CONSTRUCTION DOCUMENTS OF

APPLEGREEN ELECTRIC - VEHICLE CHARGING STATION

(45 MAZZEO DRIVE)

IN THE TOWN OF

RANDOLPH

NORFOLK COUNTY

90% SUBMITTAL

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0 100 200 300 400

SCALE: 1" = 100'

RANDOLPH
MAZZEO DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	######	1	21
PROJECT FILE NO.	######		

TITLE SHEET & INDEX

SITE INFORMATION

EV SITE ADDRESS:
45 MAZZEO DR
RANDOLPH, MA 02368

APPLEGREEN REPRESENTATIVE:
JAKE PALERMO
PHONE: 603-417-1154

CONTACT ENGINEER:
KIMLEY-HORN AND ASSOCIATES
CONTACT: JESSICA CAIN, PE
PHONE: 984-358-6005
EMAIL: JESS.CAIN@KIMLEY-HORN.COM

UTILITY PROVIDER:
NATIONAL GRID
CONTACT: STEPHEN FELIX
PHONE NUMBER: 781-960-3871
W.R.#: 31167557

COUNTY:
NORFOLK COUNTY

LATITUDE (NAD83):
42°09'52.50"N

LONGITUDE (NAD83):
71°03'36.97"W

PARCEL ID:
57-B-033

APPLICABLE CODES

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE BUILDING/DWELLING, STRUCTURAL, PLUMBING, MECHANICAL, ELECTRICAL, AND FIRE/LIFE SAFETY CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LOCAL GOVERNING AUTHORITY CODES, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:

- MASSACHUSETTS BUILDING CODE, 10TH EDITION (IBC 2021 AMENDED)
- MASSACHUSETTS ELECTRICAL CODE 2026 (NFPA 70, 2026 AMENDED)

ZONING INFORMATION

PERMITTING JURISDICTION: TOWN OF RANDOLPH
ZONING CLASS: GREAT BEAR SWAMP HIGHWAY DISTRICT (INDUSTRIAL)

FLOOD HAZARD AREA NOTE

THIS SITE IS LOCATED IN FLOOD ZONE "X" PER FEMA FLOOD MAPS FIRM 25021C0216F, EFFECTIVE DATE 07/08/2025.

PROJECT DESCRIPTION

- INSTALL (4) 400KW ALPITRONIC HYC400 EV CHARGERS
- INSTALL (1) 2000A SWITCHGEAR & CONCRETE PAD
- INSTALL (1) UTILITY TRANSFORMER & CONCRETE PAD

STRUCTURAL DESIGN CRITERIA

WIND DESIGN DATA:
- ULTIMATE WIND SPEED: 117MPH
- RISK CATEGORY: II
- WIND IMPORTANCE FACTOR: 1.0
- WIND EXPOSURE CATEGORY: C

SEISMIC DESIGN DATA:
- RISK CATEGORY: II
- SEISMIC IMPORTANCE FACTOR I = 1.0
- MAPPED SPECTRAL RESPONSE COEFFICIENTS:
- S_S = 0.23 S_1 = 0.051
- DESIGN SPECTRAL RESPONSE COEFFICIENTS:
  S_{DS} = 0.18 S_{D1} = 0.072
- SEISMIC DESIGN CATEGORY: B

ASSUMED SOIL PROPERTIES:
- ALLOWABLE BEARING PRESS.: 1,500 PSF
- ALLOWABLE LAT. BEARING PRESS.: 100 PSF/FT

DATE	DESCRIPTION	REV #

Kimley»Horn
271 WAVERLEY OAKS ROAD,
WALTHAM, MA 02452
Main: (781) 328-0676 | www.kimley-horn.com

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APPROVED

CHIEF ENGINEER **DATE**

AGE-RANDOLPH MA-PLANSHEETS.DWG Plotted on 21-Oct-2026 3:27 PM

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
C	C	CABLE MANHOLE
D	D	DRAINAGE MANHOLE
E	E	ELECTRIC MANHOLE
G	G	GAS MANHOLE
M	M	MISC MANHOLE
S	S	SEWER MANHOLE
T	T	TELEPHONE MANHOLE
W	W	WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WG	WG	WATER GATE
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
100 99		CONTOURS (ON-THE-GROUND SURVEY DATA)
100 99		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		EROSION EELS
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		HAY BALES/SILT FENCE
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
1	1	CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
	*	EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
RRSG	RRSG	RAILROAD SIGNAL
OR		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
20'	20'	MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
	20'	MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE
	CW	CROSSWALK
	SWL	SOLID WHITE LINE
	SYL	SOLID YELLOW LINE
	BWL	BROKEN WHITE LINE
	BYL	BROKEN YELLOW LINE
	DWL	DOTTED WHITE LINE
	DYL	DOTTED YELLOW LINE
	DWLEx	DOTTED WHITE LINE EXTENSION
	DYLEx	DOTTED YELLOW LINE EXTENSION
	DBWL	DOUBLE WHITE LINE
	DBYL	DOUBLE YELLOW LINE

ABBREVIATIONS

GENERAL

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATER WAY

ABBREVIATIONS (cont.)

