation practices as described herein.
 - 1. Video Surveillance System (VSS)
 - 2. Electronic Access Control System (EACS)
- C. Areas or work: The areas of work shall include, but not be limited to, the following facilities within the City of Manhattan Beach
 - 1. City Hall, Police Department, Fire Department, Public Works Yard, Joslyn Community Center, Live Oak Park, Manhattan Heights Community Center and additional site areas as shown on the drawings.
- D. Services: Contractor shall provide the following services complete and as scheduled:
 - 1. Project Planning and Management
 - 2. Interdiscipline Coordination
 - 3. Engineering and Material Purchase
 - 4. Submittals
 - 5. System Phasing and Installation
 - 6. System Start-up and Commissioning
 - 7. Training
 - 8. Testing
 - 9. Warranty
 - 10. Post Acceptance Work
- E. General Conditions: Provide work in accordance with the following general conditions
 - 1. Contract Compliance: Provide the Systems and Services in accordance with the conditions and system descriptions as described in Part 1 of each Specification Section. Provide specified or equivalent approved alternate products as described in Part 2 of each Specification Section. Utilize specified procedures and practices as described in Part 3 of each Specification Section.
 - 2. Schedule: Conform to the schedule as approved during the submittal process.
 - 3. All-inclusive work: Provide sufficient time, material, and manpower as necessary and

verify, and if necessary, revise or refine, the contract bid drawings and any and all circuitry, including the development of complete shop drawings required by the Specifications in order for this work to realize complete, stable, and safe operation.

1.05 RELATED WORK

- A. General
 - 1. Observe interface procedures to related work as described in PART 3, herein.
 - 2. Coordinate with City of Manhattan Beach on all aspects of aesthetic interface.
 - 3. Verify lighting requirements for cameras and displays to ensure adequate lighting is provided for the required performance and functions.
- B. Installation of network equipment, wireless network equipment and provisioning of a complete security system network shall comply with City of Manhattan Beach standards and requirements. Coordinate network equipment and connection with the City of Manhattan Beach Project Manager.
- C. Access Doors: Coordinate with City of Manhattan Beach for the provision of access doors where needed to gain access to wiring, boxes, panels and enclosures in walls or ceilings.
- D. Conditions
 - 1. Coordinate with all existing construction, equipment, and field devices
 - 2. Equipment provided under this project shall be installed in a manner consistent with architectural, operational, service, and maintenance considerations.

1.06 APPLICABLE PUBLICATIONS

- A. Standards: Perform the work in accordance with the following standards:
 - 1. UL Underwriters Laboratories, Inc., UL 294, UL 1076, ULC
 - 2. EIA Electrical Industries Association
 - 3. NTSC National Television Standards Committee
 - 4. NEMA National Electrical Manufacturers Association
 - 5. NECA National Electrical Contractors Association
National Electrical Installation Standards (NEIS)
 - 6. NFPA National Fire Protection Association
101 Life Safety Code
70 National Electrical Code (2017)
 - 7. 2018 IBC International Building Code

- 8. ADA Americans with Disabilities Act
- 9. FCC Part 15, Part 68

- B. Where one or more code is applicable, the more stringent shall apply.
- C. Cable installation, termination, and identification shall be performed in accordance with the manufacturer's installation manuals in addition to the applicable codes.
- D. When the manufacturer provides no recommendations on cable applications the Contractor shall ensure the cable selected meets the technical requirements of the equipment installed and shall meet the environmental requirements of the installed location.

1.07 QUALITY ASSURANCE

A. Contractor Qualifications

- 1. **Duration of Business:** The contractor shall have been in the business of installing and servicing security systems of the type described herein for a period of at least five years. The contractor shall have conducted security system contracting business averaging at least four times the value of this bid for the last three years.
- 2. **Similar Experience:** The contractor shall have installed a minimum of three projects involving integration of the systems types required on this project. The contractor shall provide references as described below.
- 3. **Engineering:** The contractor shall have an employed engineering and drafting staff capable of providing the submittals as described herein.
- 4. **Experience:** Provide personnel with the following minimum experience:
 - a. **Project Management:** The Project Manager shall have at least five years direct experience managing projects of the type specified herein.
 - b. **Field Supervisor:** The Field Supervisor shall have at least three years direct experience supervising projects of the type specified herein.
 - c. **Field Installers:** Field installers shall have at least three years direct experience installing projects of the type specified herein.
- 5. **Certifications:** The Contractor or its assigned subcontractors shall be certified by the manufacturer for the systems they are working on. Where manufacturers do not have certifications for outside personnel the Contractor shall contract with the manufacturer for Professional Services to complete the work on their system.
- 6. **References:** Upon request, the contractor shall provide at least three project references of security systems of the size and type of that specified herein. References shall be the operating personnel and Owner's contract administrator for each project. The supplied references shall be generally positive with respect to engineering practices, installation practices, completion timeliness and warranty satisfaction.

B. Manufacturer Qualifications

1. Where new equipment is being provided it shall meet the following requirements:
 - a. System components shall be furnished by manufacturers of established reputation and experience who shall have produced similar equipment and who shall be able to refer to similar installations rendering satisfactory service.
 - b. The manufacturer's products shall have been in satisfactory operation on at least three similar installations for not less than three years. Contractor shall submit a list of similar installations.
 - c. Components including, but not limited to, cameras, intercoms, computers, and power supplies shall have been tested and listed by Underwriters Laboratories, Inc., Factory Mutual Systems, or other approved independent testing laboratory.
 - d. System components furnished by manufacturer including, but not limited to, cameras, hard drivers, servers, computers, microchips, intercoms, power supplies, software, or other elements shall not be purchased or installed if included within the U.S. Government Banned Equipment List.

1.08 BID RESPONSE

- A. Refer to Instructions to Bidders and additional information herein.
- B. Bidders Responsibility
 1. It shall be the Contractor's responsibility to verify actual conditions by visiting the site, reviewing the Drawings and Specifications, and to advise the City of Manhattan Beach in writing of any conditions which may adversely affect the work. If any necessary exceptions are discovered, Contractor shall immediately notify City of Manhattan Beach for resolution prior to any change in the design or the scope, and any resultant claim for additional compensation.
 2. The Bid Response must fulfill the intent of the Drawings and Specifications to the satisfaction of City of Manhattan Beach and the Consultant of Record to qualify as an acceptable Bid Response.
 3. Bid Form: Submit a base bid on the supplied Bid Form in strict accordance with the Bid Instructions and these specifications. If no Bid Form is provided with the Contract Documents, the Contractor shall request one. A base bid is mandatory. No alternate bids will be considered without a corresponding base bid.
 4. Pre-Bid Clarifications: Refer to bid requirements provided by the City.
 5. Maintenance Agreement: Provide a Renewable Annual Maintenance Agreement Proposal for the work, commencing upon conclusion of the Warranty, as part of the Bid Proposal.
- C. Base Bid: Base bid shall include the installation and integration of VSS, EACS and SIS systems as described in the Contract Documents. The contractor shall provide all licenses

required for the system to perform the functions described in the Contract Documents.

D. Alternate Bids:

1. General: Any alternate bids which are proposed by the contractor and accepted for inclusion in the contract with this work shall be subject to all of the provisions of submittal, coordination, warranty and review as if included herein.
2. Required Alternate Bids:
 - a. Alternate Bid #1: Provide a cost for providing a failover management server
 - b. Alternate Bid #2: Provide a cost for replacing the existing access control system as defined in specification section 28 1000 and shown on the access control plan drawings.

1.09 SHOP DRAWING AND EQUIPMENT SUBMITTAL

A. General: Comply with the requirements of General Conditions Section 3-8 and additional requirements as described below.

1. Format: Make each submittal in one complete and contiguous package. Partial or unmarked submittals will be rejected without review.
2. Schedule: Refer to General Conditions Section 6-1.
3. The Contractor shall be aware of and identify products that may require long lead times for manufacturing and/or delivery and must prepare the submittal package accordingly for City of Manhattan Beach for review.
4. The submittal package shall be clearly identified by reference to the Project name, specification section, article, paragraph, drawing number or detail as applicable. Submittals shall be well organized, and shall be clear and legible and of sufficient size for clear presentation of data. Data submitted shall describe the materials, equipment, or other items to be furnished and, where applicable, the system in sufficient detail to indicate full compliance with the requirements of these Contract Documents.

B. Bid documents, including drawings, details and specifications are generally considered conceptual in nature, and provide direction on products and project requirements. In most cases, the Contractor is given some choice of products and methods that may be incorporated into the system. These choices may affect the overall design, configuration and installation of the proposed system. The contractor shall be responsible for the means and methods of installation of equipment and raceways. Where specifically noted on the plan drawings the contractor shall use existing raceways or provide new raceways as shown.

C. Requirements: Provide the following information complete, and in the manner described herein:

1. Shop Drawings: Shop Drawings shall be numbered consecutively and shall accurately and distinctly present the following information:

- a. Title Sheet
- b. Plan Drawings: Showing all devices, pull boxes, cabinets, conduits and conductors in their proposed locations
- c. Riser Diagram: Showing all conduit relationships between devices shown on the Plan Drawings. Show all power sources including panel identification and circuit number.
- d. Single-Line/Block Diagrams: Show system architecture and signal relationships of controls, processors and head-end devices within the system.
- e. Custom Assembly Diagrams: For each custom assembly, provide an assembly drawing illustrating the appearance of the assembled device. Include dimensions, assembly components, and functional attributes (momentary or alternate action switch, lens color, panel finish, color, etc.). "Custom assemblies" include, but are not limited to:
 - 1) Security Terminal Cabinets
 - 2) Cover plates and Escutcheons
 - 3) Receptacle Assemblies
 - 4) Console Bezels and Materials
- f. Component Connection Diagrams
 - 1) Show the wire designations on all connectors.
 - 2) Show a schedule of the wire colors connected to the pins on each device connector.
- g. Equipment Wiring Diagrams
 - 1) Show a pictorial illustration of each equipment enclosure and/or terminal cabinet, including terminals, components and wiring devices.
 - 2) Show the device nomenclature exactly as shown on the single line diagrams.
 - 3) Terminations
 - a) Show every termination and terminating cable, with applicable cable and wire numbers matching the single line diagrams.
 - b) Every termination in the system must be documented.
 - c) Termination information may be rendered as a wiring list(s), if properly coordinated with, and referenced to, typical component and single-line diagrams. Otherwise, the Shop Drawings shall show a pictorial of every component in the system, with its terminations.
 - d) Show wire colors for each terminal.
 - e) For each wire exiting the enclosure, show the destination of the wire by floor, room number and the drawing number of the panel where the wire terminates.
- h. All working dimensions and erection dimensions
- i. Arrangements and sectional views
- j. Necessary details, including complete information for making connections between work under this Contract and work under other Contracts.

- k. Stock or standard drawings will not be accepted for review unless full identification and supplementary information is shown thereon in ink or typewritten form.
- l. Each Drawing or page shall include:
 - 1) Project name, Project Number and descriptions
 - 2) Submittal date and space for revision dates
 - 3) Identification of equipment, product or material
 - 4) Name of Contractor and Subcontractor
 - 5) Relation to adjacent structure of material
 - 6) Physical dimensions, clearly identified
 - 7) ASTM and Specifications references where applicable
 - 8) Identification of deviations from the Contract Documents
 - 9) Contractor's stamp, initialed or signed, dated and certifying to review of submittal, certification of field measurements and compliance with Contract.
 - 10) Location at which the equipment or materials are to be installed. Location shall mean both physical location and location relative to other connected or attached material.

2. Equipment Submittals

- a. General: Equipment submittals shall be organized in the same chronological order as listed in each specification section.
- b. Provide a Title Page, with project name, Contractors name and address, contact information, date of submission, and submission revision number.
- c. Provide a Parts List, for proposed equipment, materials, components and devices, listing the following information for each line item:
 - 1) The system type,
 - 2) Model number,
 - 3) Project quantity,
 - 4) Specification sheet page reference including Specification Section, Article, Paragraph, and sub-paragraph.
- d. Provide Manufacturers Specification Sheet with descriptive information for equipment, materials, components and devices. Number each page, to correspond with the Parts List.
- e. Clearly delineate (with highlighter, arrow, or underline) on each specification sheet, which model numbers, options and configurations are being proposed for this project.
- f. Include kinds of materials and finishes for all equipment.

3. Acceptance Testing Plan:

- a. Submit a written document detailing the test procedures to be followed by the contractor in evaluating and proving the installed System(s).
- b. Provide a sample of the test forms to be used for each system and for each component of each system.

- c. Include all tests required by the equipment Manufacturer and by this Specification.
- D. City of Manhattan Beach will return unchecked any submittal that does not contain complete data on the work and full information on related matters.
- E. Verification: The contractor shall check and acknowledge all shop drawings, and shall place his signature on all shop drawings submitted to City of Manhattan Beach. Contractor's signature shall constitute a representation that all quantities, dimensions, field construction criteria, materials, catalog numbers, performance criteria and similar data have been verified and that, in his opinion, the submittal fully meets the requirements of the Contract Documents.
- F. Departure from Contract Requirements: If the shop drawings show departures from the Contract requirements, the Contractor shall make specific mention thereof in his letter of transmittal, otherwise review of such submittals shall not constitute review of the departure. Review of the drawings shall constitute review of the specific subject matter for which the drawings were submitted and not of any other structure, materials, equipment, or apparatus shown on the drawing.
- G. Use of Contract Drawings: The contractor may use the contract "bid" drawings for preparation of shop drawings. When using portions of the contract documents for submittal purposes the contractor shall take full responsibility for the information shown on the drawings. The contractor shall add information as described in the shop drawing submittal requirements herein. The submitted drawings shall include all cable types, conduit fill, cable routing (start and destination), labels for all cables and devices, and IP addresses for network connected devices. Incomplete submittals shall be rejected.

1.10 OPERATING AND MAINTENANCE MANUALS: ("AS-BUILT" RECORD SET)

- A. General: Comply with the General Requirements Section 3-13 and additional requirements herein.
- B. Phase One As-built Review: The Contractor shall submit for review the following clearly labeled as the "Operating and Maintenance Manual" within thirty days after Final Acceptance of the Installation and prior to requesting final payment:
 - 1. Record Drawings: Submit two copies of revised versions of drawings as submitted in the "Shop and Field" Submittals showing actual device locations, conduits, wiring and relationships as-built. Include nomenclature showing as-built wire designations and colors.
 - 2. Manuals: Submit two copies of each of the following materials in bound manuals with labeled dividers:
 - a. Equipment Instruction Manuals: Complete, comprehensive instructions for the operation of all devices and equipment provided as part of this work.
 - b. Manufacturers Instruction Manuals: All specification sheets, brochures, Operation Manuals and service sheets published by the manufacturers of the

- components, devices and equipment provided.
 - c. A final Bill of Material for each system
 - d. Include information for testing, repair, troubleshooting, assembly, disassembly and recommended maintenance intervals.
 - e. Provide a replacement parts list with current prices. Include list of recommended spare parts, tools, and instruments for testing and maintenance purpose.
 - f. Performance, Test and Adjustment Data: Comprehensive documentation of all performance verification according to parameters specified herein.
 - g. Warranties: Provide an executed copy of the Warranty Agreement and copies of all manufacturers' Warranty Registration papers as described herein.
- C. Phase Two: Within fourteen days of receipt of review comments for the Operating and Maintenance Manual (Phase One), submit the following corrected documents; two copies of the reviewed Record Drawings and two copies of the reviewed Operating and Maintenance Manuals to City of Manhattan Beach. The contractor shall also provide electronic versions of submitted drawings and manuals on CD-ROM.
1. In each equipment enclosure and/or terminal cabinet, the contractor shall place a Single Line drawing of the system(s) and the respective Terminal Cabinet Wiring Diagram in a clear plastic sleeve permanently attached to the cover of the terminal cabinet.
 2. The contractor shall provide to City of Manhattan Beach one copy of all executive and user software, including all graphical maps on CD-ROM disks, flash drive, or other suitable storage device as directed by the City.
 3. Sufficient information, (detailed schematics of subsystems, assemblies and subassemblies to component level) clearly presented, shall be included to determine compliance with drawings and specifications.

1.11 WARRANTY

- A. General: Comply with General Conditions Section 3-13.3 and additional requirements herein.
- B. The Warranty shall serve two purposes:
 1. The Contractor shall repair any system malfunction or installation deficiency discovered by City of Manhattan Beach or their representatives during the warranty period.
 2. The contractor shall replace any piece of equipment that ceases to function properly during the warranty period.
- C. The Contractor shall correct any installation deficiencies found against the contract drawings and specifications discovered by the City or their representatives during the warranty period

- D. Personnel: Service personnel shall be certified in the maintenance and repair of the specific type of equipment installed and qualified to accomplish work promptly and satisfactorily. The City shall be advised in writing of the name of the designated service representative, and of any change in personnel.
- E. Schedule of Work: The Contractor shall perform quarterly inspections to verify operation of equipment.
- F. Inspections shall include visual checks and operational tests of console equipment, peripheral equipment, local processors, sensors, and electrical and mechanical controls.
- G. Inspections shall also include testing of all communication links to verify operation within manufacturer's parameters.
- H. Emergency Response: The City will initiate service calls when the system is not functioning properly. Qualified personnel shall be available to provide service to the complete system. The City shall be furnished with a telephone number where the service supervisor can be reached at all times. Service personnel shall be at site within 4 hours after receiving a request for service. The system shall be restored to proper operating condition within 8 hours after service personnel arrive onsite and obtain access to the system.
- I. Software Updates: The Contractor shall provide a description of all software updates to the City, who will then decide whether or not they are appropriate for implementation. After notification by the City, the Contractor shall implement the designated software updates and verify operation in the system. These updates shall be accomplished in a timely manner, fully coordinated with system operators, and shall be incorporated into the operation and maintenance manuals, and software documentation. Contractor shall make a system image file so the system can be restored to its original state if the software update adversely affects system performance.

1.12 MAINTENANCE CONTRACT

- A. The cost of the maintenance contract shall not be part of the base bid. The cost for the maintenance contract shall be provided as a separate number to allow City of Manhattan Beach to evaluate maintenance costs after the warranty period.
- B. Furnish a Maintenance Contract for all systems covering a period of 3 years from the end date of the original warranty period using factory trained authorized representatives of the manufacturer of the equipment.
- C. The maintenance contract shall cover equipment and software related to this contract, and shall provide for the following parts and services, included in the maintenance agreement:
 - 1. Manufacturer software upgrades and patches issued during the term of the agreement for all software provided by the Contractor.
 - 2. Quarterly Inspection, Preventative Maintenance and Testing of equipment and components. Provide detailed list of quarterly inspection tasks and preventative maintenance tasks.

3. Regular Service, Emergency Service, and Call-Back Service
 4. Labor and Repairs
 5. Equipment and Materials
- D. Response Time: Response time for all service calls shall be within 4-hours.
- E. Repair Time: Contractor shall stock parts in sufficient quantities such that repair or replacement shall be guaranteed within 12-hours. Temporary replacements within this time period shall be acceptable, provided temporary replacements do not compromise system functionality, and provided permanent replacement is achieved within 72 hours.

1.13 SPARE PARTS

- A. Spare parts levels shall be maintained through the warranty and maintenance periods such that they are at the original quantities at the end of the contractor's involvement.
- B. Unless otherwise noted herein, provide 2%, or a minimum of one, of the Contractor-provided quantity of each type of active electronic device including, but not limited to, card readers, electrified locking hardware, door position switches, request-to-exit (REX) detectors, cameras, power supplies, etc.
- C. The following items shall not require spare parts provision: Connectors, conductors, patch panels, mounting components, batteries, devices for which the system already incorporates redundant components and components or devices whose total quantity is 3 or less and whose failure would not affect any other part of the system.
- D. Submit Spare Parts Material list to the Engineer for approval prior to shipment.

1.14 EQUIPMENT COMPATIBILITY REQUIREMENTS

- A. While individual items of equipment may meet the equipment specifications and in fact meet the system specifications, the total system shall be designed so that the combination of equipment actually employed does not produce any undesirable effects such as signal distortion, noise pulses, transients, or crosstalk interferences when electrically associated with itself or other equipment.

1.15 OWNER'S RIGHT TO USE EQUIPMENT

- A. City of Manhattan Beach reserves the right to use equipment, material and services provided as part of this work prior to Acceptance of the Work, without incurring additional charges and without commencement of the Warranty period.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Product Acceptability: The Products section contains lists of acceptable products. If product

substitutions are proposed, they must be made based upon a comparison of equivalence to the product specified. Considerations may include, but shall not be limited to functional, physical, aesthetic and/or interface aspects. The City shall be the sole judge of whether or not a submitted substitution is deemed to be "equivalent" to that specified. Refer to General Conditions Section 4-6 for requirements.

- B. Listed Manufacturers: Manufacturers listed in the product section are known to generally meet the specification requirements. Listing of a manufacturer does not automatically mean it meets all requirements listed herein. The contractor is responsible to provide any hardware and/or software modifications for any submitted product to ensure compatibility with the functional performance specified herein.
- C. All equipment shall be new and the current model of a standard product of a manufacturer of record. When a manufacturer provides a newer model than that included in the specifications the contractor shall provide the newer model. A manufacturer of record shall be defined as a company whose main occupation is the manufacture for sale of the items of equipment supplied.
- D. For each item of equipment offered, manufacturer shall maintain:
 - 1. A factory production line
 - 2. A stock of replacement parts
 - 3. Engineering drawings, specifications, operating manuals and maintenance manuals
 - 4. Manufacturer shall have published and distributed descriptive literature and equipment specifications on each item of equipment offered.
- E. Complete System: All auxiliary and incidental equipment necessary for the complete operation and protection of the systems specified herein shall be furnished and installed as if specified in full.
- F. Similar Devices: Similar devices within a system shall be identical.
- G. Safety: Unless otherwise specified, all electronic equipment shall be UL rated. All electronic equipment shall be of the dead front type, having no exposed live electrical connections, terminals or exposures to hands-on operating surfaces or other exposed surfaces during any power-on condition. Every live electrical connection, terminal or exposure shall be covered with durable, removable insulating material.
- H. Rack Mounting: All rack-mounted electronic equipment shall be specifically designed or modified for standard 19-inch rack mounting unless otherwise noted.
- I. Keying: Key all panels identically where provided for similar usage within a system.
- J. Framing: Floor supported units shall be substantially framed and supported. All bolted connections shall be made with self-locking devices.

- K. Aesthetics: Coordinate all console or control panels so that their general appearance is similar. Provide locking panel covers on all recessed, semi-recessed and surface mounted control panels not located in equipment rooms. Control panels shall be contained within or mounted to formed and welded aluminum or steel back boxes. Operating panels shall be recessed within the back box to a depth sufficient to permit a locking hinge panel cover to close completely without affecting any device within the enclosure.
- L. Labeling: Provide intelligible permanent engraved identification on or adjacent to all controls, fuses and/or circuit breakers, patching jacks, connectors, receptacles, terminal blocks, meters, indicators, switches, monitors, and the like.
- M. Engraving, labels, decals or other identification on any device, equipment or miscellaneous component shall be coordinated with the associated Shop and Field and Equipment Wiring Drawings.
- N. No proprietary identification on assemblies will be permitted.
- O. Operational Voltage: Devices connected to the fuse or breaker protected electrical system and all auxiliary equipment necessary for the operation of the equipment associated with systems specified herein shall be designed to operate from 105 to 130 volt, 60 Hertz, alternating current service, with stable performance, fully in accordance with these specifications, and shall have integral fuse or circuit breaker protection.
- P. Contractor-fabricated items shall be provided with fuses that indicate when they are blown or defective.
- Q. All protection devices shall be located to facilitate replacement, resetting or observation of status without demounting the associated unit and/or de-energizing adjacent equipment.
- R. Manufacturer's Recommendations: Components and devices shall be operated in accordance with recommendations of the manufacturer and shall contain sufficient permanent identification to facilitate replacement.
- S. Wiring Practices: Consistently identified terminal strips shall be provided for all external connections. These designations shall be shown on drawings.

2.02 MISCELLANEOUS PRODUCTS

- A. Cabinets: Hoffman, Rittal, Wiegmann or equal, assembled and wired with all components and as indicated on the drawings. Cabinets shall be equipped with removable back panels, ventilations, fans and filters to maintain acceptable environmental conditions for the components installed within the cabinet. Coordinate color, location, and trim with City of Manhattan Beach.
- B. Connection Devices
 - 1. General Purpose Multi-Pin Panel Mounting Receptacle: Amp, Molex, or equal, or as indicated on the Drawings.

2. General Purpose Multi-Pin Cable Connector: Cannon, Amp, or equal, or as indicated on the Drawings.
- C. Cable Termination Devices
 1. Screw-Type Barrier Blocks: Kulka 601 or Kulka 601-3700 Series, TRW-Cinch, 140, 141 and 142 Series, Buchanan, or equal.
- D. Wire and Cable Labels: Provide labels by Brady, Thomas and Betts, or equal.
- E. Wire and Cable Support Racks: Provide Cable Support Racks by Unistrut, Kindorf, B-Line, or equal.
- F. Tamper Proof Screws: Provide tamper proof fasteners as manufactured by Tamper-Pruf, L.H. Dottie, Theft-Pruf, or equal, for installation of security equipment in accessible locations. Provide six tamper proof screwdrivers and transfer to City of Manhattan Beach prior to final acceptance testing.

2.03 TEST EQUIPMENT

- A. The Contractor is responsible for furnishing test equipment required to test the system in accordance with the parameters specified. Unless otherwise stated, the test equipment shall not be considered part of the system. The Contractor shall furnish test equipment of accuracy better than the parameters to be tested.
- B. Readiness: Keep all test equipment at hand and maintain in calibrated condition at the jobsite as required for routine and performance testing of this work.

PART 3 - EXECUTION

3.01 GENERAL

- A. Perform this Work in accordance with acknowledged industry and professional standards and practices, and the procedures specified herein. Minimum installation standards shall meet the requirements of NFPA 731 – Standard for the Installation of Electronic Premises Security Systems 2020 Edition
- B. Aesthetics are an important consideration in this installation. All components shall be installed to have aesthetically pleasing results per City of Manhattan Beach. Actual locations of all visible components shall be coordinated in advance with City of Manhattan Beach.
- C. The Contractor shall insure that all installation personnel understand all the requirements of the Specifications.

3.02 COORDINATION

- A. General: Conform to the standards set forth in Division 1 and additional requirements listed below.

1. This Contract involves functioning systems. Coordination with City of Manhattan Beach is critical. Do not interrupt any functioning system without coordination with City of Manhattan Beach and any phasing requirements to minimize downtime for functioning systems.
 2. Coordinate the work with City of Manhattan Beach and all trades to assure that where this work interfaces to other trades, those interfaces are provided, complete and functional.
 3. Meet with a representative of the City of Manhattan Beach and each trade. Identify devices needed to complete functional operation of this work that are being provided by City of Manhattan Beach, General Contractor or another trade, and assure that the work being provided by others will be acceptable.
 4. Make sure work by others is scheduled in order that this work can be installed in a timely fashion.
 5. Verify all dimensions, and work by others that may be necessary to facilitate the work and coordinate with other trades. Assure that related work by others is coordinated with this work.
 6. Verify all field conditions. Regularly examine all construction and the work of others that may affect the work to ensure proper conditions are provided for the equipment and devices before their manufacture, fabrication or installation. Be responsible for the proper fitting of the systems, equipment, materials, and devices provided as part of this work.
 7. Coordinate connections to City of Manhattan Beach network equipment with City of Manhattan Beach Information Technology (IT) staff.
- B. Required Resources: Become familiar with the available access and space for equipment and any potential interference requiring coordination. Coordinate with City of Manhattan Beach to assure that adequate electrical and HVAC services are available. Provide the physical space for equipment, and ample access room for installation and maintenance of equipment.
- C. Positioning Members: Provide additional support or positioning members as required for the proper installation and operation of equipment, materials and devices provided as part of this work as approved by City of Manhattan Beach without additional expense.
- D. Interface Devices: Provide items necessary to complete this work in conformance with the Contract Documents or the satisfaction of City of Manhattan Beach without any additional expense.
- E. Equipment shall be mounted with sufficient clearance to meet applicable codes and facilitate observation and testing. Securely hang and/or fasten with appropriate fittings to ensure positive grounding, free of ground loops, throughout the entire system. Units shall be installed parallel and square to building lines.

- F. Installation shall comply with “Codes and Standards” section of this specification. Where more than one code or regulation is applicable, the more stringent shall apply.
- G. Where new equipment is replacing old equipment, Contractor is responsible for removing and dispensing the old equipment and doing whatever repair work is necessary to meet standards determined by City of Manhattan Beach.
- H. Install fire stopping for penetrations in slabs and firewalls to meet code at the completion of work and prior to final testing demonstration to City of Manhattan Beach.
- I. Project Documentation: Review all project documentation. If the Contractor perceives any conflict or ambiguity in the contract documents, he shall seek interpretation from City of Manhattan Beach prior to proceeding.
- J. Supervision: Maintain a competent supervisor and supporting technical personnel acceptable to City of Manhattan Beach during the entire installation. A change of supervisor during the project shall not be acceptable without prior written approval from City of Manhattan Beach.
- K. Work and Manpower Rules: Comply with all applicable jobsite work and labor regulations.
- L. Shop Drawing Redlines: The contractor shall maintain on site the most current shop drawings with redline mark-ups of changes where the installation varies from the shop drawings. The contractor shall review the redline shop drawings with City of Manhattan Beach on a weekly basis. The final redline drawings at completion of the installation shall be used by the contractor to create the final as-built drawings.

3.03 INSTALLATION

- A. Legacy drawings provided may not represent the current conditions. The contractor shall field survey each site to verify equipment locations. Structural modifications or other obstacles may require camera positions to vary to some extent from those shown on the plans. Relocation of devices to provide adequate video coverage of each area shall be approved by City of Manhattan Beach prior to installation. Where there may be a question about device relocation the contractor shall coordinate with City of Manhattan Beach and request guidance.
- B. Conduit routing on the bid documents of interior building spaces is diagrammatic and alternate conduit routing is acceptable to provide for a more efficient installation. Conduit routing shall be coordinated with City of Manhattan Beach.
- C. Contractor shall conduct detailed site surveys of each site during mobilization and the shop drawing submittal process and provide detailed shop drawings indicating the proposed installation of devices and conduit.
- D. Wiring in finished areas where the wiring will be out of sight may be installed using plenum cabling. Cable shall be supported by individual hangars installed for the purpose of securing the plenum cable. Cables shall not be laid across the ceiling or secured to lighting or ceiling supports.

3.04 WORKMANSHIP

- A. The installation shall be performed in a professional and competent manner.
- B. On a daily basis, clean up and deposit in appropriate containers all debris from work performed under the appropriate Specification sections. Stack and organize all parts, tools and equipment when not being used.
- C. Preparation, handling and installation shall be in accordance with the Manufacturer's written instructions and technical data appropriate to the product specified.
- D. Work shall conform to the National Electrical Contractors Association "Standard of Installation" for general installation practice.
- E. At the conclusion of the installation, work areas, including panel boxes, shall be vacuumed and cleaned to remove debris and grease.

3.05 EQUIPMENT, RACK AND CONSOLE INSTALLATION

- A. Construction: Coordinate access openings and wire paths through the cabinets for desk-mounted devices.
- B. Compliance: Comply with powering, conduit entry and grounding practices as described herein and as required by code.
- C. Coordination of Access: Coordinate the installation of access covers, hinged panels or pull-out drawers to ensure complete access to terminals and interior components. Access shall be designed such that demounting or de-energizing of equipment is not required to gain access to any equipment.
- D. Service Loop: Fasten removable covers containing any wired component with a continuous hinge along one side with associated wiring secured and dressed to provide an adequate service loop. Appropriate stop locks shall be provided to hold all hinged panels and drawers in a serviceable position.
- E. Labeling: Provide an engraved lamacoid marker on the front of desk-mounted equipment including its designation as assigned and referenced consistently throughout this project.

3.06 GROUNDING PROCEDURES

- A. Provide grounding of all systems and equipment in accordance with manufacturers' recommendations, local electrical codes and industry standards.
- B. Signal Ground: Signal ground shall be derived from the one main electrical panel that serves all equipment herein.
- C. Grounding procedures for wire, equipment and devices shall be in strict accordance with manufacturers' recommendations and standard installation practices.

- D. All equipment enclosures of an assembly shall be grounded to the single grounding terminal strip of each assembly.
- E. Multiple Powered System Isolation: Where powered devices of the same system exist in two or more locations and a different signal ground exists in each location, the system's communication signal shall be isolated from signal ground at both source and destination ends via modem, fiber optics or other equivalent method.
- F. Contractor shall eliminate or correct all potential ground-loop problems in a manner approved by City of Manhattan Beach.
- G. Enclosure Isolation: Equipment enclosures of this section shall not be permitted to touch each other or any other "grounded device" unless bolted together. Equipment enclosures shall not be permitted to touch metallic conduit at any point. Conduit entry shall be made using flexible non-metallic conduit material only.
- H. Shielding: Shielded cables of this section shall be grounded exclusively to Signal Ground. No shields shall be permitted to carry live currents of any kind. Shields shall be tied to Signal Ground at the signal source end only, unless otherwise noted or required by the manufacturer.

3.07 IDENTIFICATION AND TAGGING

- A. General: Refer to Specification Section 28 0513 for additional requirements.
- B. Cables, wires, wiring forms, terminal blocks and terminals shall be identified by labels, tags or other permanent markings. The markings shall clearly indicate the function, source, or destination of all cabling, wiring and terminals. The wire-marking format contained in the shop drawings shall be utilized for all conductors installed under this Specification. All cables and wires shall be identified, utilizing heat-shrink, machine printed, polyolefin wire markers. Hand written tags are not acceptable.
- C. Should a situation arise where the wire tagging format as shown on the shop drawings cannot be used, a substitute format shall be submitted which complies with the intent to provide documentation that will permit end-to-end tracing of all System wiring.
- D. All terminal points shall be appropriately identified and labeled as shown on shop drawings.
- E. All panels shall be provided with permanently attached engraved lamacoid labels with identifying names and functions. Labels shall be consistent in form, color, and typeface throughout the system and all must contain the name of the system or subsystem as part of the label textual information. Design, color, font and layout shall be coordinated with, and approved by, City of Manhattan Beach.

3.08 DATABASE PREPARATION, CHECKING AND ACTIVATION

- A. Contractor shall provide City of Manhattan Beach with the appropriate forms necessary to organize the system database inputs. Guidance shall also be provided to City of Manhattan Beach personnel in a timely manner to insure their understanding of database format

requirements and constraints. It is essential that the above activities be clearly identified on the Project Schedule so database preparation is accomplished in sufficient time to permit orderly and on time system activation. The forms and guidance shall be presented to City of Manhattan Beach not less than 60 days prior to scheduled central system activation.

- B. It shall be the responsibility of City of Manhattan Beach to ensure the accuracy of the database information entered on forms by thoroughly checking all completed data entry forms.
- C. It shall be the responsibility of Contractor to ensure that database formatting is correct prior to entry into the system and system activation.
- D. The Contractor shall be responsible for the initial database entry into the system prior to activation. The database shall consist of hardware and function-related information, i.e., system configuration, cameras, card readers, alarm points, software parameters for system management, graphical maps and user profiles. A printout of the final database shall be provided to City of Manhattan Beach for review and approval prior to system activation.
- E. System activation shall be the responsibility of Contractor. Once the system and database have been demonstrated to be functioning properly according to manufacturer's guidelines and the system design, all further database entries and upgrades shall be the responsibility of City of Manhattan Beach, unless otherwise noted.
- F. If later versions of the operating system or application software are made available to, or requested by City of Manhattan Beach, these updated versions shall be installed and checked out by Contractor. Before installing upgrade software, Contractor shall insure that existing database information is properly "backed-up" prior to any installation action.

3.09 START-UP RESPONSIBILITY

- A. Contractor shall initiate System Operation. Competent start-up personnel shall be provided by Contractor on each consecutive working day until the System is functional and ready to start the acceptance test phase. If in City of Manhattan Beach' judgment Contractor is not demonstrating progress in solving any technical problems, Contractor shall supply Manufacturer's factory technical representation and diagnostic equipment at no cost to City of Manhattan Beach, until resolution of those defined problems.
- B. Use a start-up sequence that incrementally brings each portion of the system on-line in a logical order that incorporates checking individual elements before proceeding to subsequent elements until the entire system is operational.

3.10 PRELIMINARY INSPECTION & TESTING

- A. Perform a Preliminary Inspection and Test to determine the operating status of components and systems prior to Final Acceptance Testing.
- B. Coordination: Coordinate testing of components of the system in cooperation with other trades.