GENERAL

R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

TRAFFIC SIGNAL ABBREVIATIONS

CAB	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY UPRAISED HAND
FDW	FLASHING UPRAISED HAND
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR YELLOW
FYL	FLASHING YELLOW LEFT ARROW
FYR	FLASHING YELLOW RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILT, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALKING PERSON
Y	STEADY CIRCULAR YELLOW
YL	STEADY YELLOW LEFT ARROW

RANDOLPH
MAZZEO DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	######	2	21
PROJECT FILE NO.	######		

LEGEND & ABBREVIATIONS

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MAZZEO DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	######	3	21
PROJECT FILE NO.	######		

GENERAL NOTES I

FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
PROJECT ENGINEER: KIMLEY-HORN
GENERAL CONTRACTOR: TBD
PROJECT OWNER: APPLEGREEN ELECTRIC
PROJECT HOST: MASSDOT
CONTRACTOR: TBD

1. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS. REFER TO MASSDOT'S STANDARD SPECIFICATIONS FOR MATERIAL AND CONSTRUCTION ITEMS.
2. THE GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK, INCLUDING DOT (STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS), AASHTO (AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS), ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS), OSHA (OCCUPATION SAFETY & HEALTH ADMINISTRATION).
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE GENERAL CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
9. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
10. THE GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
11. CONSTRUCTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE.
12. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. SUB CONTRACTOR(S) SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
13. THE CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE PROJECT OWNER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
14. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
15. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
16. THE GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
17. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE CONSTRUCTION SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
18. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
19. THE CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A:10-B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
20. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. THE CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
21. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
22. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
23. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
24. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
25. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
26. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
27. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR, AND GENERAL CONTRACTOR TO SUBMIT TO APPLEGREEN ELECTRIC AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
28. THE CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
29. THE CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
30. THE PROPOSED SITE INFRASTRUCTURE IMPROVEMENT AREA WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITATION.
31. NO PERMANENT OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
32. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
33. THE CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
34. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
35. CONTRACTOR SHALL KEEP SITE FREE OF ALL PONDING OR STANDING WATER.
36. CONTRACTOR SHALL RESTORE THE WORK-SITE TO ORIGINAL CONDITION OR BETTER FOLLOWING ALL OPERATIONS. ALL EXCAVATIONS WILL BE BACKFILLED AND COMPACTED TO 95% DENSITY.
37. ANY LANDSCAPING DISTURBED SHALL BE RESTORED TO ORIGINAL CONDITION POST CONSTRUCTION.

PART 1 - GENERAL

CLEARING, GRUBBING, STRIPPING, EROSION CONTROL, SURVEY, LAYOUT, SUBGRADE PREPARATION AND FINISH GRADING AS REQUIRED TO COMPLETE THE PROPOSED WORK SHOWN IN THESE PLANS.

1. REFERENCES:
   - A. MASS DOT (STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION-CURRENT EDITION).
   - B. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS).
   - C. OSHA (OCCUPATION SAFETY AND HEALTH ADMINISTRATION).

2. INSPECTION AND TESTING:
   - A. GENERAL CONTRACTOR SHALL PERFORM ALL WORK IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. PERFORM INSPECTIONS BEFORE CONCEALING WORK WITH FOLLOW-ON ACTIVITIES (BACKFILL, CONCRETE POUR, ETC).

3. SITE MAINTENANCE AND PROTECTION:
   - A. PROVIDE ALL NECESSARY JOB SITE MAINTENANCE FROM COMMENCEMENT OF WORK UNTIL COMPLETION OF THE CONTRACT.
   - B. AVOID DAMAGE TO THE SITE AND TO EXISTING FACILITIES, STRUCTURES, TREES, AND SHRUBS DESIGNATED TO REMAIN. TAKE PROTECTIVE MEASURES TO PREVENT EXISTING FACILITIES THAT ARE NOT DESIGNATED FOR REMOVAL FROM BEING DAMAGED BY THE WORK.
   - C. KEEP SITE FREE OF ALL PONDING WATER.
   - D. PROVIDE EROSION CONTROL MEASURES IN ACCORDANCE WITH STATE DOT, LOCAL PERMITTING AGENCY AND EPA REQUIREMENTS.
   - E. PROVIDE AND MAINTAIN ALL TEMPORARY FENCING, BARRICADES, WARNING SIGNALS AND SIMILAR DEVICES NECESSARY TO PROTECT AGAINST THEFT FROM PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION. REMOVE ALL SUCH DEVICES UPON COMPLETION OF THE WORK.
   - F. EXISTING UTILITIES: DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED BY THE OWNER OR OTHERS, EXCEPT WHEN PERMITTED IN WRITING BY THE GENERAL CONTRACTOR AND THEN ONLY AFTER ACCEPTABLE TEMPORARY UTILITY SERVICES HAVE BEEN PROVIDED.
   - G. PROVIDE A MINIMUM 48-HOUR NOTICE TO THE GENERAL CONTRACTOR AND RECEIVE WRITTEN NOTICE TO PROCEED BEFORE INTERRUPTING ANY UTILITY SERVICE.
   - H. SOD PLANTED IN THE FALL MUST ESTABLISH ITS ROOTS BEFORE THE FIRST WINTER FROST. DETERMINE WHEN THE FIRST FROST USUALLY OCCURS, AND PLANT THE SOD NO LATER THAN ONE MONTH BEFORE THE FIRST FROST. IF THE CONSTRUCTION IS FINISHED LATER THAN ONE MONTH BEFORE THE FIRST FROST, USE STRAW UNTIL SOD CAN BE INSTALLED.