- C. Verification: Prior to performing Preliminary Testing, perform inspection and/or testing procedures to insure the following:
1. Safe and proper operation of all components, devices or equipment, and the absence of extraneous or interfering signals.
 2. Proper grounding of devices and equipment.
 3. Integrity of signal and electrical system ground connections.
 4. Proper powering of devices and equipment.
 5. Integrity of all insulation, shield terminations and connections.
 6. Integrity of soldered connections and absence of solder splatter, solder bridges, and debris of any kind.
 7. Proper dressing of wire and cable.
 8. "Wire-checking" of all circuitry, including phase and continuity.
 9. Preliminary targeting, back focus, and setup of video camera assemblies.
 10. Mechanical integrity of all support and positioning provisions, i.e.: as provided for video cameras, monitors and any other equipment.
 11. Sequencing: If applicable, determine and record the sequence of energizing systems to minimize the risk of damage from improper startup.
 12. Operation of all systems in accordance with specified performance requirements.
- D. Adjustments and Documentation: After successfully energizing the systems, make all preliminary adjustments and document the setting of all controls, parameters of all corrective networks, voltages at key system interconnection points, gains and losses as applicable. Tabulate all data along with an inventory of test equipment, a description of testing conditions and a list of test personnel. Copies of preliminary test data shall accompany copies of performance testing data as part of the Operating and Maintenance submittal.

3.11 PREPARATION FOR ACCEPTANCE (PRIOR TO FINAL INSPECTION)

- A. Temporary facilities and utilities shall be properly disconnected, removed, and disposed of off-site.
- B. Systems, equipment, and devices shall be in full and proper adjustment and operation, and properly labeled and identified.
- C. Materials shall be neat, clean and unmarred, and parts securely attached.
- D. Broken work, including glass, raised flooring and supports, ceiling tiles and supports, walls,

doors, etc., shall be replaced or properly repaired, and debris cleaned up and appropriately discarded.

- E. Extra materials as specified shall be delivered and stored at the premises as directed.
- F. Test reports of each system and each system component, and project record documents shall be complete and available for inspection and delivery as directed by City of Manhattan Beach.

3.12 ACCEPTANCE TESTING AND ADJUSTING PROCEDURES

- A. General: Comply with General Condition Section 3-13.2 and additional requirements herein.
- B. Purpose: Conduct testing and adjusting procedures to realize and verify the performance criteria specified herein. Successfully demonstrate the acceptable performance of each specified system in the presence of the City of Manhattan Beach and Consultant of Record.
- C. Scope: Conduct all performance testing, adjustment and documentation procedures to verify and realize compliance with the performance specifications herein. Make available at least one engineer familiar with this work, additional staff as required to conduct the testing, and all required test equipment for the duration of performance testing verification, at the convenience of City of Manhattan Beach.
- D. Acceptance Testing Readiness: Acceptance testing will be performed after the system is installed and pre-tested completely.
 - 1. The contractor shall have successfully tested the system prior to scheduling formal acceptance testing. Contractor shall correct any and all deficiencies found at that time. The Contractor shall provide pre-test documentation showing the entire system has been tested with signature of the project manager attesting the pre-test work has been completed.
 - 2. Acceptance testing will be conducted in accordance with the approved Acceptance Testing Plan.
 - 3. Deliver all equipment, devices and materials required for the security system(s) work to the site at least fourteen working days prior to the scheduled Completion Date.
 - 4. Install, test and ready all of the security system(s) work for final Acceptance Testing of the Installation to start ten working days prior to the Completion Date.
- E. Acceptance Testing Schedule: Contractor shall confirm in writing to City of Manhattan Beach when the system is ready for acceptance testing. Contractor shall then schedule a complete Acceptance Test at the convenience of City of Manhattan Beach.
- F. Acceptance Testing: Contractor shall test and verify the performance of all equipment, systems, interfaces and peripheral equipment in the presence of City of Manhattan Beach and the Consultant of Record. Tests shall be performed in accordance with the requirements of individual systems as specified herein and in related specification sections to include

sections on Integration.

- G. Correction of Jobsite Observation Report Items: Perform any and all remedial work to correct inadequate performance or unacceptable conditions of, or relating to any of this work, as determined by City of Manhattan Beach prior to the completion date. Corrective work shall be performed at no additional cost to the City of Manhattan Beach.
- H. Test Documentation: Document all acceptance testing, calibration and correction procedures described herein with the following information:
 - 1. Performance date of the procedure.
 - 2. The names of personnel conducting the procedure.
 - 3. The equipment used to conduct the procedure.
 - 4. Type of procedure and description.
 - 5. Condition during performance of procedure.
 - 6. Parameters measured and their values, including values measured prior to calibration or correction as applicable.
 - 7. Parameters associated with calibration or corrective networks, components or devices.

3.13 FINAL PROCEDURES

- A. Portable Equipment: Furnish portable equipment specified herein to City of Manhattan Beach, along with complete documentation for the materials furnished. All portable equipment shall be presented in the original manufacturer's packing, complete with manufacturer's instructions, manuals and documents. Testing of all portable equipment shall have been previously conducted by the Contractor.
- B. Post Acceptance Work: Check, inspect and adjust all systems, equipment, devices and components specified, at City of Manhattan Beach' convenience, approximately 60 days after Acceptance of the Installation.

END OF SECTION

**SECTION 28 0513
SECURITY CONDUCTORS AND CABLES**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This specification section covers the furnishing and installation of conductors and cables to interconnect electronic equipment, devices and systems throughout the City of Manhattan Beach property.

1.02 GENERAL CONDITIONS

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

1.03 RELATED WORK

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

1.04 SHOP DRAWINGS & EQUIPMENT SUBMITTAL

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

1.05 EQUIPMENT COMPATIBILITY REQUIREMENTS

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

1.06 DEFINITIONS

- A. EMI: Electromagnetic interference.
- B. IDC: Insulation displacement connector.
- C. IDF: Intermediate distribution frame.
- D. LAN: Local area network.
- E. PVC: Polyvinyl chloride.
- F. UTP: Unshielded twisted pair.
- G. WAN: Wide Area Network.

1.07 REFERENCE STANDARDS

- A. ANSI/TIA/EIA-568-C.0 – Generic Communications Cabling for Customer Premises.
- B. ANSI/TIA/EIA-568-C.1 – Commercial Building Communications Cabling Standard Part 1: General Requirements.

- C. ANSI/TIA/EIA-568-C.2 – Balanced Twisted-Pair Telecommunications Cabling and Components Standards
- D. ANSI/TIA/EIA-569-B – Commercial Building Standard for Telecommunications Pathways and Spaces.
- E. ANSI/TIA/EIA-606-A – Administration Standard for the Commercial Telecommunications Infrastructure.
- F. ANSI/TIA-607-B – Commercial Building Bonding and Grounding (Earthing) Requirements for Telecommunications.
- G. NFPA 70 – National Electrical Code (NEC).
- H. BICSI – TDMM, Building Industries Consulting Services International, Telecommunications Distribution Methods Manual (TDMM)

1.08 UTP TESTING

- A. All UTP cable shall be tested for the following:
 - 1. Opens
 - 2. Shorts
 - 3. Grounds
 - 4. Continuity
 - 5. Polarity, or pair reversals
 - 6. Low frequency noise level
 - 7. High frequency noise level
 - 8. Total loop resistance
 - 9. Impedance
 - 10. Near and crosstalk (NEXT)
 - 11. Jitter
 - 12. Delay.

PART 2 - PRODUCTS

2.01 GENERAL

Project Specifications
June 2023 – 100% Design

TCSDG
Security Cables & Conductors
Section 28 0513

- A. The Contractor shall provide wire and cable as specified, or as recommended by the manufacturer. Wiring shall meet NFPA 70 standards. Cable shall be rated and approved for the intended use.

2.02 ELECTRONIC ACCESS CONTROL AND INTRUSION DETECTION CABLE

- A. Composite Cable (Reader, Lock, Door Position Switch (DPS), REX): Provide Windy City Wire 4461230, Belden 658AFS, or equal, with (3) Twisted Shielded Pair 22AWG, 2-Conductor Shielded 22AWG, 4-Conductor Shielded 22AWG, and 4-Conductor 18 AWG. Individual cables may also be used.
- B. Alarm Monitoring Cable (e.g., DPS)
 - 1. In Conduit: Provide Windy City Wire 019102, Belden 5500FE, or equal, 1 Pair Shielded 22AWG, or equal.
 - 2. Plenum Rated: Provide Windy City Wire 004320, Belden 6500FE, or equal, 1 Pair Shielded 22AWG, or equal.
 - 3. Below Grade: Provide Windy City Wire 714310VNQ, West Penn AQC292 1 Pair Shielded 20AWG with water block material or equal.
- C. Powered Devices (e.g., motion detectors, REX)
 - 1. In Conduit: Provide Windy City Wire 714310VNQ, Belden 5441FE, or equal, 2 Pair Shielded 20AWG, or equal
 - 2. Plenum Rated: Provide Windy City Wire 714110VNQ, Belden 6441FE, or equal, 2 Pair Shielded 20AWG, or equal
 - 3. Below Grade: Provide Windy City Wire 716110VNQ, West Penn AQC359 2 Pair, 1 Pair Shielded 20AWG with water block material or equal.
- D. Readers
 - 1. In Conduit: Provide Windy City Wire 416400, Belden 5542FE, or equal, 3 Pair Shielded 22AWG, or equal.
 - 2. Plenum Rated: Provide Windy City Wire 444351, Belden 6542FE, or equal, 3 Pair Shielded 22AWG, or equal.
 - 3. Below Grade: Provide Windy City Wire 714410VNQ, West Penn AQC3186 6-Conductor Shielded, 18AWG with water block material or equal.
- E. Lock Power
 - 1. General: The Contractor shall calculate the voltage drop for electric locks based on distance between LPS and locks and provide cable gauge as required to maintain proper voltage at each lock.

2. In Conduit:
 - a. Provide Windy City Wire 027100, Belden 5300UE, or equal, 2-Conductor 18AWG
 - b. Provide Windy City Wire 028100, Belden 5200UE, or equal, 2-Conductor 16AWG
3. Plenum Rated:
 - a. Provide Windy City Wire 002360, Belden 6300UE, or equal, 2-Conductor 18AWG
 - b. Provide Windy City Wire 001360, Belden 6200UE, or equal, 2-Conductor 16AWG
4. Below Grade: Provide Windy City Wire 728110VNQ, Belden 5240U1, West Penn AQC225 1 Pair 16AWG with water block material or equal.

F. Communications (RS-485)

1. In Conduit: Provide Belden 5441FE, 2 Pair Shielded 20AWG, or equal.
2. Plenum Rated: Provide Belden 6441FE, 2 Pair Shielded 20AWG, or equal.
3. Below Grade: Provide Windy City Wire 043006ALDB, West Penn AQC430 2 Pair, Shielded 22AWG with water block material or equal

2.03 VIDEO SURVEILLANCE SYSTEM (VSS)

A. Data Cable for Cameras and IP EACS Controllers: Category 6 cable for standard and POE applications

1. Compliance: Listed as complying with Category 6 specifications and requirements of TIA/EIA-568-B.2-1 Draft 10b Preliminary Performance Requirements. All conductive cabling and associated components must comply with Article 800 of the National Electric Code (NEC).
 - a. UTP 4-pair Cat6: Berk-Tek Model 10032459, or equal. Color shall be white
2. For Plenum Applications: Listed for use in air-handling spaces. Features are as specified for cables, conductors, and UTP workstation cable. Plenum rated cable shall meet applicable requirements of ANSI/ICEA S-80-576, and shall be Underwriter's Laboratory (UL) certified to conform to UL910, CMP and shall be marked as such.
 - a. Plenum Rated UTP 4-pair Cat6: Berk-Tek Model 10032092, or equal. Color shall be white
 - b. Data Cable for extended lengths POE up to 550': Provide Paige Datacom Solution Part Number 258300310. Color shall be white
3. Underground Applications: Cables to be installed in underground conduits shall be constructed with a water block material to prevent moisture to penetrate to the core of the cable and shall meet the requirements of ICEA S-99-569.

- a. OSP, UTP, 4-pair, Cat6: Berk-Tek LANmark model 10139885, or equal. Color shall be black.
 - b. Data Cable for extended lengths POE up to 550': Provide Paige Datacom Solution Part Number 258330804. Color shall be black.
- B. Camera Power Wiring (Non-POE Applications): Contractor shall ensure power wiring is sufficient to deliver required power to cameras, regardless of distance from the power supply. Provide larger gauge wire where required to compensate for voltage drop.
1. In Conduit: Provide Windy City Wire 027100, Belden 5300UE, or equal, 2-Conductor 18AWG
 2. Plenum Rated: Provide Windy City Wire 002360, Belden 6300UE, or equal, 2-Conductor 18AWG
 3. Below Grade: Provide Windy City Wire 728110VNQ, West Penn AQC225 1 Pair 16AWG with water block material or equal.
- C. Exposed Camera Wiring: Wiring between camera enclosures and their respective 'J' Box shall be in "Sealtite" flexible conduit. Sealtite shall be firmly affixed to 'J' Box cover plate and camera enclosure. Refer to camera details.

2.04 PATCH CABLES

- A. The Communications Contractor shall furnish patch cords per length, color and quantity specified by City of Manhattan Beach Project Manager.
- B. The contractor shall provide quantity of patch cables equal to the number of ports installed plus 10. Color of patch cables shall match color of field cables.
- C. Factory-terminated, double-ended, 8-position to 8-position, modular, stranded conductors, Category 6, 4 pair. ETL Verified to TIA-568C.2
- D. Part Numbers:
 1. Clarity Legrand/Ortronics OR-MC603-XX (3 feet) or equal.
 2. Clarity Legrand/Ortronics OR-MC605-XX (5 feet) or equal.
 3. Clarity Legrand/Ortronics OR-MC607-XX (7 feet) or equal.
 4. Clarity Legrand/Ortronics OR-MC609-XX (9 feet) or equal.

2.05 UTP PATCH PANELS

- A. Material
 1. Application: Use to terminate all horizontal data station and voice cabling.

2. Compliance: Must comply with Category 6 specifications and requirements of TIA/EIA-568-B.2-1 Draft 10b Preliminary Performance Requirements.
3. Characteristics: Patch panels shall:
 - a. Be available in 24-port and 48-port high-density configurations.
 - b. Be color-coded and terminated to 568B configuration.
 - c. Occupy a maximum of 2 rack unit (3.5”) for 48-port unit
 - d. Be iconable to match specified color codes of modular outlets installed at the work area.
 - e. Be mountable in freestanding equipment rack.
 - f. Must be labeled above the RJ45 module.

B. Manufacturer

1. Clarity Part Number: Legrand/Ortronics OR-PHD66U48 or equal.

2.06 DATA OUTLETS

A. Compliance: Data jacks must comply with Category 6 specifications and requirements of TIA/EIA-568-B.2-1 Draft 10b Preliminary Performance Requirements and TIA/EIA-606 labeling standards.

1. Provide data outlets at workstation locations and route data cable to patch panel located in the MPOE.

B. Characteristics

1. Data cables shall be terminated at their designated work area location or equipment location in the connector types described in the subsections below. Included are modular Data and telecommunication outlet. These connector assemblies shall snap into a faceplate.
2. Data Modular Jacks
 - a. Data modular jacks shall be 8-position modular jacks. All pair combinations must be considered, with the worst-case measurement being the basis for compliance.
 - b. 8-position modular jack, Category 6, IDC terminals, T568A/B wiring scheme.
 - c. Compliance: Must be Category 6 and comply with TIA/EIA-568-B.2-1 Draft 10b Preliminary Performance Requirements and TIA/EIA-606 labeling standards.
 - d. Color: Coordinate with building finishes.
 - e. Manufacturer
 - 1) Clarity TracJack Modular Jack. Legrand/Ortronics Model OR-TJ600-36
 - 2) or equal by Panduit.
3. Data Outlets at camera locations: Provide Leviton Model 41089-1xP or equal.
4. Faceplates: The faceplates shall be:
 - a. UL listed and CSA certified.

- b. Same manufacturer as Modular Voice/Data Outlets
- c. Constructed of high impact, ABS plastic UL 94V0-0 construction UON
- d. Ivory in color
- e. Single-gang faceplate
- f. Consist of a minimum of four mounting positions to support modular outlets.
- g. Blank filler inserts are to be installed when extra positions are not used. Blank inserts shall match color of faceplate.
- h. Provide easy access for add, moves and changes by front removal of jack modules.
- i. Possess recessed designation windows to facilitate labeling and identification. Labels shall be permanent and compliant with City of Manhattan Beach labeling standards. Hand printed labels shall not be accepted.
- j. Have mounting screws located under recessed designation windows.
- k. Modular, color-coded, RJ-45 receptacle units with integral IDC-type terminals
- l. Manufacturer
 - 1) Legrand/Ortronics Model OR-40300546-88
 - 2) Or equal by Panduit

2.07 CABLE TIES

- A. Provide Velcro type Panduit HLS, HLM, HLC or equal

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General: Refer to Division 26 Electrical for additional requirements for cable raceways and support for cables run in conduit or installed in plenum rated areas.
- B. Wires shall be installed in conduit or in another approved raceway, unless otherwise noted or excepted. Where a wire run is above a suspended ceiling, its conduit or raceway shall be tied up or clamped to the supports and not left to sit on top of the ceiling panels.
- C. Conduit Verification: Verify that conduit has been installed, de-burred and properly joined, routed and terminated prior to pulling of cables.
- D. Wire Pulling: Apply a chemically inert conduit lubricant to wire and cable prior to pulling. Do not subject wire and cable to tension greater than recommended by the manufacturer.
- E. Wire Routing: Secure wire and cable runs vertically for continuous distances greater than 30 feet at the vertical run terminations. Non-coaxial cables shall be secured by screw-flange nylon cable ties or similar devices. Symmetrical clamping devices with split, circular or other wire conforming, non-metallic bushings shall be provided for other cables.
- F. All security cabling used throughout this project shall comply with the requirements as outlined in the National Electric Code (NEC) Articles 725, 760, 770, and 800 and the appropriate local codes. All copper cabling shall bear CMP (Plenum Rated), CM/CMR (Riser Rated) and/or appropriate markings for the environment in which they are installed. All

fiber optic cabling/ tube cabling shall bear OFNP (Plenum Rated), OFNR (Riser Rated) and/or appropriate markings for the environment in which they are installed. Cable utilized underground shall be outside plant rated. Upon entering a facility, the cable shall be transitioned to the appropriate cable type outlined in the NEC (or CEC) or shall be run to its destination within the facility in conduit.