PART 2 - PRODUCTS

1. SUITABLE MATERIAL – SUITABLE MATERIAL ARE USED FOR GRADING AND BACKFILL. SUITABLE MATERIALS ARE ON SITE SOILS REMOVED FROM EXCAVATIONS THAT EXCLUDE FROZEN SOIL, ROOTS OR ORGANIC MATERIAL, DEBRIS, TRASH, REFUSE, OR PARTICLES SIZE GREATER THAN 3-INCH. SUITABLE SOILS HAVE MOISTURE CONTENTS THAT ALLOW THEM TO BE COMPACTED TO THE SAME DENSITY AS THE NATIVE SOILS.
2. UNSUITABLE MATERIAL – SOILS THAT ARE FROZEN, CONTAIN ROOTS OR ORGANIC MATERIAL, DEBRIS, TRASH, REFUSE, OR PARTICLES SIZES GREATER THAN 3-INCH. SOILS THAT ARE TOO WET OR TOO DRY TO BE COMPACTED TO THE SAME DENSITY AS THE NATIVE SOILS ARE UNSUITABLE.
3. GRANULAR BACKFILL – SHALL MEET THE FOLLOWING GRADATION

SIEVE SIZE	TOTAL PERCENT PASSING
1 1/2 INCH (37.5 MM)	100
NO. 4 (4.75 MM)	30 TO 60
NO 200 (0.075 MM)	3 TO 15

4. GRANULAR BEDDING – WELL-GRADED SAND MEETING THE GRADATION REQUIREMENT OF ASTM C 33 FINE AGGREGATE.
5. CONTROLLED LOW STRENGTH MATERIAL (CLSM)– A SELF LEVELING AND SELF COMPACTING CEMENTITIOUS MATERIAL COMPOSED OF SAND, COARSE AGGREGATE, CEMENT, FLY ASH, WATER AND ADMIXTURES. CLSM SHALL BE EXCAVATABLE AND SHALL HAVE A DESIGNED UNCONFINED COMPRESSIVE STRENGTH OF BETWEEN 50 TO 100 PSI.
6. BACKFILL – PRODUCTS MEETING THE REQUIREMENTS OF SUITABLE MATERIAL, GRANULAR BEDDING, GRANULAR BACKFILL OR CLSM.
7. TOPSOIL – SOIL WITH AN ORGANIC CONTENT SUFFICIENT TO ALLOW VEGETATIVE GROWTH.

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PART 3 - EXECUTION

1. GENERAL:
   - A. BEFORE STARTING GENERAL SITE PREPARATION ACTIVITIES, INSTALL EROSION AND SEDIMENT CONTROL MEASURES. THE WORK AREA SHALL BE CONSTRUCTED AND MAINTAINED IN SUCH CONDITION THAT IN THE EVENT OF RAIN THE SITE WILL BE DRAINED AT ALL TIMES.
   - B. BEFORE ALL SURVEY, LAYOUT, STAKING, AND MARKING, ESTABLISH AND MAINTAIN ALL LINES, GRADES, ELEVATIONS AND BENCHMARKS NEEDED FOR EXECUTION OF THE WORK. CONDUCT UTILITY LOCATE IN ACCORDANCE WITH THE ONE-CALL NOTIFICATION
   - C. CLEAR AND GRUB THE AREA WITHIN THE LIMITS OF THE SITE. REMOVE TREES, BRUSH, STUMPS, RUBBISH AND OTHER DEBRIS AND VEGETATION RESTING ON OR PROTRUDING THROUGH THE SURFACE OF THE SITE AREA TO BE CLEARED.
   - D. REMOVE THE FOLLOWING MATERIALS TO A DEPTH OF NO LESS THAN 12 INCHES BELOW THE ORIGINAL GROUND SURFACE: ROOTS, STUMPS, AND OTHER DEBRIS, BRUSH, AND REFUSE EMBEDDED IN OR PROTRUDING THROUGH THE GROUND SURFACE, RAKE, DISK OR PLOW THE AREA TO A DEPTH OF NO LESS THAN 6 INCHES, AND REMOVE TO A DEPTH OF 12 INCHES ALL ROOTS AND OTHER DEBRIS THEREBY EXPOSED.
   - E. REMOVE TOPSOIL MATERIAL COMPLETELY FROM THE SURFACE UNTIL THE SOIL NO LONGER MEETS THE DEFINITION OF TOPSOIL. AVOID MIXING TOPSOIL WITH SUBSOIL OR OTHER UNDESIRABLE MATERIALS. SUFFICIENT TOPSOIL MAY BE STOCKPILED ON SITE FOR USE DURING FINAL SITE GRADING.
   - F. EXCEPT WHERE EXCAVATION TO GREATER DEPTH IS INDICATED, FILL DEPRESSIONS RESULTING FROM CLEARING, GRUBBING AND DEMOLITION WORK COMPLETELY WITH SUITABLE MATERIAL.
   - G. REMOVE FROM THE SITE AND DISPOSE IN AN AUTHORIZED LANDFILL ALL DEBRIS RESULTING FROM CLEARING AND GRUBBING OPERATIONS. BURNING WILL NOT BE PERMITTED.
   - H. PRIOR TO EXCAVATING, THOROUGHLY EXAMINE THE AREA TO BE EXCAVATED AND/OR TRENCHED TO VERIFY THE LOCATIONS OF FEATURES INDICATED ON THE DRAWINGS AND TO ASCERTAIN THE EXISTENCE AND LOCATION OF ANY STRUCTURE, UNDERGROUND STRUCTURE, OR OTHER ITEM NOT SHOWN THAT MIGHT INTERFERE WITH THE PROPOSED CONSTRUCTION. NOTIFY THE GENERAL CONTRACTOR OF ANY OBSTRUCTIONS THAT WILL PREVENT ACCOMPLISHMENT OF THE WORK AS INDICATED ON THE DRAWINGS.
   - I. SEPARATE AND STOCK PILE ALL EXCAVATED MATERIALS SUITABLE FOR BACKFILL. ALL EXCESS EXCAVATED AND UNSUITABLE MATERIALS SHALL BE DISPOSED OF OFF-SITE IN A LEGAL MANNER.
   - J. DURING EXCAVATION, THE CONTRACTOR SHALL PROVIDE SHORING, SHEETING, AND BRACING AS REQUIRED TO PREVENT CAVING OR SLOUGHING OF EXCAVATION.

2. BACKFILL:
   - A. AS SOON AS PRACTICAL, AFTER COMPLETING CONSTRUCTION OF THE RELATED STRUCTURE, INCLUDING EXPIRATION OF THE SPECIFIED MINIMUM CURING PERIOD FOR CAST-IN-PLACE CONCRETE, BACKFILL THE EXCAVATION WITH APPROVED MATERIAL TO RESTORE THE REQUIRED FINISHED GRADE.
   - B. PRIOR TO PLACING BACKFILL AROUND STRUCTURES, ALL FORMS SHALL BE REMOVED AND THE EXCAVATION CLEANED OF ALL TRASH, DEBRIS, AND UNSUITABLE MATERIALS.
   - C. DO NOT PLACE FROZEN MATERIAL IN AS BACKFILL.
   - D. PLACE BACKFILL MATERIAL OR SELECT GRANULAR BACKFILL MATERIAL WHEN REQUIRED IN UNIFORM HORIZONTAL LAYERS OF NO GREATER THAN 8-INCHES LOOSE THICKNESS AND COMPACT TO THE SAME DENSITY AS NATIVE SOIL. WHERE HAND OPERATED COMPACTORS ARE USED, THE FILL MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 4 INCHES IN LOOSE DEPTH AND COMPACTED.
   - E. WHENEVER TESTING INDICATES THAT THE CONTRACTOR HAS NOT OBTAINED THE SPECIFIED DENSITY, THE SUCCEEDING LAYER SHALL NOT BE PLACED UNTIL THE REQUIREMENTS ARE MET UNLESS OTHERWISE AUTHORIZED BY THE GENERAL CONTRACTOR. THE CONTRACTOR SHALL TAKE WHATEVER APPROPRIATE ACTION IS NECESSARY, SUCH AS DRYING, ADDING WATER, OR INCREASING THE COMPACTIVE EFFORT TO MEET THE COMPACTION REQUIREMENTS.

3. TRENCH EXCAVATION:
   - A. UTILITY TRENCHES SHALL BE EXCAVATED TO THE LINES AND GRADES SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE GENERAL CONTRACTOR. PROVIDE SHORING, SHEETING AND BRACING AS REQUIRED TO PREVENT CAVING OR SLOUGHING OF THE TRENCH WALLS.
   - B. EXTEND THE TRENCH WIDTH A MINIMUM OF 6 INCHES BEYOND THE OUTSIDE EDGE OF THE OUTERMOST CONDUIT.
   - C. WHEN SOFT YIELDING, OR OTHERWISE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, EXCAVATE THE REQUIRED TRENCH TO A DEPTH OF NO LESS THAN 12 INCHES BELOW THE REQUIRED ELEVATION, THEN BACKFILL WITH 12" OF GRANULAR BEDDING MATERIAL.

4. TRENCH BACKFILL:
   - A. PROVIDE GRANULAR BEDDING MATERIAL OR FLOWABLE FILL IN ACCORDANCE WITH THE DRAWINGS AND THE UTILITY REQUIREMENTS.
   - B. NOTIFY THE GENERAL CONTRACTOR 24 HOURS IN ADVANCE OF BACKFILLING.
   - C. CONDUCT UTILITY CHECK TESTS BEFORE BACKFILLING. BACKFILL AND COMPACT TRENCH BEFORE ACCEPTANCE TESTING.
   - D. PLACE GRANULAR TRENCH BACKFILL UNIFORMLY ON BOTH SIDES OF THE CONDUITS IN 6-INCH UNCOMPACTED LIFTS UNTIL 12 INCHES OVER THE CONDUITS. SOLIDLY RAM AND TAMP BACKFILL INTO SPACE AROUND CONDUITS.
   - E. PROTECT CONDUIT FROM LATERAL MOVEMENT, IMPACT DAMAGE, OR UNBALANCED LOADING.
   - F. ABOVE THE CONDUIT EMBEDMENT ZONE, PLACE AND COMPACT SATISFACTORY BACKFILL MATERIAL IN 8-INCH MAXIMUM LOOSE THICKNESS LIFTS TO RESTORE THE REQUIRED FINISHED SURFACE GRADE.
   - G. COMPACT FINAL TRENCH BACKFILL TO A DENSITY EQUAL TO OR GREATER THAN THAT OF THE EXISTING UNDISTURBED MATERIAL IMMEDIATELY ADJACENT TO THE TRENCH.