G. Cable Pathways

1. In suspended ceiling and raised floor areas where duct, cable trays or conduit are not available, the Contractor shall bundle, in bundles of 50 or less, security system cables with half inch Velcro strips, but not deforming the cable geometry. Cable bundles shall be supported via "J" hooks attached to the existing building structure and framework at a maximum of ten-foot intervals. Plenum rated Velcro will be used in all appropriate areas. In areas where two (2) or more bundles are traveling in close proximity, utilize a Chatsworth Rapidtrak Cable support system. The contractor shall adhere to the manufacturers' requirements for bending radius and pulling tension of all cables.
2. Cables shall not be attached to lift out ceiling grid supports or laid directly on the ceiling grid.
3. Cables shall not be attached to or supported by fire sprinkler heads or delivery systems or any environmental sensor located in the ceiling air space

H. Sealing of openings between floors, through rated fire and smoke walls, existing or created by the contractor for cable pass through shall be the responsibility of the contractor. Sealing material and application of this material shall be accomplished in such a manner that is acceptable to/in compliance with the AHJ requirements, the current edition of National Fire Protection Association (NFPA) or other prevailing code and must be a system listed by Underwriter's Laboratory (U.L.). Creation of such openings as are necessary for cable passage between locations as shown on the drawings shall be the responsibility of the contractor unless otherwise noted. Any openings created by or for the contractor and left unused shall also be sealed as part of this work.

I. The contractor shall be responsible for damage to any surfaces or work disrupted as a result of his work. Repair of surfaces, including painting, shall be included as necessary.

J. Verification of Continuity: After installation, and before termination, wiring shall be checked and tested to insure there are no grounds, opens, or shorts on any conductors or shields. In addition, wiring between buildings or underground shall have insulation tested with a megohmmeter and a reading of greater than 20 megohms shall be required to successfully complete the test.

K. Splicing

1. Run wires continuously from termination to termination without splices.
2. Splices at certain junction box locations may be allowed at the discretion of City of

Manhattan Beach and the Consultant of Record. Locations which may require spliced wires should first be established with City of Manhattan Beach and Consultant of Record. Contractor shall obtain written approval before proceeding with splices.

3. If splices are required and approved by the City of Manhattan Beach and the Consultant of Record, the wire shall be joined with solder, then taped or otherwise protected in an approved manner so as to provide mechanical and electrical integrity. Wire nuts and/or electrical tape connections shall not be acceptable. Final connections shall be made at terminal boards with full tagging, labeling and documentation.

L. Water Protection

1. Water-resistant protection shall be continuous throughout the cable in surface conduit, poles, in-slab pull-boxes, in-slab conduit, and underground conduit and pull-boxes, and in any areas subject to moisture and/or water infiltration.
2. Splices/Junctions: Provide water-proof protection of splices and junctions in surface conduit and boxes, in-slab conduit and pull-boxes, underground conduit, and underground pull-boxes, to prevent the entry of moisture or water into cables, splices or connections.
3. Cable Entries: Provide water-blocking sealants at conduit entries into pull-boxes, junction boxes, back-boxes, cabinets, etc., to prevent the entry of moisture or water into the conduit and cable system.

M. Boxes: Provide a box loop for wire and cable routed through pull boxes or distribution panels. Cable loops and bends shall not be at a radius less than that recommended by the manufacturer. Coordinate pull box size with Division 26 Electrical as necessary to accommodate this requirement.

N. Wire Labeling: Identify wire and cable clearly with permanent labels wrapped around the full circumference within one-inch of each connection. Locate the label so that it is visible, and so that wire does not need to be undressed or disassembled for clarity. Correlate the label with the number designated on the associated Shop and Field Drawings. Assign wire or cable designations consistently throughout a given system. Each wire or cable shall carry the same labeled designation over its entire run, regardless of intermediate terminations. Cables within pull boxes and underground vaults shall be labeled with the origination and destination of each cable.

O. Data Jack and Patch Panel Labeling: Labeling shall be in accordance with City of Manhattan Beach IT Standards. Labels are to be typed or printed with a labeling device and permanently affixed to outlet and patch panel faceplates. Hand written labels shall not be acceptable. Labels shall be printed on white labels with black print for jacks. Patch panels shall have labels on the front and back of the panels. Patch panel labels shall be black labels with white lettering with four labels per strip. Coordinate with City of Manhattan Beach IT Department to verify Contractor labels comply with City of Manhattan Beach standards

before installing

- P. Wire Lacing and Dressing: Dress, lace, tie or harness wire and cable vertically, horizontally and at right angles to the enclosure surfaces to prevent mechanical stress on electrical connections as required herein and in accordance with accepted professional practice. No wire or cable shall be supported by a connection point. Use the specified cable management guides within enclosures and cabinets to ensure a neat wiring scheme.
- Q. Class Mixing:
 - 1. Class 1 circuits shall not be mixed with Class 2.
 - 2. Wiring in the same conduit or wireway shall not contain wiring of multiple types where voltage differences exceed 20 dbv except where line and microphone levels will not be used at the same time.
- R. Terminations: Make connections and splices (except microphone or line level) to screw-connection terminal blocks with insulated crimp-type spade lugs or under terminal block pressure plates. Size terminal blocks and lugs properly to assure high electrical integrity. Connect only one wire per spade lug and not more than two lugs per screw terminal.
- S. Shielded Cables: Shielded cables shall be insulated. Do not permit shields to contact conduit, raceway, boxes, terminal cabinets or equipment enclosures. Tin terminated shield drain wires and insulate with heat shrinkable tubing.
- T. Unacceptable Conditions: Correct all unacceptable wiring conditions immediately upon receiving notice to correct.

3.02 INSTALLATION – UNSHIELDED TWISTED-PAIR CABLES

- A. Install unshielded twisted-pair cables in accordance with manufacturer’s instructions.
- B. Install cables in continuous lengths from origin to destination, without splices, except for transition points or consolidation points.
- C. Where transition points or consolidation points are allowed, they shall be located in accessible locations and housed in enclosure intended and suitable for the purpose.
- D. Cable Minimum Bend Radius and Maximum Pulling Tension: Do not exceed bend radius for UTP = 4 X Cable OD, FTP = 4 X Cable OD.
- E. Install unshielded twisted-pair cables so that there are no bends smaller than 4 times cable outside diameter at any point in the run and at the termination field.
- F. Pulling Tension on 4-Pair UTP Cables: Do not exceed 25 lbf for 4-pair UTP cable.
- G. Separation from Power Lines: Provide following minimum separation distances between pathways for copper communications cables and power wiring of 480 volts or less:

1. Open or Nonmetal Communications Pathways:
 - a. Electric motors, fluorescent light fixtures, and unshielded power lines carrying up to 3 kVA: 12 inches.
 - b. Electrical equipment and unshielded power lines carrying more than 5 kVA: 36 inches.
 - c. Large electrical motors or transformers: 48 inches
2. Grounded Metal Conduit Communications Pathways:
 - a. Electrical equipment and unshielded power lines carrying up to 2 kVA: 2-1/2 inches.
 - b. Electrical equipment and unshielded power lines carrying from 2 kVA to 5 kVA: 6 inches.
 - c. Electrical equipment and unshielded power lines carrying more than 5 kVA: 12 inches.
 - d. Power lines enclosed in grounded metal conduit (or equivalent shielding) carrying from 2 kVA to 5 kVA: 3 inches.
 - e. Power lines enclosed in grounded metal conduit (or equivalent shielding) carrying more than 5 kVA: 6 inches.

3.03 INSTALLATION – UNSHIELDED TWISTED-PAIR TERMINATION

- A. Coil cables to house cable coil without exceeding manufacturer's bend radius.
 1. In hollow wall installations where box eliminators are used, store excess wire in wall.
 2. Store 24 inches of UTP cable slack.
 3. Loosely coil excess slack and store in ceiling above each drop location, when there is not enough space present in outlet box to store slack cables.
- B. Dress and terminate cables in accordance with ANSI/TIA/EIA-568-C.0, ANSI/TIA/EIA-C.1, BICSI TDMM, and manufacturer's instructions.
- C. Terminate 4-pair cables on jack and patch panels using T568-B.
- D. Pair Untwist at Termination: Do not exceed 9.5 mm (3/8 inch).
- E. Bend Radius of Horizontal Cables:
 1. Not less than 4 times OD of UTP cables.
 2. Not less than 4 times OD of FTP cables.
- F. Maintain cable jacket to within 25 mm (1 inch) of termination point.
- G. Neatly bundle cables and dress to their respective panels or blocks.
 1. Feed each panel or block by individual bundle separated and dressed back to point

of cable entrance into rack or frame.

3.04 DATA OUTLETS

- A. The same orientation and positioning of modular outlets and connectors shall be utilized throughout the installation. Prior to installation, the contractor shall submit the proposed configuration for each outlet assembly for review by City of Manhattan Beach representatives.
- B. Cables shall be stored in a Figure-8 in the in-wall if adequate space is present to house the cable storage without exceeding the manufacturers bend radius. No more than 12 inches of UTP slack shall be stored in an in-wall box, modular furniture raceway, or insulated walls. Excess slack shall be loosely coiled in a Figure-8 and stored in the ceiling above each drop location when there is not enough space present in the outlet box to store slack cable.
- C. Cables shall be dressed and terminated in accordance with the recommendations made in the TIA/EIA-568-B.1, B.2 document, manufacturer's recommendations and best industry practices.
- D. Pair untwist at the termination shall not exceed 12 millimeters (one-half inch).
- E. Bend radius of the cable in the termination area shall not be less than 4 times the outside diameter of the cable.
- F. The cable jacket shall be maintained to within 25 millimeters (one inch) of the termination point.

3.05 COPPER TESTING AND ACCEPTANCE

- A. General
 - 1. All testing shall be per TIA/EIA Testing Standard. An orientation with the City of Manhattan Beach IT representative and Project Manager shall take place on site prior to the test. It shall be scheduled at least one week in advance. City of Manhattan Beach shall certify prior to testing the following:
 - a. Test meters have been calibrated to TIA/EIA Standard within the last 12 months with a Certificate of Compliance, meter serial number and date of calibration.
 - b. Test meter shall be fully charged.
 - c. Test configuration set to EIA/TIA Standards.
 - d. Manufacturer's warranty certification (if applicable) requirements shall be reviewed to ensure that all warranty requirements are met.
 - e. The Communications Contractor shall furnish two printed copy and two copies on CD-ROM, with the complete set of test results. Copies of PC based software to view drawings and results shall also be provided to the City of Manhattan Beach Project Manager and appropriate IT Staff.
 - 2. All cables and termination hardware shall be 100 percent tested for defects in

installation and to verify cabling system performance under installed conditions according to the requirements of ANSI/TIA/EIA-568-B.1, B.2, B3 and Category 6 specifications and requirements of TIA/EIA-568-B.2-1 Draft 10b Preliminary Performance Requirements. All pairs of each installed cable shall be verified prior to system acceptance. Any defect in the cabling system installation including but not limited to cable, connectors, feed through couplers, patch panels and connector blocks shall be repaired or replaced in order to ensure 100 percent useable conductors in all cables installed.

3. All cables shall be tested in accordance with this document, the ANSI/TIA/EIA standards, manufacturer specifications and best industry practice. If any of these are in conflict, the Contractor shall bring any discrepancies to the attention of the project team for clarification and resolution.

B. Copper Channel Testing

1. All twisted-pair copper cable links shall be tested for continuity, pair reversals, shorts, opens and performance as indicated below. Additional testing is required to verify Category performance. Horizontal cabling shall be tested using a Level IIe test unit for Category 6 performance compliance, respectively.
2. Continuity – Each pair of each installed cable shall be tested using a test unit that shows opens, shorts, polarity and pair-reversals, crossed pairs and split pairs. Shielded/screened cables shall be tested with a device that verifies shield continuity in addition to the above stated test. The test shall be recorded as pass/fail as indicated by the test unit in accordance with the manufacturers' recommended procedures, and referenced to the appropriate cable identification number and circuit or pair number. Any faults in the wiring shall be corrected and the cable re-tested prior to final acceptance.
3. Length – Each installed cable link shall be tested for installed length using a TDR type device. The cables shall be tested from patch panel to patch panel, block to block, patch panel to outlet or block to outlet as appropriate. The cable length shall conform to the maximum distances set forth in the ANSI/TIA/EIA-568-B Standard. Cable lengths shall be recorded, referencing the cable identification number and circuit or pair number. For multi-pair cables, the shortest pair length shall be recorded as the length for the cable.

C. Test Equipment

1. Test equipment used under this contract shall be from manufacturers that have a minimum of 5 years of experience in producing field test equipment. Manufacturers must be ISO 9001 certified.
2. All test tools of a given type shall be from the same manufacturer, and have compatible electronic results output.
3. Test adapter cables must be approved by the manufacturer of the test equipment.

Adapters from other sources are not acceptable.

4. Baseline accuracy of the test equipment must exceed TIA Level III, as indicated by independent laboratory testing.
5. Test equipment must be capable of certifying Category 6 links.
6. Test equipment must be capable of storing full frequency sweep data for all tests and drawing color graphical reports for all swept measurements.
7. Test equipment must include S-Band time domain diagnostics for NEXT and return loss (TDNXT and TDRL) for accurate and efficient troubleshooting.
8. Test equipment must be capable of running individual NEXT, return loss, etc. measurements in addition to auto-tests. Individual tests increase productivity when diagnosing faults.
9. Test equipment must include a library of cable types, sorted by major manufacturer.
10. Test equipment must store Category 6 auto-tests in internal memory.
11. Test equipment must be able to internally group auto-tests and cables in project folders for good records management.
12. Test equipment must include DSP technology for support of advanced measurements.
13. Test equipment must make swept frequency measurements in compliance with TIA standards.
14. The measurement reference plane of the test equipment shall start immediately at the output of the test equipment interface connector. There shall not be a time domain dead zone of any distance that excludes any part of the link from the measurement.

3.06 DOCUMENTATION

- A. Test reports must be submitted in hardcopy and electronic format. Hand-written test reports are not acceptable.
- B. Hardcopy reports are to be submitted in labeled 3-ring binders with an attached affidavit verifying passing execution of all tests. For large installations, electronic reports with hardcopy summaries are preferred. Hardcopy summary reports shall contain the following information on each row of the report: circuit ID, test specification used, length, date of test, and pass/fail result.
- C. Electronic reports are to be submitted on CD-ROM only. If proprietary software is required to view test results, the software shall be provided to City of Manhattan Beach. If the results are delivered in a standard format like Excel, Access, CSV files, etc. then software to read

these files need not be provided. Electronic reports must be accompanied by a Certificate signed by an authorized representative of the Contractor warranting the truth and accuracy of the electronic reports. Certificate must reference traceable circuit numbers that match the electronic record.

- D. Test reports shall include the following information for each cabling element tested:
1. Wire map results that indicate the cabling has no shorts, opens, missed wires, splits, reversed, or crossed pairs, and end to end connectivity is achieved.
 2. For Category 6 cabling: Attenuation, NEXT, PSNEXT, Return Loss, ELFEXT, and PSELFEXT data that indicate the worst-case result, the frequency at which it occurs, the limit at that point, and the margin. These tests shall be performed in a swept frequency manner from 1 MHz to highest relevant frequency, using a swept frequency interval that is consistent with TIA and ISO requirements. Information shall be provided for all pairs or pair combinations and in both directions when required by the appropriate standards. Any individual test that fails the relevant performance specification shall be marked as a FAIL.
 3. Length (in meters), propagation delay, and delay skew relative to the relevant limit. Any individual test that fails the relevant performance specification shall be marked as a FAIL.
 4. Cable manufacturer, cable model number/type, and NVP
 5. Tester manufacturer, model, serial number, hardware version, and software version
 6. Circuit ID number and project name
 7. Auto-test specification used
 8. Overall pass/fail indication
 9. Date of test
 10. Test reports shall be submitted within 7 business days of completion of testing

3.07 LABELING

- A. All labeling is to be in accordance with ANSI/TIA/EIA-606-A and manufacturer's instructions.
- B. Label horizontal cables using machine-printed label at each end of cable at approximately 12 inches from termination point and again at approximately 48 inches from termination point.
 1. Handwritten Labels: Not acceptable.
- C. Label patch panel ports and device ports with cable identifier.

D. Labels: Denote device ID and unique cable number for that device, i.e. A-001-A for cable number 1, A-001-B for cable number 2, and so forth.

1. City of Manhattan Beach may provide specific labeling requirements. Coordinate with the City of Manhattan Beach for specific requirements.

E. Note labeling information on as-built drawings

3.08 COORDINATION

A. Provide the work in accordance with Section 28 0000, Security General Requirements.

3.09 WORKMANSHIP

A. Provide the work in accordance with Section 28 0000, Security General Requirements.

3.10 GROUNDING PROCEDURES

A. Provide grounding of all systems and equipment in accordance with Section 26 0526, Grounding and Bonding and Section 28 0000, Security General Requirements.

3.11 CONDUIT AND WIRE INSTALLATION PRACTICES

A. Provide conduit, wire and cable installation in accordance with Section 28 0000, Security General Requirements.

3.12 IDENTIFICATION AND TAGGING

A. Provide identification of wire, panels, and devices in accordance with Section 28 0000, Security General Requirements and requirements provided herein.

3.13 FINAL PROCEDURES

A. Perform final procedures in accordance with Section 28 0000, Security General Requirements.

END OF SECTION

**SECTION 28 1000
ELECTRONIC ACCESS CONTROL SYSTEM (EACS)**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions, City of Manhattan Beach Standard Terms and Special Provisions, apply to this section. Also, provide the work in accordance with Section 28 0000, Security General Requirements.

1.02 DESCRIPTION

- A. General Description: This specification section covers the installation of an Electronic Access Control System (EACS). Refer to Section 28 0000 for description of existing systems. Contractor shall be replacing existing EACS hardware as noted on the plan drawings. Contractor shall coordinate with the City of Manhattan Beach for equipment phasing to limit down-time for each access-controlled door.
- B. Contractor shall furnish and install security hardware devices, mounting brackets, power supplies, switches, controls, consoles and other components of the system as shown and specified.
- C. Furnish and install special boxes, cable, connectors, wiring, and other accessories necessary to complete the system installation. Requirements shall be in accordance with applicable codes.
- D. Outlets, junction boxes, pull boxes, conduit, connectors, wiring, and other accessories necessary to complete the system installation; will be provided by the Contractor, in accordance with CEC and NEC.