5. FINISH GRADING:
   - A. PERFORM ALL GRADING TO PROVIDE POSITIVE DRAINAGE AWAY FROM STRUCTURES AND SMOOTH, EVEN SURFACE DRAINAGE OF THE ENTIRE AREA WITHIN THE LIMITS OF CONSTRUCTION. GRADING SHALL BE COMPATIBLE WITH ALL SURROUNDING TOPOGRAPHY AND STRUCTURES.
   - B. UTILIZE SATISFACTORY FILL MATERIAL RESULTING FROM THE EXCAVATION WORK IN THE CONSTRUCTION OF FILLS, EMBANKMENTS AND FOR REPLACEMENT OF REMOVED UNSUITABLE MATERIALS.
   - C. REPAIR ALL ACCESS ROADS AND SURROUNDING AREAS USED DURING THE COURSE OF THIS WORK TO THEIR ORIGINAL CONDITION.

6. ASPHALT PAVING:
   - A. CONTRACTOR RESPONSIBLE FOR RE-STRIPING AND APPLYING SEALCOATING, UNLESS OTHERWISE NOTED.
   - B. ASPHALT PAVING MATERIALS AND INSTALLATION SHALL CONFORM TO THE MASSDOT STANDARD SPECIFICATIONS, CURRENT EDITION, UNLESS OTHERWISE NOTED.

7. STAGING:
   - A. WORK / STAGING AREA TO BE CONFIRMED AT PRE-CONSTRUCTION SITE MEETING AND SURROUNDED BY TEMPORARY FENCE DURING CONSTRUCTION.
   - B. POSSIBLE LOCATION FOR TEMPORARY DRIVE AISLE CLOSURE DURING CONSTRUCTION.
   - C. CONTRACTOR TO PROVIDE TEMPORARY SIGNS TO DIRECT TRAFFIC FLOW.
   - D. SHORT TERM FENCING TO BE PROVIDED OUTSIDE OF TEMPORARY FENCE FOR ANY OPEN TRENCHES LEFT OVER NIGHT OR UNATTENDED.
   - E. TEMPORARY FENCE SHALL BE CLOSED AND LOCKED AT ALL TIMES. IF GATE MUST BE OPEN FOR MOVING EQUIPMENT OR MATERIALS, A SPOTTER SHALL BE PROVIDED TO PREVENT UNAUTHORIZED ENTRY.
   - F. NO EQUIPMENT OR MATERIALS SHALL BE STORED OUTSIDE THE TEMPORARY FENCE FOR ANY AMOUNT OF TIME.

ELECTRICAL NOTES

1. THE GENERAL CONTRACTOR SHALL SUPPLY AND INSTALL ANY/ALL ELECTRICAL WORK INDICATED. ANY/ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH DRAWINGS AND ANY/ALL APPLICABLE SPECIFICATIONS. IF ANY PROBLEMS ARE ENCOUNTERED BY COMPLYING WITH THESE REQUIREMENTS, CONTRACTOR SHALL NOTIFY GENERAL CONTRACTOR AS SOON AS POSSIBLE, AFTER THE DISCOVERY OF THE PROBLEMS, AND SHALL NOT PROCEED WITH THAT PORTION OF WORK, UNTIL THE GENERAL CONTRACTOR HAS DIRECTED THE CORRECTIVE ACTIONS TO BE TAKEN.
2. THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE THEMSELVES WITH ANY/ALL CONDITIONS AFFECTING ELECTRICAL AND COMMUNICATION INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. THE CONDITION OF EXISTING ELECTRICAL EQUIP., LIGHT FIXTURES, ETC., THAT ARE PART OF THE FINAL SYSTEM, SHALL BE VERIFIED BY THE CONTRACTOR, PRIOR TO THE SUBMITTAL OF HIS BID. FAILURE TO COMPLY WITH THIS PARAGRAPH WILL IN NO WAY RELIEVE CONTRACTOR OF PERFORMING ALL WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC AND ALL CODES AND LOCAL ORDINANCES OF THE LOCAL POWER COMPANIES HAVING JURISDICTION AND SHALL INCLUDE BUT NOT BE LIMITED TO:
   - A. UL - UNDERWRITERS LABORATORIES
   - B. NEC - NATIONAL ELECTRICAL CODE
   - C. NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
   - D. OSHA - OCCUPATIONAL SAFETY AND HEALTH ACT
   - E. SBC - STANDARD BUILDING CODE
   - F. NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
4. DO NOT SCALE ELECTRICAL DRAWINGS, REFER TO SITE PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, BUT CONFIRM WITH GENERAL CONTRACTOR ANY SIZES AND LOCATIONS WHEN NEEDED.
5. EXISTING SERVICES: THE CONTRACTOR SHALL NOT INTERRUPT EXISTING SERVICES WITHOUT WRITTEN PERMISSION OF THE OWNER.
6. THE CONTRACTOR SHALL PAY FOR ANY/ALL PERMITS, FEES, INSPECTIONS AND TESTING. THE CONTRACTOR IS TO OBTAIN PERMITS AND APPROVED SUBMITTALS PRIOR TO THE WORK BEGINNING OR ORDERING THE EQUIPMENT.
7. THE TERM "PROVIDE" USED IN CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, INDICATES THAT THE CONTRACTOR SHALL FURNISH AND INSTALL.
8. THE CONTRACTOR SHALL CONFIRM WITH LOCAL UTILITY COMPANY ANY/ALL REQUIREMENTS SUCH AS THE: LUG SIZE RESTRICTIONS, CONDUIT ENTRY, SIZE OF TRANSFORMERS, SCHEDULED DOWNTIME FOR THE OWNERS' CONFIRMATION, ETC. ANY/ALL CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR, PRIOR TO BEGINNING ANY WORK.
9. CONDUCTORS: CONTRACTOR SHALL USE 98% CONDUCTIVITY COPPER OR ALUMINUM WITH TYPE (THWN-2) INSULATION, 600 VOLT, COLOR CODED UNLESS SPECIFIED DIFFERENTLY ON DRAWINGS.
10. ALL (THWN-2) WIRING INSTALLATIONS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
11. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, CAST ALLOY WITH THREADED HUBS IN WET/DAMP LOCATIONS AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.
12. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF THE CONSTRUCTION. CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER. CONTRACTOR IS TO PROVIDE ALL ELECTRICAL EQUIPMENT UNLESS OTHERWISE DIRECTED.
13. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS, WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIONAL AND SUBJECT TO REGULATORY INSPECTION AND APPROVAL BY GENERAL CONTRACTOR.
14. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.
15. CONTRACTOR SHALL GUARANTEE ANY/ALL MATERIALS AND WORK FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE.
16. THE CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ANY ADDITIONAL CHARGE AND SHALL INCLUDE THE REPLACEMENT OR THE REPAIR OF ANY OTHER PHASE OF THE INSTALLATION, WHICH MAY HAVE BEEN DAMAGED THEREIN.
17. ADEQUATE AND REQUIRED LIABILITY INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LOSS AND ANY/ALL PROPERTY DAMAGE FOR THE DURATION OF WORK.
18. PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES AND DEVICES FOR ALL OUTLETS AS INDICATED.
19. TRENCHING AND BACKFILL: THE CONTRACTOR SHALL PROVIDE FOR ALL UNDERGROUND INSTALLED CONDUIT AND/OR CABLES INCLUDING EXCAVATION AND BACKFILLING AND COMPACTION. REFER TO GENERAL SITE WORK NOTES.
20. MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SHALL APPEAR ON THE LIST OF U.L. APPROVED ITEMS AND SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NEC, NEMA AND IEEE.
21. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR MANUFACTURES CATALOG INFORMATION OF ANY/ALL LIGHTING FIXTURES, SWITCHES AND ALL OTHER ELECTRICAL ITEMS FOR APPROVAL BY THE GENERAL CONTRACTOR PRIOR TO INSTALLATION.
22. ANY CUTTING OR PATCHING DEEMED NECESSARY FOR ELECTRICAL WORK IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY AND SHALL BE INCLUDED IN THE COST FOR WORK AND PERFORMED TO THE SATISFACTION OF THE GENERAL CONTRACTOR UPON FINAL ACCEPTANCE.
23. THE GENERAL CONTRACTOR SHALL LABEL ALL PANELS WITH ONLY TYPEWRITTEN DIRECTORIES.
24. DISCONNECT SWITCHES SHALL BE H.P. RATED HEAVY-DUTY, QUICK-MAKE AND QUICK-BREAK ENCLOSURES, AS REQUIRED BY EXPOSURE TYPE.
25. ALL CONNECTIONS EXCEPT THE EV CHARGE CABLE TERMINATION IN THE CHARGE POST SHALL BE MADE WITH A PROTECTIVE COATING OF AN ANTI-OXIDE COMPOUND SUCH AS "NOALOX" BY IDEAL INDUSTRIAL INC., COAT ALL WIRE SURFACES BEFORE CONNECTING. EXPOSED ALUMINUM & COPPER SURFACES, INCLUDING GROUND BARS, SHALL BE TREATED - NO SUBSTITUTIONS.
26. ALL EXTERIOR AND INTERIOR ABOVE GROUND CONDUIT SHALL BE RIGID UNLESS SPECIFIED OTHERWISE. ALL BURIED CONDUITS SHALL BE SCH 40 PVC UNLESS SPECIFIED OTHERWISE.

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GENERAL NOTES II

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ELECTRICAL NOTES - CONTINUED

27. RACEWAYS: CONDUIT SHALL BE SCHEDULE 40 PVC, MEETING OR EXCEEDING NEMA TC2 - 1990. THE CONTRACTOR SHALL PLUG AND CAP EACH END OF SPARE AND EMPTY CONDUITS AND PROVIDE TWO SEPARATE PULL STRINGS - 200 LBS TEST POLYETHYLENE CORD. ALL CONDUIT BENDS SHALL BE A MINIMUM OF 3 FT. RADIUS. RGS CONDUITS WHEN SPECIFIED, SHALL MEET UL-6 FOR GALVANIZED STEEL. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. COAT ALL THREADS WITH 'BRITE ZINC' OR 'GOLD GALV'.
28. SUPPORT OF ALL ELECTRICAL WORK SHALL BE AS REQUIRED BY NEC.
29. CONNECTORS FOR POWER CONDUCTORS: CONTRACTOR SHALL USE PRESSURE TYPE INSULATED TWIST-ON CONNECTORS FOR NO. 10 AWG AND SMALLER. USE SOLDERLESS MECHANICAL TERMINAL LUGS FOR NO. 8 AWG AND LARGER.
30. THE CONTRACTOR SHALL PLACE TWO LENGTHS OF WARNING TAPE AT A DEPTH OF 12" BELOW GROUND AND DIRECTLY ABOVE ELECTRICAL SERVICE CONDUITS. CAUTION TAPE TO READ "CAUTION BURIED ELECTRIC".
31. WHEN DIRECTIONAL BORING IS REQUIRED, CONTRACTOR SHALL INSTALL A LOOSE TONING WIRE WITHIN INSTALLED CONDUIT TO ALLOW FOR IDENTIFICATION OF UNDERGROUND CONDUITS.
32. ALL BOLTS SHALL BE STAINLESS STEEL.
33. ALL MATERIALS AND EQUIPMENT SUPPLIED AND INSTALLED BY THE CONTRACTOR SHOULD BE NEW AND UNUSED.