1.03 RELATED WORK

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.
- B. Door Hardware
 - 1. Security Door Requirements: The Contractor shall be responsible for surveying each security door shown on the drawings before installation, and reviewing the door hardware configuration and installation conditions with respect to the specified functions. The Contractor shall verify the compatibility and completeness of the proposed hardware and its installation, submit detailed drawings showing the proposed modifications and installation, and provide all equipment and services required to achieve the specified electrical and mechanical performance. Coordinate acceptable door hardware and installation techniques with the Engineer.
 - 2. Doors and Door Hardware:
 - a. Door hardware and installation shall comply in all respects with the

- requirements of Public Law 101-336, Americans with Disabilities Act
- b. For designated new security doors being added to the security system door position switches, request-to-exit function, and card readers shall be furnished and installed by the Contractor.
 - c. Electrified locking hardware and transfer hinges shall be provided under Section 08 7100. Electrified locks shall be mechanically keyed, to permit manual locking/unlocking, in an emergency. Mechanical operation shall not override door monitoring functions.
 - d. All electrified locks shall be configured as fail-secure, i.e.: the electrified lock shall unlock only when powered. Coordinate the selected hardware with Engineer to assure its suitability for the purpose intended.
3. Fire Alarm Interface: Electrified locks, strikes and delayed exiting panic hardware, which are part of this work and which are locked in the path of legal exiting, shall be connected to the building Fire Alarm System in accordance with Engineer and the Authority having Jurisdiction (AHJ) requirements such that they automatically unlock in the event of activation of the Fire Alarm System. This shall occur whether the activation is a result of a manual pull station, smoke detector or sprinkler flow switch.
- a. A fire alarm "general/common alarm relay" shall be programmed at the fire alarm control panel to activate the EACS interface relays located at each Lock Power Supply. The Security Contractor shall research and provide all necessary Fire Alarm System conduit, wire, hardware and programming to perform the required interface.
 - b. This interface shall not depend on the EACS System Server or Remote Controllers for its operation. Locate these interface relays electrically ahead of lock power distribution as shown on the drawings. The Contractor shall supply and install programmed alarm interface relay(s) with sufficient capacity to control the power supplied to all controlled locks

1.04 SHOP DRAWINGS & EQUIPMENT SUBMITTAL

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

1.05 OPERATIONS AND MAINTENANCE MANUALS

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

1.06 WARRANTY

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

1.07 QUALITY ASSURANCE

Provide the work in accordance with Section 28 0000, Security General Requirements

1.08 TRAINING

Provide the work in accordance with Section 28 0000, Security General Requirements.

1.09 TECHNICAL REQUIREMENTS, ELECTRONIC ACCESS CONTROL SYSTEM (EACS)

A. General

1. The following information is provided to establish required system performance for the complete operating EACS. Contractor shall provide equipment, wiring, and software programming, as necessary, to provide a complete system as described herein and as shown on the drawings.
2. Contractor shall be responsible for providing all equipment and software to achieve the specified system performance described herein.
1. Contractor shall be responsible to provide all required licenses to provide complete system operation as specified herein.

B. Purpose:

1. General: The Electronic Access Control System is designed to monitor and restrict access to specified areas, and to report on the activity and violations of restricted access in those areas.

C. Environment:

1. The system shall be installed in the City of Manhattan Beach in the following facilities; City Hall, Police Department, Fire Department, Public Works Yard, Joslyn Community Center, Live Oak Park, Manhattan Heights Community Center and additional site areas as shown on the drawings.
2. Monitoring Posts:
 - a. Primary monitoring shall be at the Police Department. Two monitoring workstations shall be located in PD dispatch.
 - b. Administrative and badging workstation shall be at City Hall. Coordinate with City of Manhattan Beach for specific location.
 - c. Secondary monitoring shall be at the Public Works facility. Coordinate with City of Manhattan Beach for specific location.
3. Infrastructure and Connectivity:
 - a. Local network infrastructure shall be provided by the City. Network infrastructure for communications to the City of Manhattan Beach LAN/WAN is existing. Communication to security devices and equipment within each facility shall be over copper or wireless infrastructure provide by the contractor.
 - b. The main EACSS Management server shall be located in the Police Department main server room.
 - c. The system shall provide mobile connectivity to IOS and Android devices over the City of Manhattan Beach wireless network or regular carrier service. Coordinate connectivity between the wireless network and the security network.

D. Attributes

1. General: The following attributes describe the existing system capabilities.
 - a. The system shall comprise EACS field devices located as shown on the drawings and connected together to provide a complete and operational system.
 - b. The EACS shall be based on a distributed system of fully intelligent, stand-alone controllers, operating in a multi-tasking, multi-user environment.
2. The system shall support all capabilities of the Avigilon Unity ACM access control software as delineated in the manufacturer A&E specifications.

E. EACS Functions

1. General: The following functional descriptions identify the requirements for operation at the RUHS MOB. Refer to Article 3.02 for additional system configuration requirements.
2. Access Control
 - a. Secured Doors: Doors equipped with electric locks shall be individually programmed for locking and unlocking at specific times of the day.
 - b. Access Card: The system shall authorize users to gain access by means of presentation of a valid access card to an access card reader at a controlled door.
 - c. Lamps: The reader shall display a green lamp when door passage is possible and a red lamp when it is not. If an invalid card is presented, the red lamp shall flash for at least two seconds.
 - d. Authorized and Unauthorized Users: The system shall distinguish between authorized and unauthorized users using individually programmable parameters of identification, time, location and entitlement.
 - e. Access Authorization: The system shall read the access card, record the transaction in the system database and energize a relay that shall open the authorized access portal. "Door force" and "door held open" alarms associated with the portal shall be software bypassed (prevented from reporting an alarm) for duration of time programmable on an individual door and individual cardholder basis.
 - 1) The system shall support the programming of multiple bypass durations and assignment of special bypass durations to unique cardholders.
 - f. Free Egress Authorization
 - 1) Unless otherwise shown on the plans or described herein, the system shall detect the normal egress of a user at any individual portal and shall bypass any alarm associated with the portal for duration of time programmable on an individual door and individual cardholder basis.
 - 2) On doors with integral electro-mechanical locking mechanisms (strikes, electrical panic hardware, or electrical mortise locks), the mechanical action of the door hardware shall enable egress without requiring release of the electrical mechanism.
 - 3) Contractor shall verify Request-to-Exit devices (infrared detectors) and the respective System Controller will react quickly enough to bypass the alarm before a fast-moving individual can reach and open the door.
 - g. Anti-passback: The system shall support regional, global and user-defined anti-

passback.

3. Alarm
 - a. Alarm Devices: All alarms shall report to the Primary Site Monitoring Workstations.
 - b. Alarm Functions:
 - 1) Alarms shall be presented to the Operator on a priority basis. The possibility for 99 different alarm priorities shall be provided, with all new alarms being presented ahead of previously acknowledged alarms. The Contractor shall coordinate alarm priorities with the City of Manhattan Beach.
 - 2) Alarm indications shall display their alarm, reset, and cleared status. It shall not be possible to clear an alarm until its input has reset.
 - 3) When the Operator selects an alarm, the system shall display up to five lines of pre-configured instructions to indicate the action to be taken for that alarm.
 - 4) Operator Logs
 - a) It shall be possible for the Operator to enter textual "comments", which shall be logged with the time, date, and Operator name for subsequent review via the historical log.
 - b) To speed the entering of comments, provide a pre-defined drop-down menu of typical comments, for selection by the Operator. The system shall support a minimum of 16 pre-defined comments.
 - c) It shall be possible, for suitably authorized Operators, to enter new instructions and assign them to the relevant alarms and additionally add to the pick list of pre-defined comments as required.
 - c. Alarm Groups: An alarm point may be logically grouped (zoned) with other alarm points for scheduling or control.
 - 1) Groups may be controlled as an alarm zone by use of a keypad or other input device.
 - 2) Groups may be programmed using standard logic elements ("and", "or", "not") to initiate global event outputs.
 - d. Alarm Bypass/Active Modes: Alarm points may be individually programmed or manually controlled to enter active (armed) or bypassed (disarmed) modes. The system shall be capable of recording the door activity of a point when it is in the bypassed mode, but shall be prevented from reporting the activity as an alarm. The system shall identify wire tampering while in the bypass mode, and report the tampering as an alarm.
 - 1) Graphical alarm icons and alarm outputs may be programmed to "follow" both bypassed and active alarm points.
 - 2) When in "bypass" mode, the system shall continue to record and display the trouble or supervisory activity of the bypassed alarm point.
 - 3) Whether in alarm or bypass modes, a point may be included in global event software schemes.
 - e. Card Activated Alarm Bypass: The system shall allow readers to be programmed to manually "arm" (activate) or "disarm" (bypass) software-associated alarm groups. Through means of software programming, the system

shall provide the ability to define one or more alarm inputs as an “alarm group” whose alarm activation may be bypassed by a specific card reader(s) in the following manner:

- 1) Activation of alarm bypass programming for alarm groups shall “toggle” between active and bypass states each time a card is presented to the associated reader. When a valid badge is presented to a reader so programmed, the system shall “disarm” one or more active alarm groups that are associated with that reader. When a valid card is again presented to the card reader, the system shall “arm” the one or more inactive alarm groups that are associated with that reader. Provide L.E.D. indicators (red and green) at the designated reader to indicate the status of the alarm group condition (“on” or “off”).
 - 2) The system shall support a minimum of 64 such “alarm groups”.
 - f. Scheduled Modes: All alarm points may be individually programmed to automatically enter active and bypassed modes at scheduled times of the day.
 - g. Exit/Entry Delays: An alarm point, group or zone may be programmed to support an arm and/or disarm delay after an event initiation. The exit/entry delay event initiation and delay duration shall be user programmable. Event initiation may be by authorized card, keypad, or other input device.
 - h. Tamper Devices:
 - 1) Terminal cabinets, equipment cabinets, power supply cabinets, exposed wireways, and pull and junction boxes with wire connections or splices shall be equipped with tamper switches programmed to report an alarm.
 - 2) Junction boxes requiring tamper switches that are associated with an individual alarmed device may report on their respective device alarm point. All other cabinets and boxes shall report as independent alarm points.
 - i. Power Supply/Battery Chargers: Power supply/battery chargers shall be connected to alarm monitoring points to provide an "Event" indication of power failures and other system troubles.
4. System Integration:
- a. The EACS shall interface to the VSS to position, display and record cameras viewing alarm points and intercom station when the associated point is activated

PART 2 - PRODUCTS

2.01 PRODUCT ACCEPTABILITY

- A. The Products section contains lists of acceptable products. If product substitutions are proposed, they must be made based upon a comparison of equivalence to the product specified. Considerations may include but shall not be limited to functional, physical, aesthetic and/or interface aspects. the Engineer shall be the sole judge of whether or not a submitted substitution is deemed to be "equivalent" to that specified.

2.02 ELECTRONIC ACCESS CONTROL EQUIPMENT

- A. System: Avigilon Unity Unified Security Platform
 - 1. Software: Provide Avigilon Unity ACM Enterprise AC-APP-256R-ENT2-6 software.
 - 2. Contractor shall provide a minimum of two reprogramming sessions within 12-month warranty period of the final acceptance of the system to modify the user programming as requested by Metropolitan.
- B. Servers and Workstations: Provide Servers and Client Workstations as noted herein and as shown on the plans.
 - 1. EACS Server: Provide an EACS per manufacturer's recommendations for enterprise software.
 - 2. Monitoring Client Workstations: Refer to Section 28 2300 for workstation requirements. The EACS shall be a subset of the VSS application.
- C. System Controller Panels: Provide sufficient controllers and input/output boards to meet all requirements of specifications.
 - 1. Controller Connectivity
 - a. Controllers shall support connection to the new LAN/WAN using TCP/IP protocol, and shall also support connection using standard data communications protocols (RS-232, RS-485, or RS-422).
 - b. TCP/IP-connected controllers may act as a network "gateway", to re-transmit controller data via the manufacturers standard data communications protocol (RS-232, RS-485, or RS-422), to other EACS controllers located within the same site. Provide controllers which support the manufacturer's standard data communications protocol, RS-232/RS-483, as required.
 - 2. Controller Power Supply: Provide manufacturer recommended power supply based on panel configuration.
 - 3. Intelligent Controllers: The contractor shall provide an Avigilon AC-MER-CONT-LP1502 or Mercury LP-1502 at locations shown on the drawings. The LP 1502 controller shall connect to the network using the Cat6 network cable and provide a RS-485 connection to downstream controllers and I/O boards.
 - 4. Controller Provide access control reader boards (ACB), alarm input boards (AIM), and output control boards (OCB) as required to control the devices connected at each location.
 - a. ACB Single Reader: Avigilon AC-MER-CON-MR50-S3, Mercury MR50-S3 or equal
 - b. ACB Dual Reader: Avigilon AC-MER-CON-MR52-S3, Mercury MR52-S3 or equal
 - c. AIM: Avigilon AC-MER-CON-MR16IN, Mercury MR16IN or equal
 - d. OCB: Avigilon AC-MER-CON-MR16OUT, Mercury MR16OUT or equal

5. Controllers and modules shall be mounted within a Security Terminal Cabinet (STC). Cabinet shall be suitable for the environment in which it is installed, as recommended by the manufacturer and required by the specifications.
- D. Access Control Readers: Provide multiclass 125 KHz Proximity (RFID) / 13.56 MHz smartcard readers as shown on the drawings. Access control readers shall be configured to read the current City of Manhattan Beach standard access credentials. Coordinate with the City to verify the current credential technology. This shall be for locations on the plan drawings where new readers are required. Readers shall be "single-package" type, combining controller, electronics and antenna in one package, in the following configurations:
1. Reader, Wall Mounting (Single-Gang Mounting Applications):
 - a. Provide "single-gang" mounting style smart card proximity readers for wall mounting, Vehicle Stanchions and Pedestals, and where shown on plans.
 - b. The reader shall have an approximate read range of 2.5" when used with the compatible access card.
 - c. The reader shall be of potted, polycarbonate material, sealed to a NEMA rating of 4X.
 - d. The reader shall be UL 294 listed, and shall be FCC certified.
 - e. The reader shall have a lifetime warranty.
 - f. The reader shall support Open Supervised Device Protocol (OSDP) protocol and be wired to the controllers using the OSDP protocol.
 - g. The reader shall have separate terminal control points for the tri-color LED and for the audible indicator.
 - h. The reader shall support software control of the LED indicator when paired with controller equipped with appropriate reader API.
 - i. Color shall be black.
 - j. HID Signo Model 40
 2. Reader w/Keypad, Wall Mounting (Single-gang Mounting Applications):
 - a. Provide "single-gang" mounting style smart card proximity readers for wall mounting, Vehicle Stanchions and Pedestals, and where shown on plans.
 - b. The reader shall have an approximate read range of 2.5" when used with the compatible access card.
 - c. The reader shall be of potted, polycarbonate material, sealed to a NEMA rating of 4X.
 - d. The reader shall be UL 294 listed, and shall be FCC certified.
 - e. The reader shall have a lifetime warranty.
 - f. The reader shall support OSDP protocol.
 - g. The reader shall have separate terminal control points for the tri-color LED and for the audible indicator.
 - h. The reader shall support software control of the LED indicator when paired with controller equipped with appropriate reader API.
 - i. Color shall be black.
 - j. HID Signo Model 40K
 3. Reader, Special Mounting (applications with a minimum of mounting space or mullion locations):

- a. Provide “surface” mounting style proximity readers for door mullions, special minimum-space mounting configurations, and where shown on plans.
 - b. The reader shall have an approximate read range of 2.5” when used with the compatible access card.
 - c. The reader shall be of potted, polycarbonate material, sealed to a NEMA rating of 4X.
 - d. The reader shall be UL 294 listed, and shall be FCC certified.
 - e. The reader shall have a lifetime warranty.
 - f. The reader shall support OSDP protocol.
 - g. The reader shall have separate terminal control points for the tri-color LED and for the audible indicator.
 - h. The reader shall support software control of the LED indicator when paired with controller equipped with appropriate reader API.
 - i. Color shall be black.
 - j. HID Signo Model 20.
- E. Credentials (Access Cards):
1. Contractor shall provide (qty) Desfire EV3 dual technology cards. Coordinate with City of Manhattan Beach for current format and bit-count.
- F. Security Terminal Cabinet (STC) and Communications Equipment Cabinet (CEC): System controllers, field control boards and communications devices serving a given area shall be installed inside a STC or CEC (Note that STC and CEC have similar requirements. Where STC is referenced in the specifications it also applies to CEC). No controller or control module shall be mounted independently of the cabinet and its power supplies. Refer to the drawings and the following description for details on STC construction. Use existing STCs where shown on the Drawings.
- G. Provide STC’s as described below, located as shown on the drawings, or at places convenient to its respective field devices. Each STC shall contain the following equipment to support the current and future alarm initiating and controlled devices to be connected at that STC location:
1. STC Cabinet: NEMA 2, hinged, locking handle cabinet by Hoffman, Wiegmann or Rittal, sized to fit contents.
 2. The Contractor may provide a single enclosure containing all power requirements, including lock power supplies, and controller boards in a single enclosure pre-configured by a manufacturer. Acceptable manufacturers for unified power and controller systems:
 - a. Altronix Trove Series w/Linq technology for monitoring power
 - b. LifeSafety Power MClass series
 3. STC Power:
 - a. Derive primary STC 120VAC power from a designated power source in a secure location. The Contractor shall use the existing 120V source for the new equipment.
 - b. Power cable shall be protected by conduit.