STRUCTURAL STEEL NOTES

1. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING REQUIREMENTS, UNLESS NOTED OTHERWISE: WIDE FLANGE SHAPE: A992, 50KSI
   ANGLE AND CHANNEL SHAPE: ASTM A36, 36 KSI PLATE: ASTM A36, 36KSI
   PIPE: ASTM A53 GRADE B, 35 KSI
   HSS: ASTM A500 GRADE B, 46KSI
2. HIGH-STRENGTH BOLTS SHALL CONFORM TO ASTM A325: ONE HIGH-STRENGTH BOLT ASSEMBLY SHALL CONSIST OF A HEAVY HEX STRUCTURAL BOLT, A HEAVY NUT, A HARDENED WASHER CONFORMING TO ASTM F436. THE HARDENED WASHER SHALL BE INSTALLED AGAINST ELEMENT TURNED IN TIGHTENING. UNLESS NOTED OTHERWISE ON THE DRAWINGS, ALL CONNECTIONS SHALL BE BEARING TYPE CONNECTIONS.
3. WELDING ELECTRODES SHALL COMPLY WITH AWS D1.1 USING A5.1 OR A5.5 E70XX AND SHALL BE COMPATIBLE WITH THE WELDING PROCESS SELECTED. WELDERS SHALL BE QUALIFIED AS PRESCRIBED IN AWS D1.1.
4. UNLESS NOTED OTHERWISE ON THE DRAWING, ALL ANCHOR BOLTS SHALL CONFORM TO ASTM F1554 WITH HEAVY HEXAGONAL NUT.
5. FABRICATE ITEMS OF STRUCTURAL STEEL IN ACCORDANCE WITH AISC SPECIFICATION.
6. ALL EXPOSED STRUCTURAL STEEL AND BOLTS SHALL BE HOT DIP GALVANIZED PER ASTM A123.
7. SUBMIT FABRICATION AND ERECTION DRAWINGS SHOWING ALL DETAILS, CONNECTIONS, MATERIAL DESIGNATIONS, AND TOP STEEL ELEVATIONS FOR APPROVAL. THE SHOP DRAWINGS WILL BE REVIEWED FOR GENERAL CONFORMANCE TO THE CONTRACT DRAWINGS. SUCH APPROVAL SHALL NOT RELIEVE THE FABRICATOR/CONTRACTOR OF THE RESPONSIBILITY FOR EITHER THE ACCURACY OF THE DETAILED DIMENSIONS IN THE SHOP AND ERECTION DRAWINGS OR THE GENERAL FIT-UP OF PARTS THAT ARE TO BE ASSEMBLED IN THE FIELD.
8. PRIMER SHALL BE RED OXIDE-CHROMATE PRIME COMPLYING WITH STEEL STRUCTURES PAINTING COUNCIL (SSPC) PAINT SPECIFICATION NUMBER 11

REINFORCED CONCRETE NOTES

1. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 301-16, "STANDARD SPECIFICATION FOR STRUCTURAL CONCRETE" AND ACI 302, 305 AND 306 UNLESS NOTED OTHERWISE.
2. ALL DETAILING, FABRICATION AND PLACING OF CONCRETE SHALL CONFORM TO ACI 318-14, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND THE LATEST ACI "MANUAL OF STANDARD PRACTICE FOR DETAIL REINFORCED CONCRETE STRUCTURES" UNLESS NOTED OTHERWISE.
3. SAFETY AND PERFORMANCE OF THE STRUCTURE ARE THE RESPONSIBILITY OF THE CONTRACTOR INSOFAR AS THEY ARE AFFECTED BY THE LOCATION AND DETAILS OF CONSTRUCTION JOINTS. SHOP DRAWINGS OF THE PROPOSED CONSTRUCTION JOINT LOCATIONS AND DETAILS ARE TO BE SUBMITTED TO THE ARCHITECT FOR APPROVAL.
4. CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 28 DAYS UNLESS OTHERWISE NOTED CONTINUOUS INSPECTION IS NOT REQUIRED. SLUMP: 4" MIN / 6" MAX. AIR ENTRAINMENT: 4 1/2% - 7% BY VOLUME
5. REINFORCEMENT SHALL BE A NEW BILLET STEEL DEFORMED BARS CONFORMING TO ASTM SPECIFICATION A615 GRADE 60, MAXIMUM COARSE AGGREGATE SIZE SHALL BE 3/4".
6. REINFORCEMENT SHALL COMPLY WITH THE LATEST EDITION OF ACI 318 FOR MINIMUM CLEARANCES AND CONCRETE COVER.
7. ALL EMBEDDED ITEMS SHALL BE SECURELY HELD IN POSITION PRIOR TO PLACEMENT OF CONCRETE. ALL CONCRETE SHALL BE READY-MIXED IN ACCORDANCE WITH ASTM C94.
8. MAINTAIN TEMPERATURE OF CAST IN PLACE CONCRETE BETWEEN 50 DEGREES AND 90 DEGREES FAHRENHEIT.
9. DO NOT USE RETEMPERED CONCRETE, OR ADD WATER TO READY-MIX CONCRETE AT THE JOB SITE
10. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.7.
11. EXCEPT AS DETAILED OR AUTHORIZED, MAKE BARS CONTINUOUS AROUND CORNERS WHERE PERMITTED, SPLICES MADE BY CONTACT LAPS SHALL BE CLASS "B" TENSION LAPS UNLESS NOTED OTHERWISE.
12. PROVIDE ACCESSORIES NECESSARY TO PROPERLY SUPPORT REINFORCING.
13. EXPANSION JOINTS SHALL BE CONSTRUCTED AT LOCATIONS WHERE THE CONCRETE PAD ABUTS CONCRETE CURBS, DRIVEWAYS, AND SIMILAR STRUCTURES, AND AS SHOWN ON APPROVED PLANS. EXPANSION JOINTS SHALL BE FORMED WITH ONE-HALF INCH PRE-FABRICATED NON-EXTRUDING FILLER AND SHALL EXTEND THE FULL DEPTH OF THE SLAB.
14. NO TACK WELDING OF REINFORCING IN THE FIELD IS PERMITTED.
15. PROVIDE CORNER BARS AT ALL LOCATIONS WHERE REINFORCEMENT CHANGES DIRECTION.
16. PROVIDE STRAIGHT AND DIAGONAL BARS AT EDGES OF ALL OPENINGS. REINFORCING EMBEDMENT AND LAP SPLICES (INCHES) FOR 4000 PSI CONCRETE.