- c. Transformers shall be installed in locked cabinets, protected by tamper switches. Plug-in transformers that are not protected by locked cabinets are not acceptable.
 - d. Serve all low-voltage powered devices within the STC from the Electronics Power Supply.
 - e. Provide barriers as may be necessary to separate Class I from Class II power
4. Electronics Power Supply:
 - a. Ratings: Provide UL Listed Class II transformers and power supplies within the STC. Provide barriers as may be necessary to separate Class I from Class II power.
 - b. Capacity: The power supply shall be capable of powering a minimum of 150 percent of the load required at the time of acceptance.
 - c. Power Monitoring: The system shall monitor the loss and restoration of power at the STC. Loss and restoration of power shall be displayed at the Primary and Secondary monitoring locations, but shall not require resetting of the system.
 - d. Battery Back-up: Provide battery back-up to retain functions of all electronics for a period of twenty-four (24) hours upon loss of 120VAC power
 5. EACS Intelligent Controller Board: As required for connection to access readers, locks, door position switches and egress devices associated with access-controlled doors. Intelligent controllers shall also communicate to the System Controller over the existing network and to downstream controllers over RS-485 or network protocols.
 6. EACS Access Control Board: As required for connection to readers, locks, door position switches and egress devices associated with access-controlled doors shown connected at this location
 7. EACS Alarm Input Board: As required for connection to alarm initiating devices shown connected at this location.
 8. EACS Output Control Board: As required for connection to controlled devices shown connected at this location.
 9. STC Tamper Switch: Provide a tamper switch on the STC. Connect to the system as an individual alarm point.
 10. Terminations: Provide all connections to labeled screw barrier terminal blocks.
 11. Secure all devices within the STC. Dress all wiring in a neat and workmanlike manner. Label all conductors to match documentation.
 12. Provide minimum of four hours of battery back-up for all controller boards.
- H. Independent Controllers: System architectures employing self-contained controllers and field control boards which are mounted independently from the STC cabinet may be used provided they shall be considered STC's and shall meet requirements of the STC as described herein. Controller assemblies that do not of themselves meet STC cabinet requirements shall not be acceptable.

- I. Lock Power Supply (LPS): Lock power supplies may be installed inside the same enclosure as EACS controllers and electronic power supplies. Refer to Paragraph F and G above labeled Security Terminal Cabinets (STC).
 1. For control of new electrified locking hardware provide Altronix AL400ULACMCB, LifeSafety Power FPO75-C4E1 or equal UL Listed Class II power supplies within a ventilated, locked cabinet as indicated on the contract drawings, or as otherwise required to affect proper system performance. Power supply shall include separate terminals for each door lock. Lock power supplies shall be located adjacent to existing lock power supplies and use the same 120V circuit for power. Low-voltage lock power cable shall be routed through the existing conduit riser system for interface with the access control board for switching power to the electric locks located at each door.
 2. Capacity: The power supply shall be capable of powering 200 percent of the load required at the time of acceptance.
 3. Power Monitoring: The system shall monitor the loss and restoration of power at the STC. Restoration of power shall be displayed at the Primary and Secondary monitoring locations, but shall not require resetting of the system.
 4. Battery Back-Up: Provide 4 hours of battery back-up for all low-voltage electrified door hardware. Power supplies shall be equipped with integral battery recharging circuits.

- J. Alarm Initiating Devices (required for new doors and Alternate Bids only)
 1. Door Position Switch: The Contractor shall align, prepare and fabricate doors and frames to accept specified door position switches. The Contractor shall be responsible for coordinating the installation so systems and hardware operate as specified.
 - a. Surface Mounted Door Switch: United Technologies Interlogix Model 2505-A-06 or Flair Model MSS-100-23 Surface Mounted Magnetic Switch with armored cable. Route armored cable to junction box and permanently secure to box with clamp or set-screws. Use where shown on drawings, and where flush mounted devices cannot be installed.
 - b. Non-fire Rated Doors, Flush Mount:
 - 1) Hollow Metal Doors: United Technologies Interlogix Model 1076C-W or Flair Model MSS200 Concealed Magnetic Door Switch.
 - 2) Storefront Doors: United Technologies Interlogix Model 1076C-W or Flair Model MSS200 Concealed Magnetic Door Switch.
 - 3) Wood Faced Doors: United Technologies Interlogix Model 1275-Wn or Flair Model RMS-94 Concealed Magnetic Door Switch.
 - c. Fire Rated Doors
 - 1) General: Contractor shall coordinate all security hardware equipment and installation so as to maintain the Fire Rating of each specific door to the satisfaction of the local AHJ.
 - 2) Hollow Metal Doors: United Technologies Interlogix Model 1078CW, or 2750, concealed magnetic door switch, or equal, approved by UL for use on UL classified fire doors with metal faces, rated up to 3-hours.
 - 3) Hollow Metal Doors, Hinge Switch: Stanley Model "CS" Electrical Hinge

Switch, or equal by Markar products. Finish and style as directed by the Engineer.

4) Storefront Doors: United Technologies Interlogix Model 1078CW Concealed Magnetic Door Switch, or equal.

5) Wood Door w/Hollow Metal Frame: United Technologies Interlogix Model 1078CW Concealed Magnetic Door Switch, with United Technologies Interlogix Model 1835 Mini-Max Wide Gap Magnet. Magnet shall be made of rare-earth magnetic materials, and shall be of 5/8" x 1/8", cylindrical (washer) shape. Drill 1/8"-deep hole to flush mount magnet to top of door.

d. Gates and Roll-Up Doors: United Technologies Interlogix Model 2205A or Flair Model 1000, with armored cable. Route armored cable to junction box and permanently secure to box with clamp or set-screws.

K. Request-to-Exit (REX) Detector:

1. Integral to door hardware where available.

a. Bosch Security Detection Systems Model DS-150, GE Sensors Model 6179 or Bosch Model A690. Coordinate color with the Engineer.

L. Duress Switch:

1. Lever Type Duress Switch (D): Interlogix Aritech Model 3045 or equal.

2. Recessed Push-button: Provide United Security Products Model HUB2 series recessed push button, or equivalent by Security Door Controls or Locknetics, momentary contact, push-button.

M. Electrified Locking Hardware: Existing.

N. Wire and Cable

1. General: Refer to Section 28 0513.

PART 3 - EXECUTION

3.01 GENERAL

A. The Contractor shall install system components and appurtenances in accordance with the manufacturer's instructions, and as shown. The Contractor shall furnish necessary interconnections, services, and adjustments required for a complete and operable system as specified and shown.

B. Follow the General Requirements of Section 28 0000, Security General Requirements for equipment and services provided under this section. In addition, provide the following.

C. Installation: The Contractor shall install the system in accordance with the standards for safety, NFPA 70, UL 681, UL 1037 and UL 1076, and the appropriate installation manual for each equipment type. Flexible cords or cord connections shall not be used to supply power

to any components of the system, except where specifically noted. All other electrical work shall be as specified in Division 16, and as shown.

3.02 SYSTEM CONFIGURATION

- A. General: System configuration shall match existing system configuration based on the database conversion of the existing Casi system Facility Commander software at the main Police Building and Keri System software for all other specified facilities. The information provide herein shall be for new doors and used as a guideline should there be any problems related to the database conversion.
- B. Portal Hardware
 - 1. Access Control and Lock Configuration
 - a. Secured Doors: Doors equipped with electric locks shall be individually programmed for locking according to time zones as designated by the Engineer. During programmed secure mode for a portal a valid credential presented at a reader will allow the portal to unlock for a programmed period of time.
 - b. Upon authorization by card reader or manual means, "door force" and "door held open" alarms associated with the portal shall be automatically bypassed (or masked) for a duration of time programmable on an individual door and individual cardholder basis.
 - c. Auto-Relock: The door shall re-lock immediately upon closing, after an authorized access, and the bypass duration shall be immediately truncated. A magnetic contact will be required at every door for this purpose, and to sense the position of the door for "door forced" and "door held open" sensing.
 - d. Free Egress Authorization: Unless otherwise shown on the plans or described herein, such as for anti-passback zones, the system shall detect the normal egress of a user at any individual portal and shall bypass any alarm associated with the portal for a duration of time programmable on an individual door and individual cardholder basis. Request-to-exit timing shall be independently programmed for each cardholder during the initial enrollment process. This function allows extended timing for persons carrying equipment to pass through certain portals. The timing function shall automatically truncate after an adjustable period (0 - 4 seconds) after a portal is closed. This feature allows a subsequent alarm at the portal to be detected, and prevents the portal from being re-opened without an authorized request.
- C. Readers:
 - 1. Readers shall be wired to the controllers using OSDP wiring protocol.
 - 2. Contractor shall configure and program the readers to provide LED light control as specified in the Functions requirements in the Technical Description.
- D. System Integration:
 - 1. The contractor shall program any alarm point to automatically display one or more cameras on the VSS workstation when it is activated.

2. Coordinate with the City of Manhattan Beach to confirm camera call-up requirements for each alarm and program as specified.
- E. Tamper Devices:
1. Terminal cabinets, equipment cabinets, enclosures, power supply cabinets, exposed wireways, and pull and junction boxes with wire connections or splices shall be equipped with tamper switches programmed to report an alarm.
 2. Junction boxes requiring tamper switches that are associated with an individual alarmed device (such as a door position switch) may report to the respective device alarm point. Other cabinet and box tamper switches shall report as independent alarm points.
 3. Power Supplies and Battery Chargers: Power supplies and battery chargers shall be connected to alarm monitoring points to provide an indication of tamper, power failure, battery disconnection, and charger trouble.
- F. Graphical User Interface (GUI) Environment
1. General:
 - a. Contractor shall create maps, icons, menus, text, and other functions of the GUI, as noted herein, to incorporate elements and functionality of the project as specified and required by the Engineer.
 - b. The system monitor shall display color graphic maps, menus and real-time information in graphical image formats, as required by the Engineer and described herein. All viewing, menu and operating activity, including map "browse", "zoom", scrolling, output control, alarm acknowledgment and reset functions shall be operable by point-and-click interface with the mouse and by programmable "function keys" on the system keyboard.
 - c. Alternate Display and Control Techniques: Alternate map control and display techniques that provide the required functionality and information may be considered by the Engineer. Contractor shall submit a clearly delineated description of map display and control operation, demonstrate its use and effectiveness to the Engineer using a working copy of the software, and obtain approval from the Engineer before proceeding with the work.
 2. Map Database: Contractor shall research (with the Engineer), design, develop and provide maps described herein in complete operating condition including graphic representations, icons, alarm and control interfaces.
 - a. Individual Site Plans: Individual site plan maps shall include the entire site perimeter showing buildings, vehicle and foot traffic features and street frontage. Individual site plans may contain multiple buildings. Large-scale maps shall have dynamic zoom or designated "hot spot" areas to allow the capability to zoom into an area down to 1/8" scale. Site plans shall have icons for exterior mounted devices and entry/exit portals.
 - b. Building Maps: Building Maps shall include the building footprint and surrounding areas, ground floor plan, a floor stacking plan (elevation) and stairwell risers. Building plans shall have icons for exterior mounted devices

- and entry/exit portals.
- c. Floor Plan Maps (Where access control, alarm, or video security measures are deployed): Floor plan maps shall include rooms, corridors, elevators, door and room designations (number and usage), penetrable wall points, column supports, location of security control equipment and any other details necessary to clearly and completely depict the secured environment.
 - d. Individual site plans, building plans, and floor plan maps shall show text and icons for devices monitored and/or controlled by the security system.

3.03 EQUIPMENT, RACK AND CONSOLE INSTALLATION

- A. Mount equipment in rooms, consoles, equipment racks, and desktops in accordance with Section 28 0000, Security General Requirements.

3.04 GROUNDING PROCEDURES

- A. Provide grounding of all systems and equipment in accordance with Section 28 0000, Security General Requirements.

3.05 WIRE AND CABLE INSTALLATION PRACTICES

- A. Provide wire and cable installation in accordance with Section 28 0513, Security Conductors and Cables.

3.06 DATABASE PREPARATION, CHECKING AND ACTIVATION

- A. Provide database preparation, checking and activation for systems and equipment in accordance with Section 28 0000, Security General Requirements.
- B. Programming:
 - 1. Required Graphical Maps: Contractor shall research (with the City), develop and install property, building, floor plans, and other graphic maps with all icons and details necessary to clearly display all system information and functions, including but not limited to the information described herein. Contractor shall provide a complete and operating graphical environment for all EACS systems and subsystems.
 - 2. Required System Programming:
 - a. Contractor shall research with the Engineer, develop and install all executive and user software required for the final acceptance of the system as specified herein and on the drawings.
 - b. Contractor shall provide the Engineer with forms and instructions to facilitate the gathering and entry of user software data. Forms shall include but not be limited to information regarding cardholder data, access privileges, time schedules, portal groups, access groups, alarm points, tenant/elevator authorization, password protection levels, two-man and anti-passback locations.

3.07 START-UP RESPONSIBILITY

- A. Provide start-up services for all systems and equipment in accordance with Section 28 0000, Security General Requirements.

3.08 SYSTEM PERFORMANCE TESTING AND ADJUSTING PROCEDURES

- A. Provide Preliminary Testing, Inspection, Performance Verification Testing and, Commissioning services for EACS systems and equipment.
- B. Electronic Access Control System Testing
 - 1. Test and verify the normal operation of every alarm point in all four states at each alarm panel. Test each alarm point for the alarm function by normal operation of the alarm point, i.e.: for a door position switch, open the door and so forth.
 - 2. Test and verify the operation of the Electronic Access Control System.
 - 3. Test each door during its programmed secure time period to assure that it commands the lock to activate and permits access by valid credential within one second from presentation of the key.
 - 4. Verify all egress systems on access-controlled doors work correctly.
 - 5. Verify system integration schemes function automatically and correctly.
 - 6. Verify all activity at Monitoring Stations functions correctly.

3.09 FINAL PROCEDURES

- A. Perform final procedures in accordance with Section 28 0000, Security General Requirements.

END OF SECTION

**SECTION 28 2300
VIDEO SURVEILLANCE SYSTEM**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions, City of Manhattan Beach Standard Terms and Special Provisions, apply to this section. Also, provide the work in accordance with Section 28 0000, Security General Requirements.

1.02 DESCRIPTION

- A. General Description: This specification section covers the furnishing and installation of a complete low-voltage Video Surveillance System (VSS) and Security Intercom System (SIS) communicating over new cable infrastructure and connecting to the existing City of Manhattan Beach network.
- B. Contractor shall furnish and install all VSS and SIS security and network hardware devices, mounting brackets, power supplies, switches, controls, consoles and other components of the system as shown and specified.
- C. Furnish and install special boxes, cable, connectors, wiring, and other accessories necessary to complete the system installation. Requirements shall be in accordance with local electrical codes.
- D. Outlets, junction boxes, pull boxes, conduit, connectors, wiring, and other accessories necessary to complete the system installation; will be provided by the Contractor.
- E. General Conditions: Provide the work in accordance with Section 28 0000, Security General Requirements.

1.03 RELATED WORK

- A. Provide the work in accordance with Section 28 0000, Security General Requirements, "Related Work".

1.04 SHOP DRAWINGS & EQUIPMENT SUBMITTAL

- A. In accordance with Section 28 0000, Security General Requirements

1.05 WARRANTY

- A. In accordance with Section 28 0000, Security General Requirements

1.06 QUALITY ASSURANCE

- A. In accordance with Section 28 0000, Security General Requirements

1.07 TRAINING

- A. Provide the work in accordance with Section 28 0000, Security General Requirements

1.08 TECHNICAL REQUIREMENTS, VIDEO SURVEILLANCE SYSTEM (VSS)

- A. Purpose:

1. The Video Surveillance System will provide staff with the means to monitor, record, and review activity at City of Manhattan Beach facilities. Refer to section 28 0000 Security General Requirements for included facilities.
2. The Video Surveillance System will provide the ability to record images received from cameras in a digital format and retrieve the recorded video information in random access mode based on parameters requested by the user.

- B. Environment

1. The system shall be installed in the City of Manhattan Beach in the following facilities; City Hall, Police Department, Fire Department, Public Works Yard, Joslyn Community Center, Live Oak Park, Manhattan Heights Community Center and additional site areas as shown on the drawings.
2. Monitoring Posts:
 - a. Primary monitoring shall be at the Police Department. Two monitoring workstations shall be located in PD dispatch.
 - b. Administrative workstation shall be at City Hall. Coordinate with City of Manhattan Beach for specific location.
 - c. Secondary monitoring shall be at the Public Works facility. Coordinate with City of Manhattan Beach for specific location.
3. Infrastructure and Connectivity:
 - a. Local network infrastructure shall be provided by the City. Network infrastructure for communications to the City of Manhattan Beach LAN/WAN is existing. Communication to security devices and equipment within each facility shall be over copper or wireless infrastructure provide by the contractor.
 - b. The main VSS Management server and Archive server for City Hall, Police Department and Fire Department shall be located in the Police Department main server room. Remote archive server for local recording shall be located in the site IDF Room as shown on the plan drawings for each remote location.
 - c. The system shall provide mobile connectivity to IOS and Android devices over the City of Manhattan Beach wireless network or regular carrier service. Coordinate connectivity between the wireless network and the security network.

- C. Attributes

1. The system shall comprise IP video equipment, network switching equipment and

ancillary equipment assembled into a fully operating system as shown on the plans.

2. Field Components: Field Components shall comprise video cameras, positioning devices, lenses, camera mounts and housings and other video system devices and wiring as described herein and shown on the drawings.
3. Headend Processing Equipment: Video processing components shall comprise network management server, network video recorder/archiver (NVR) with storage, computer video monitoring stations (clients), and other video processing devices as described herein and shown on the drawings. All video-processing components such as displays and video recorders shall support ultra-high definition (UHD) color video imaging.
4. The system shall be capable of displaying and recording individual video inputs at variable frame rates of 1 to 30 frames per second (fps). The system shall be configured to allow a combination of any and all cameras to be recorded at 15fps at the highest rated resolution of the cameras simultaneously.
5. The system shall be capable of multiple recording schedules assigned to each camera. Each schedule shall have the following parameters:
 - a. Recording Mode
 - 1) Continuous
 - 2) Time of Day
 - 3) On Motion/Alarm
 - 4) On Event
 - 5) Manual
 - 6) Disabled
 - b. Recurrence Parameters
 - 1) Once on specific days
 - 2) Specific days on yearly basis
 - 3) Specific days on monthly basis
 - 4) Specific days on weekly basis
 - 5) Daily
 - c. Time Parameters
 - 1) All day
 - 2) Specific time range(s)
 - 3) Daytime or nighttime based on sunrise and sunset calculated from time of year and geographic location. System shall accept latitude and longitude parameters to determine location.
6. The system shall be capable of allowing each video source (camera) to be encoded multiple times in the same or different video formats limited only by the capabilities of the device video encoder capabilities. Formats shall include MPEG-4, MPEG-2, H.264, H.265 and JPEG2000.
7. Dynamic Video Stream Management: Perform dynamic video stream management as follows:
 - a. Provide Avigilon High-Definition Stream Management (HDSM)™.
 - b. Reduces system bandwidth and storage usage by only transmitting video to

- client as determined by the Owner.
- c. The client communicates the maximum monitor resolution to the server and the server acts as a video proxy and stream the required video resolution.
 - d. Tile multi-megapixel videos streams and only transmit requested portion of video stream to the client.
 - e. Extend recorded video storage by dynamically reducing quality of recorded video over time so video is still viable but uses less storage.
 - 1) Reduces JPEG and JPEG2000 video image rate to one half or one quarter of original image rate.
 - 2) Record both a high-quality stream and a low-quality stream, discarding high quality streams after a set amount of time determined by the Owner.
 - f. Allow availability of dynamic video stream management to local users, remote users, and mobile devices
8. The system shall be capable of allowing video quality to vary according to predefined schedules. Schedules shall have the same configuration flexibility as the recording schedules. Video quality shall be based on, but not limited to, the following:
- a. Maximum Bit Rate
 - b. Maximum Frame Rate
 - c. Image Quality
 - d. Key Frame Interval
 - e. Other quality parameters based on camera API
9. The system shall be capable of recording individual video inputs at variable quality/compression rates, including but not limited to, 1CIF, 2CIF, 4CIF, 720p, 1080p, 1440p and 2160p.
10. Quality: Acceptable quality/compression parameters shall be determined by City of Manhattan Beach and the Consultant of Record. Minimum quality standard shall be equal to the NTSC standards for television broadcast quality.
11. Triplex Mode: The system shall be capable of recording images, playing back recorded images, and viewing live images simultaneously without affecting the recording of any video input.
12. Motion Detection: The system shall be capable of assigning areas within the camera field-of-view for motion detection. Objects entering the selected field-of-view shall change the camera recording protocols to Alarm Mode or Critical Alarm mode.
13. Motion detection review of stored video: The system shall be capable of selecting an area within the camera field-of-view for motion detection on recorded video. The system shall then only playback recorded frames that show motion within the selected field-of-view.
14. Data Storage Subsystem
- a. The data storage system may be configured with an integral server that supports the VSS software and provides management of the video streams to the recording media. This type of configuration shall meet all the functional

- requirements as specified herein.
 - b. The data storage subsystem shall utilize enterprise class hard disk system with a reliability of 99.99%
 - c. The data storage subsystem shall utilize dual channel communication between storage servers and the hard drive storage media.
 - d. The system shall be capable of automatic failure detection of a hard drive and have the ability to rebuild the system on hot spare drives.
 - e. The system shall have management software for configuration and monitoring of the data storage subsystem. The management software shall alert operators when any system parameter exceeds normal tolerances.
 - f. The system shall be equipped with RAID 5 or better array hard drives to allow failed hard drives to be replaced without loss of recorded information. Hard drives shall be hot swap type.
 - g. The system shall be equipped with redundant hot swappable power supplies to prevent loss of recording due to power supply failure.
15. External System Integration
- a. The object of “security system integration” is to automatically configure the system to display, record, and report appropriate system activity to various elements of the system. Automatic configuration frees operators from several difficult control tasks, gives the operator more time to respond to events, reduces operator error, and ensures critical system tasks occur consistently.
 - b. The VMS shall integrate with the manufacturer’s Electronic Access Control System (EACS) software to automatically configure the display of one or more camera when an EACS alarm or event is initiated. The programming shall be configurable from either the EACS or VMS workstation.
 - c. The system shall support APL and SDK capability to provide integration to third party systems.
 - d. The system shall integrate via Active Directory to the City of Manhattan Beach Active Directory for user logon credentials.
16. Multicast Support
- a. The system shall support network multicast modes to provide streaming of a single video stream to multiple sources. Multicast configuration shall be configured in conjunction with the network switches to provide multicast capability.
 - b. The system shall support multicast configuration to stream video from a camera directly to a workstation or other network resource without needing to first be directed to a server or video archiver.
17. Video Monitoring and Broadcast
- a. LAN Broadcast: The system shall support remote video monitoring and control over the Owners LAN/Wireless LAN IP network, by any properly configured computer or LAN device, with VSS monitoring software.
 - b. Internet Broadcast: The system shall support remote video monitoring and control over the Internet, by any properly configured computer or LAN device, via any web browser. The system shall be programmed with security authentication protocols to prevent unauthorized individuals from accessing the system through the internet connection.

- c. Email: The system shall support delivery of video and textual messaging, by Email service, over the Owners' LAN and Wireless LAN network, to staff carrying suitably configured mobile devices (cell phone or tablet).
 - d. Camera Control: Video cameras so equipped, shall be capable of pan/tilt/zoom positioning and remote-control functions. Video camera positioning and imaging signals shall be transmitted over the Owners LAN/Wireless LAN networks as described herein, to permit remote viewing and camera control "on demand" on any LAN device, from any location, with appropriate software and authorization.
 - e. Live Video Viewing: The system shall support multicast to allow virtually unlimited viewers of live video feeds over the IP network without exceeding the network bandwidth.
 - f. Archived Video Viewing: System shall support a minimum of 16 simultaneous viewers of archived video feeds over the IP network.
18. Security: The system shall employ security measures to ensure access to monitoring and configuration functions by authorized users only. The system shall support:
- a. Password access control and authorization
 - b. Audit trail for any access to the system.
 - c. Allow administrators to override user access to an NVR if there are insufficient licenses.
 - d. Allow administrators to restrict user access to any video recorded earlier than the current login session
 - e. Allow administrators to restrict user access to high resolution recorded video for privacy compliance.
 - f. Allow administrators to restrict specific user's access to search features that use what is considered personally identifiable information (PII) for privacy compliance, such as license plates and physical appearance.
 - g. Allow administrators to define rules that disable video or audio streams from specific devices for privacy compliance.
 - h. Set client software to automatically log in to multiple sites.
 - i. Set client software to automatically log out of all sites when application is left idle.
 - j. Set client software to automatically save and restore last window layout.
 - k. Set maximum bandwidth of streamed video data from server to client application.
 - l. Record and permit reporting on user activity including log-in, log-out events, video export requests, live video viewing by camera, access to recorded video by camera
19. Cyber Security Requirements
- a. The VMS shall be an IP enabled system. All communications between the server software and client application shall be based on standard TCP/IP protocol and shall use TLS encryption with digital certificates to secure all communications.
 - b. The VMS shall support User authentication with claims-based authentication using external providers. External providers shall include:

- 1) ADFS (Active Directory Federation Services)
 - c. The VMS shall limit the IP ports in use and shall provide the Administrator with the ability to configure these ports.
 - d. The VMS shall support only secured media stream requests, unless explicitly configured otherwise. Secured media stream requests shall be secured with strong certificate-based authentication leveraging RTSPS (aka RTSP over TLS). Client authentication for media stream requests is claims-based and may use a limited lifetime security token.
 - e. The VMS shall offer the ability to encrypt the media stream, including video, audio, and metadata with authenticated encryption. Media stream encryption shall be done at rest and in transit and be a certificate-based AES 256-bit encryption. The VMS shall:
 - 1) Allow encryption to be set on a per camera basis for all or some of the cameras.
 - 2) Provide up to 20 different certificates for different groups of clients or users who have been granted access to decrypted streams.
 - 3) Not decrease the recording performance by more than 50% when encryption is enabled.
 - 4) Use Secure RTP (SRTP) to encrypt the payload of a media stream in transit and allow multicast and unicast of the encrypted stream.
 - 5) Use a random encryption key and change periodically.
 - 6) Allow encrypted streams to be exported.
20. The VMS shall provide multiple levels of system redundancy:
 - a. Cluster and synchronize at least 100 servers into a unified site.
 - 1) In the event of a server failure, system can continue running and allow other servers to take over failed server's tasks.
 - b. Centralized system administration:
 - 1) Site and server configuration details are replicated to each server in the site.
 - 2) Sites can be organized in a hierarchical parent-child relationship where parent can always control child site settings.
 - c. Connect a video or audio source to multiple servers to achieve redundant recording.
 - d. Create a failover connection for a video or audio source between servers in a site
21. Storage Management: Allow management of recorded content with the following capabilities:
 - a. Multiple levels of video storage management:
 - 1) Tier 1: Video recorded directly on local server.
 - 2) Tier 2: Recorded video continuously archived to long term storage.
 - 3) Ad Hoc: Recorded video on local server can be archived on-demand to administrator-defined storage location.
 - b. Support for the following video and audio recording options:
 - 1) Manually triggered recording.
 - 2) Pre-event and post-event recording options.
 - 3) Reference frame recording option in absence of events.

- 4) Recording schedules that can be defined individually for each video source, including, but not limited to continuous recording.
 - 5) Event based recording that is triggered by the following:
 - a) Pixel or classified object motion.
 - b) Digital inputs.
 - c) POS transactions.
 - d) Alarms.
 - e) License plates recognition.
 - 6) Customized daily and weekly schedule
22. Backup and Archiving:
- a. Schedules archive of recorded video with associated events to a local folder or mapped network drive.
 - b. Backs-up settings and configuration for each server, including the following:
 - 1) Site settings; such as users/groups, maps and web pages.
 - 2) Server settings, including device connections.
 - 3) Encrypts backup to maintain security of information.
 - c. Restores backed-up settings and configurations to a new or replacement server in a site
23. User Management
- a. The system shall support the configuration and management of users and user groups. A user shall be able to add, delete, or modify a user or user group if he has the appropriate privileges.
 - b. Common access rights and privileges shared by multiple users shall be defined as User Groups. Individual group members shall inherit the rights and privileges from their parent user groups. User group nesting shall be allowed.
 - c. All configurable entities shall have associated privileges.
 - d. Sites
 - 1) The system shall limit what users can view in the configuration database. The administrator, who has all rights and privileges, shall be allowed to segment a system into multiple security sites.
 - 2) A user who is given access to a specific site shall only be able to view entities (components) within the site they have been assigned. Access to a user is given by assigning the user as an accepted user to view the entities that are members of a particular site.
 - 3) A user or user group can be assigned administrator rights over the site.
 - e. The system shall be capable of assigning user and user group privileges on a per site basis.
24. Graphical User Interface (GUI): The system shall include a mouse-based, graphical user interface for alarm processing, cameras display and output control functions. It shall utilize mouse-driven point-and-click menus, icons, and pictorial displays to simplify operator interaction.
- a. Graphical User Interface (GUI) Environment
 - 1) General: The system monitor shall display color graphic maps, menus and real-time information in graphical image formats, as required by City of Manhattan Beach and described herein. All viewing, menu and operating activity, including map "browse", "zoom", scrolling, output

control, alarm acknowledgment and reset functions shall be operable by point-and-click interface with the mouse and by programmable "function keys" on the system keyboard.

- 2) Map Development
 - a) Graphic map software shall allow importation of .JPEG/JPG, .BMP, .PNG or .GIF files and alteration or origination by mouse-driven interface on the computer screen. Maps shall be displayable in up to 256 colors.
 - b) Provide and install a complete color map drawing software package in the System Server as part of this work.
- 3) Icons
 - a) User Interface: The systems' graphic software shall support the use of icons to display alarm point status, event status, camera and video system activation, security intercom, horn and emergency phone activation, and output control functions, in real-time, on the graphical maps.
 - b) Active Icon Attributes: Icons shall display the point status in real-time, by means of flashing/steady and color changes.
 - c) Any system event or procedure, or group of events or procedures, shall cause one or more maps to be displayed, and shall cause one or more icons to activate or change state. Such events may include, but not limited to, alarms, supervisory events, return-to-normal, bypass, log-on, log-off, and trouble events.
- 4) Map Database: Contractor shall research with City of Manhattan Beach, design, develop and provide all maps described herein in complete operating condition including graphic representations, icons, alarm and control interfaces.
 - a) Site: Site maps shall include the entire site perimeter showing all buildings, vehicle and foot traffic features and street frontage.
 - b) Building Maps: Building Maps shall include each building, interior floor plan, a floor stacking plan and all stairwell risers.
 - c) Floor Plan Maps: Floor plan maps shall include rooms, corridors, elevators, door and room designations (number and usage), penetrable wall points, column supports, location of security control equipment and any other details necessary to clearly depict the secured environment.
 - d) Maps shall show text and icons for all devices monitored or controlled by the system.
- 5) Required maps
 - a) Civic Center Site
 - b) City Hall all floors
 - c) PD all floors
 - d) FD all floors
 - e) Public Works Site
 - f) Public Works all building
 - g) Each remote site showing complete site with all devices
 - h) Where a site has a building with internal cameras the building floor plan shall be included

D. Functions

1. The cameras shall be assigned to one of the VSS archivers for control, monitoring, and recording. Archivers shall be configured to support the throughput for all devices connected with 25% headroom. Provide the number of archivers required at each site to support the cameras connected. Coordinate with the manufacturer to ensure proper configuration and number of archivers required at each site based on their recommended design requirements.
2. Video Recoding Protocols: The system shall be configured to record the cameras for a minimum of 365 days.
 - a. Recording Periods:
 - 1) Normal Business Hours: 6:00am to 8:00pm
 - 2) Off Normal Hours: 8:00pm to 6:00am
 - 3) 24-hour Mode
 - b. Initial recording protocol programming for buildings and exterior areas including parking lots:
 - 1) Cameras shall be programmed to record 12fps at the camera rated resolution (1080p, 1440p, 2160p) during Normal Business Hours for 60 days
 - 2) Cameras shall be programmed for Time Lapse Mode during Off Normal Hours and configured for Motion Detection Mode when movement is detected within the camera field-of-view for 60 days.
 - 3) Long-term recording: Camera recording shall be maintained for 366 days. After the initial 60 days of recording at the cameras rated resolution and specified frame rate long-term recording shall be at 2fps and 720p resolution.
 - 4) Compression Setting: Compression settings vary by camera manufacturer. For this specification compression settings will be referenced from 10 (low quality) to 90 (high quality). Lower setting means smaller file size with poorer quality image. Higher setting means larger file size with higher quality image.
3. Views shall be retrieved on a camera-by-camera basis, and the individual frames shall be connected, or “streamed”, to present a seamless series of frames for continuous viewing. When retrieving views recorded in “normal mode”, the system shall “hold” each frame for a sufficient period, to provide a smooth visual presentation to the user. Pictures may also be retrieved on a single-shot basis.
4. Storage Requirements:
 - a. Storage calculations shall be based on information provided in item Video Recording Protocols.
 - b. Storage calculations vary based on parameters including, but not limited to, frame rate, resolution, percent of activity within the scene, and bit rate. Frame rate and resolution are provided in the Video Recording protocol item. For the purpose of calculating storage requirements the following bit rates shall be used:
 - 1) 4 CIF – 512 Kbit/s
 - 2) 720p – 1 Mbit/s

- 3) 1080p – 2 Mbit/s
 - 4) 1440p/2160p – 4 Mbit/s
 - c. Storage requirements: The recording sub-system shall provide a minimum of 365 days of storage.
 - d. The contractor shall coordinate with the manufacturer to determine the storage requirements for each archiver based on the recording parameters stated for initial recording protocols and the selected cameras.
5. Video Analytics: Provide configurable classified object detection for each device with self-learning video analytics capabilities. The contractor shall coordinate with City of Manhattan Beach to configure analytics for each camera installed under this project.
- a. Allows users to connect individual video sources to analytics appliance channels.
 - b. Allows users to configure events based on classified object motion detection.
 - c. Allows configured video analytics events to be used as alarm and rule triggers.
 - d. Allows users to mark classified objects as a true or false detection.
 - 1) Transmits collected data to video source to improve accuracy of video analytics device.
 - e. Support the following video analytic event types when captured by supported cameras:
 - 1) Objects in area.
 - 2) Object loitering.
 - 3) Objects crossing defined line.
 - 4) Object appears or enters area.
 - 5) Object not present in area.
 - 6) Objects enter area.
 - 7) Objects leave area.
 - 8) Object stops in area.
 - 9) Anticipated direction of travel is violated.
 - 10) Tampering & Scene dramatically changes in an unexpected fashion
6. Focus of Attention: Provide functionality which automatically focuses the operator’s attention during critical events:
- a. Event Handling
 - 1) Classified object motion detection.
 - 2) Unusual motion.
 - 3) Rule based video analytic events.
 - 4) Alarm events.
 - b. Filtering
 - 1) Event types: Provide a user interface which allows for inclusion or exclusion of unnecessary event types.
 - 2) Frequent event handling: Support the identification and exclusion of frequently recurring events on a per-camera and per event basis
7. Camera Identification: Camera identifications shall be in white lettering with black letter borders. All camera displays shall carry an English language description of the camera location. Contractor shall configure the system so that only one camera identifier appears on recorded and displayed views at any given time.

PART 2 - PRODUCTS

2.01 GENERAL

- A. **Product Acceptability:** The Products section contains lists of products capable of performing the specified functions. The Contractor is responsible to verify the manufacturer of the product they select can perform the specified functions. If product substitutions are proposed, they must be made based upon a comparison of equivalence to the product specified and the functions listed in the specifications. Considerations may include but shall not be limited to functional, physical, aesthetic and/or interface aspects. The Owner shall be the sole judge of whether or not a submitted substitution is deemed to be "equivalent" to that specified. A video comparison under actual conditions may be required for cameras proposed as substitutes as a result of technical specifications for cameras not accurately depicting camera performance.

2.02 VSS VIDEO MANAGEMENT SYSTEM (VMS)

- A. **General:** Contractor shall provide all software and licenses required to meet the specified functions herein.
- B. **Video Management Software (VMS):** Avigilon Unity ACC. Provide SQL database license.
- C. **Management Server.** Configure as required by the manufacturer to meet the project requirements. System shall be configured to handle system growth for double the cameras for this initial project. Management server shall be rack mount configuration
- D. **VSS Archiver:** The VSS Archivers shall be configured as recommended by the manufacturer for each location as shown on the plan drawings. Each archiver shall be configured with 50% spare capacity to accommodate adding additional cameras with requiring hardware upgrades.
- E. **Client Workstation:** Provide Avigilon Remote Monitoring Workstations (7th Generation) configured as required to support the workstation requirements for the project.
1. Pre-installed Avigilon Unity software
 2. Coordinate video throughput requirements for each workstation with the manufacturer and select the workstation meeting those requirements.
 3. **Minimum Configuration:**
 - a. Processor: Intel Core i7-7700K 4.20 GHz
 - b. 16GB memory
 - c. Onboard dual 1Gb network adapter
 - d. 128GB SSD
 - e. Peripheral ports: 6x USB 3.0, 4x USB 2.0, 2x 3.5 mm audio out jack, 1x PS/2 keyboard, 1x PS/2 mouse
 - f. 365W Power Supply
 - g. (1) 104-key keyboard
 - h. (1) 2-button mouse with scroll wheel

- i. Video Card with GPU processing and HDMI or Display Port connector to match provided monitor(s)
- j. Video Monitor:
 - 1) Primary Monitoring Post: Provide two (2) Dell 27 Ultra HD 4K Monitor Model U2720Q
 - 2) Admin and Secondary Monitoring Posts: Provide one (1) Dell 27 Ultra HD 4K Monitor Model U2720Q

2.03 VIDEO CAMERAS:

A. General Requirements:

- 1. The camera shall be of manufacturer's official product line, designed for commercial/industrial 24/7/365 use.
- 2. The camera shall be based upon standard components and proven technology using open and published protocols.

B. Technical Requirements:

- 1. Video Standard for High Definition (HD), Super High Definition (SHD) AND Ultra High Definition (UHD)
 - a. HD - SMPTE 296M (HDTV 720p)
 - b. SHD - SMPTE 274M (HDTV 1080p)
 - c. UHD - SMPTE ST 2036 (HDTV 2160p)
- 2. MPEG-4:
 - a. ISO/IEC 14496-10 AVC (H.264)
- 3. Networking:
 - a. IEEE 802.3af (Power over Ethernet)
 - b. IEEE 802.1X (Authentication)
 - c. IPv4 (RFC 791)
 - d. IPv6 (RFC 2460)
 - e. QoS - DiffServ (RFC 2475)
- 4. Network Video:
 - a. ONVIF Profile S, T and G or ONVIF Version 1.02 or higher as defined by the ONVIF organization
- 5. Mechanical:
 - a. IEC 62262 Class IK10 (Impact resistance)

C. Functions

- 1. Be capable of providing video streams at camera rated resolution at 30 frames per second using H.264, H.265, MPEG4, Motion JPEG or JPEG2000
 - a. SD - 800 x 600 pixels
 - b. HD - 1280 x 720 pixels (720p)

- c. SHD – 1920 x 1080 pixels (1080p)
 - d. EHD – 2560 x 1440 pixels (1440p)
 - e. UHD – 3640 x 2160 pixels (2160p)
2. Be equipped with Day/Night functionality and remote zoom and focus capabilities.
 3. Be manufactured with an all-metal vandal resistant body.
 4. Use a high-quality IR-sensitive progressive scan megapixel sensor.
 5. Be equipped with a removable IR-cut filter, providing day/night functionality.
 6. Be equipped with a high-quality varifocal lens with automated iris functionality, providing remote zoom and focus functionality.
 7. Provide pictures down to 0.055 lux while in day mode (with IR-filter in use) and down to 0.028 lux while in night mode (with IR-filter removed).
 8. Support memory expansion by providing an available card slot supporting microSD/microSDHC/microSDXC card. Class V10 or better.
 9. Support operation between -40 to +65°C (-40 to +149°F) and be both IP66 and NEMA 4X-rated.
 10. Video Resolution; Camera shall support at a minimum the following resolutions:
 - a. CIF – 320x240
 - b. 2 CIF – 640x240 or 704x240
 - c. 4 CIF – 640x480 or 704x480
 - d. SD – 800x600
 - e. HD – 1280x720 (not required for SD)
 - f. SHD – 1920x1080 (not required for SD or HD)
 - g. EHD – 2560x1440 (not required for SD, HD, or SHD)
 - h. UHD – 3640x2160 (not required for SD, HD, SHD, or EHD)
 11. Encoding
 - a. Support Motion JPEG encoding in a selectable range from 1 up to 30 frames per second in all resolutions up to HDTV 2160p.
 - b. Support H.264 and H.265 encoding in a selectable range from 1 up to 30 frames per second in all resolutions up to HDTV 2160p.
 - c. Be able to provide independently configured simultaneous H.264, H.265 and Motion JPEG streams.
 - d. Support HDSM™ 2.0 on 4.0MP, 5.0MP, 6.0MP and 8.0MP cameras.
 - e. Provide configurable compression levels.
 12. Transmission
 - a. HTTP (Unicast)
 - b. HTTPS (Unicast)
 - c. RTP (Unicast & Multicast)
 - d. RTP over RTSP (Unicast)

- e. RTP over RTSP over HTTP (Unicast)
 - f. Camera shall support Quality of Service (QOS) to allow prioritization of traffic
13. Image Control
- a. The camera shall incorporate Automatic and Manual White Balance and an electronic shutter operating in the range 1/7 and 1/8196.
 - b. The camera shall provide backlight compensation with automatic and definable exposure zones.
14. IP Addressing
- a. The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.
 - b. The camera shall allow for automatic detection of the Camera based on UPnP and Bonjour when using a PC with an operating system supporting this feature.
 - c. The camera shall provide support for both IPv4 and IPv6.
15. Analytics
- a. The camera shall be equipped with an integrated event functionality, which can be triggered by:
 - 1) Objects in Area
 - 2) Object Loitering
 - 3) Objects Crossing Beam
 - 4) Objects Appears or Enters Area
 - 5) Object not Present in Area
 - 6) Object Enters Area
 - 7) Object Leaves Area
 - 8) Object Stops in Area
 - 9) Direction Violated
 - 10) Tamper Detection
 - b. Supported Classifications:
 - 1) Object Types in Outdoor Mode: Car, Truck Bicycle, Motorcycle, Bus, Person
 - 2) Object Types in Indoor Mode: Persons
16. Protocol Support
- a. The camera shall incorporate support for at least IP, HTTP, HTTPS, SOAP, TCP, ICMP, RTSP, RTP, UDP, IGMP, RTCP, DHCP, UPnP, ARP, DNS, Zeroconf, NTP and HSTS.
 - b. Streaming protocols: RTP/UDP, RTP/UDP multicast, rtp/rtsp/tcp, rtp/rtsp/http/tcp, rtp/rtdp/https/tcp, http.
 - c. Device Management Protocols: SNMP v2c, SNMP v3
17. Text Overlay
- a. Provide embedded on-screen text with support for date & time, and a customer-specific text, camera name, of at least 45 ASCII characters.
 - b. To ensure accuracy, the camera shall accept external time synchronization from an NTP (Network Time Protocol) server.
 - c. Provide the ability to apply a privacy mask to the image.

18. Multi-streaming
 - a. The camera shall be capable of a minimum of 6 configurable video streams
 - b. The camera shall be capable of providing a stream for live viewing of 15 fps a full resolution independent of any stream configuration used for recording.

19. Security
 - a. Support the use of HTTPS.
 - b. Support IEEE 802.1X authentication.
 - c. FIPS 140-2 compliant

20. Installation Maintenance
 - a. Be supplied with Windows-based management software which allows the assignment of IP addresses, upgrade of firmware and backup of the Cameras' configuration.
 - b. Support the use of SNMP-based management tools according to SNMP v1, 2c & 3 / MIB-II.
 - c. Allow updates of the software (firmware) over the network, using FTP or HTTP.
 - d. Provide the ability to apply a rectangle of customer-defined number of pixels to the image, which can be used as a pixel counter identifying the size of objects in number of pixels.
 - e. All customer-specific settings shall be stored in a non-volatile memory and shall not be lost during power cuts or soft reset.

21. User Logs
 - a. Provide a log file, containing information about the 250 latest connections and access attempts since the unit's latest restart. The file shall include information about the connecting IP addresses and the time of connecting.
 - b. Provide a connection list of all currently connected viewers. The file shall include information about connecting IP address, time of connecting and the type of stream accessed.

22. Diagnostics
 - a. Be equipped with LEDs, capable of providing visible status information. LEDs shall indicate the camera's operational status and provide information about power, communication with receiver, the network status and the camera status.
 - b. Be monitored by a Watchdog functionality, which shall automatically re-initiate processes or restart the unit if a malfunction is detected.

23. Connectors
 - a. Input/outputs: The camera shall be equipped with one digital (alarm) input and one digital output, accessible via a removable terminal block. This input shall be configurable to respond to normally open (NO) or normally closed (NC) dry contacts.
 - b. Audio: The camera shall be equipped with one 3.5 mm jack for line/microphone input and one 3.5 mm jack for line output.
 - c. Network: The camera shall be equipped with one 100BASE-TX Fast Ethernet-port, using a standard RJ-45 socket and shall support auto negotiation of

network speed (100 MBit/s and 10 MBit/s) and transfer mode (full and half duplex).

24. Construction
 - a. Manufactured with an all-metal vandal resistant body providing encapsulated electronics
 - b. Clear and smoked transparent cover
 - c. IP66-rating
 - d. NEMA 4X-rating
 - e. Impact resistance of 2200lbs / 1000kg according to IK10
 - f. Thermostat, heater and fan inside the enclosure
 - g. Fitted with a dehumidifying membrane
 - h. Removable weather shield
 - i. The camera enclosure shall provide the ability to adjust the camera modules angle with at least $\pm 180^\circ$ horizontal, $\pm 85^\circ$ vertical and $\pm 170^\circ$ rotation while maintaining an image that is not interfered with by the camera housing.
25. Power
 - a. Power over Ethernet according to IEEE 802.3af - Class 3
 - b. 24 VAC from Camera Power Supply
26. Environmental
 - a. Operate in a temperature range of -40°C to $+65^\circ\text{C}$ (-40°F to $+149^\circ\text{F}$).
 - b. Operate in a humidity range of 15–100% RH (condensing).

D. Camera Types

1. Three possible camera types are identified in the specifications and drawings
 - a. SHD – Super High Definition comprising 1920x1080 pixel image
 - b. EHD – Extended High Definition comprising 2560x1440 pixel image
 - c. UHD – Ultra High Definition comprising 3640x2160 pixel image

E. Acceptable Cameras

1. SHD Indoor Dome: Avigilon 2.0C-H5A-D01-IR or equal
2. EHD Outdoor Dome: Avigilon 6.0C-H5A-D01-IR or equal
3. UHD Outdoor Dome Camera: Avigilon 8.0C-H5A-D01-IR or equal.
4. EHD 4-imager Camera for 270° Field-of-View: Avigilon 20C-H5A-4MH or equal
5. EHD 3-imager Camera for 180° Field-of-View: Avigilon 15C-H5A-3MH or equal

F. Camera Lenses

1. Provide varifocal lens compatible with selected camera to cover the field-of-view as indicated on the plan drawings.

2. Provision for lens changes: Contractor shall include provision and installation of one (1) lens change per camera where necessary to provide acceptable viewing performance. Exchanged lenses shall remain the property of the Contractor.
3. Contractor shall field verify each location and coordinate field-of-view requirements with Owner and Consultant of Record before ordering camera/lens combination. Contractor shall be responsible to select proper camera/lens combination to provide the field of view as shown on the drawings.
4. Some configuration of dome camera and lens combinations may not meet field of view requirements as indicated on the plan drawings. Where this occurs notify the Owner and Consultant of Record to coordinate acceptable alternative.

G. Camera Enclosure Mounting Hardware

1. Provision for mounting hardware: The Contractor shall include provision and installation of miscellaneous hardware and mounting extensions at each camera location to provide acceptable viewing performance.
2. Ancillary Hardware shall be provided by the Contractor, if required, and shall be compatible with and comparable in strength to other attached hardware.
3. Where required, based on selected camera, contractor shall provide an environmental housing for any camera not designed for direct outdoor installation.

H. Video Intercom Station (IC): Provide Axis Model I8016-LVE or equal.

2.04 WIRELESS NETWORK EQUIPMENT

A. Terragraph Wireless Node (TGN): Provide Siklu Model MH-N366-CCP-PoE-MWB or equal

1. Topologies: Point-to-Point, Point-to-Multipoint, Self-Backhaul L2 SND Mesh
2. Frequency: 57-66GHz, TDD/TDMA
3. Power: POE
4. Aggregate Throughput: >3800 Mbps per sector, > 15 Gbps per Node
5. Typical Communication Distance: 1000 ft. / 300 m
6. Security: AES 128-bit OTA, GUI over HTTPS, CLI over SSH
7. Interface Ports: 1x RJ-45 10/5/2.5/1GbE with POE in, 1x RJ-45 1GbE with POE out (35W), 1X SFP+ 10GbE.
8. PoE Injector 60W, E.L. VI, 10Gbps (100-240 AC source, US AC cable): Siklu Model AX-IN-10G-60W-AC-PoE-US
9. Provide Siklu Model AX-SRG-10G surge protector

10. Provide SikluCare SR-PRO-3Y-MH-N366 Pro Support Plan (3-yr.)
- B. Terragraph Wireless Node (TGT): Provide Siklu Model MH-T265-CCP-PoE-MWB or equal
1. Topology: Point-to-Multipoint
 2. Frequency: 57-66GHz, TDD/TDMA
 3. Power: POE (POE Injector Included)
 4. Aggregate Throughput: 3800 Mbps
 5. Network synchronization: To N366
 6. Security: AES 128-bit OTA, GUI over HTTPS, CLI over SSH
 7. Interface Ports: 1x RJ-45 2.5/1GbE with POE in, 1x RJ-45 1GbE with POE out (65W), 1X SFP+ 10GbE.
 8. Provide Siklu Model AX-SRG-10G surge protector
 9. Provide SikluCare SR-PRO-3Y-MH-TG-T-3P Pro Support Plan (3-yr.)
- C. Continuous Power Bridge (CPB): Provide Solis Energy Model CPB24570-312-E power supply with POE output
1. Connects to 480V power source provided at each light pole
 2. Provide RJ-45 port for POE connection to camera and wireless terminal unit.
 3. Batteries: Provide 2 Solis Energy Model 31G 12v, 97.6Ah
 4. DC Converter: Provide Solis Energy recommended converter
 5. Hardened POE Injector: Provide Solis Energy Model HPI-2148 802.3 at 48 VDC power injector.
 6. Provide transformer Model T480-250
 7. Provide pole mounting hardware as indicated on the drawings.
 8. Provide 3-year extended warranty.

PART 3 - EXECUTION

3.01 GENERAL

- A. In accordance with Section 28 0000, Security General Requirements

3.02 SYSTEM CONFIGURATION

- A. Camera recording and display configurations shall be arranged via a combination of the VSS Server, Network Video recorder, Video Monitoring Workstations, and LAN/WAN network.
- B. Contractor shall coordinate with the City of Manhattan Beach to determine the required pre-programmed surveillance and event-initiated configurations.
- C. Contractor shall coordinate with City of Manhattan Beach for configuration of live views and recording parameters for each camera.
- D. Contractor shall coordinate with City of Manhattan Beach for configuration of video analytics for each camera. Requirements shall vary by location. Provide a minimum of 20 minutes per camera for video analytic programming.

3.03 SECURITY SYSTEM INTEGRATION

- A. Provide security system integration equipment, software and programming, in accordance with Section 28 0000, Security General Requirements.

3.04 EQUIPMENT, RACK AND CONSOLE INSTALLATION

- A. In accordance with Section 28 0000, Security General Requirements

3.05 GROUNDING PROCEDURES

- A. Provide grounding of all systems and equipment in accordance with Section 28 0000, Security General Requirements.

3.06 WIRE AND CABLE INSTALLATION PRACTICES

- A. Provide wire and cable installation in accordance with Section 28 0000, Security General Requirements and Section 28 0513, Security Conductors and Cable.

3.07 DATABASE PREPARATION, CHECKING, AND ACTIVATION

- A. Provide database preparation, checking and activation for systems and equipment in accordance with Security General Requirements, Section 28 0000.

3.08 START-UP RESPONSIBILITY

- A. Provide start-up services for all systems and equipment in accordance with Security General Requirements, Section 28 0000.

3.09 SYSTEM PERFORMANCE TESTING AND ADJUSTING PROCEDURES

- A. Provide performance testing and adjusting of all systems and equipment in accordance with Section 28 0000, Security General Requirements.
- B. VSS Performance Testing

1. Demonstrate acceptable picture quality and camera views for each camera.
2. Demonstrate acceptable picture quality on each video monitoring workstation, and display devices accessible over the LAN.
3. Demonstrate switching, recording and playback functions for the video server, network video recorders, and digital video recorders.
4. Ensure primary views are acceptable. Demonstrate the view obtained by each pre-programmed camera position.
5. Demonstrate retrieval and playback of recorded video from each site.

3.10 FINAL PROCEDURES

- A. Perform final procedures in accordance with Section 28 0000, Security General Requirements.

END OF SECTION 28 2300

**APPENDIX I
PROGRESS PAYMENT REQUEST FORM**

TO: CITY OF MANHATTAN BEACH
 Engineering Division, 1400 Highland Avenue, Manhattan Beach, CA 90266
 PROJECT TITLE _____
 PROJECT NO. _____

FROM: CONTRACTOR _____ Date _____
 Address _____
 Telephone _____ Progress Estimate # _____
 Submitted by _____ Contract Award Amount \$ _____

No.	Description	Contract Quantity	Previous Quantity	Quantity This Estimate	Unit Price	Amount This Estimate	Total Quantity to Date	Total Amount to Date
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
	Total							
	Less Retention							
	Less Previous Billing(s)							
	Total Amount Due							

City Approval: _____ Date: _____

NOTE: An updated Project Schedule must be provided with each monthly progress payment in accordance with Section 6-1 of the General Provisions in addition to a Conditional Waiver and Release form per Section 9 -3.2.1

**APPENDIX II
CONTRACTOR'S DAILY REPORT TO THE CITY**

(Only the Contractor's Foreman and Superintendent is authorized to complete this form.)

Project Name: _____ Project Location: _____
Date: _____ Report No.: _____ Start Time: _____ End Time: _____
Contractor's Company Name: _____

Contractor's Foreman/Superintendent: _____
Name Signature

Work Accomplished

Equipment on Site	Hours

Workers on Site	Classification	Hours	Company

Note: It is the responsibility of the Contractor to provide this completed form to the City every working day by 5:30 PM, without fail. Failure to do so may result in the corresponding monthly progress payment to be delayed

**APPENDIX III
APPLICABLE STANDARD PLANS**

See Design Drawings

**APPENDIX IV
FACILITY ACCESSMENT ENVIRONMENTAL REPORT**

**APPENDIX V
CONSTRUCTION PLANS**