	OTHER		TOP*	
	ANCHORAGE	SPLICE	ANCHOARE	SPLICE
#3	15	19	19	24
#4	19	25	25	33
#5	24	31	31	41
#6	29	37	37	49

*HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE BELOW BAR

17. NON-SHRINK GROUT SHALL MEET A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 6000 PSI.
18. ADD 100% TIES FOR REBAR OVERLAY. NO COLD JOINTS SHALL BE PERMITTED DURING CONSTRUCTION.

TRAFFIC CONTROL NOTES

1. DURING THE CONSTRUCTION PERIOD; SIDEWALKS, SHOULDERS, TRAVEL LANE(S), OR STREETS MAY HAVE TO BE TEMPORARILY CLOSED OR RESTRICTED FOR THE UNLOADING / LOADING OF EQUIPMENT OR AS A RESULT OF CONSTRUCTION ACTIVITES THEMSELVES. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE DIRECTLY WITH THE LOCAL GOVERNING AUTHORITIES ON ANY SUCH CLOSURES AND MUST OBTAIN WRITTEN PERMISSION FROM THE APPROPRIATE AUTHORITIES PRIOR TO IMPLEMENTING SUCH CLOSURES OR RESTRICTIONS. ANY CLOSURE OR RESTRICTION MUST COMPLY WITH THE STATE MANUAL OF UNIFORM CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS (LATEST EDITION AND REVISION), AND WITH ANY AND ALL ADDITIONAL APPLICABLE CITY, VILLAGE, OR COUNTY REQUIREMENTS. THE CONTRACTOR SHALL PREPARE AND SUBMIT A FORMAL TRAFFIC CONTROL / MOT PLAN TO THE LOCAL GOVERNING AUTHORITIES IF REQUESTED. ALL REQUIRED CONSTRUCTION TRAFFIC MAINTENANCE DEVICES SHALL BE PROVIDED, ERECTED AND MAINTAINED, AND ULTIMATELY REMOVED BY THE CONTRACTOR.
2. THE GENERAL CONTRACTOR SHALL MAINTAIN SAFE AND SATISFACTORY ACCESS TO ALL ABUTTING PROPERTIES AND INTERSECTING STREETS AT ALL TIMES DURING THE CONSTRUCTION OF THE IMPROVEMENTS ANTICIPATED. DRIVEWAYS MUST BE MAINTAINED AND ALL TRENCHES SHALL BE BACKFILLED AT THE END OF EACH WORK DAY. PER THE STATE MUTCD AND OTHER APPLICABLE APPROPRIATE GOVERNING REQUIREMENTS, THE CONTRACTOR SHALL PROVIDE ALL NECESSARY SAFEGUARDS SUCH AS BARRICADES, SATISFACTORY BARRIERS, CONES, SIGNAGE, BARRELS, MESSAGE BOARDS, LIGHTING, FLAGMEN, LAW ENFORCEMENT OFFICERS, ETC. TO AVOID DAMAGE AND / OR INJURY TO VEHICLES AND PERSONS TRAVERSING THE CONSTRUCTION AREA.

PAVEMENT MARKING NOTES

1. ALL PAVEMENT MARKINGS TO MATCH EXISTING, UNLESS STATED OTHERWISE.
2. MARKING (STRIPING) PAINT FOR PARKING SPACES, TRAFFIC ARROWS, ADA PARKING AND SYMBOLS, ETC., PER LOCAL REQUIREMENTS AND AS FOLLOWS:
   A. PAVEMENT MARKINGS PAINT SHALL BE WATER BASE FAST DRYING 100% ACRYLIC TYPE: WATER BASE TO MEET FEDERAL SPECIFICATION TTP-01952B. FOR COLD WEATHER APPLICATION PAINT PRODUCT SHALL BE IN ACCORDANCE WITH ASTM-D2369, D1394, D3723, D1475, D562 AND D711.
   B. PROVIDE A NON-SLIP AGGREGATE ADDITIVE TO MARKING PAINT USED AT ADA ACCESS RAMPS/
   C. APPLY 2 COATS WITHIN THE SAME DAY, UTILIZING STRAIGHT EDGES, YELLOW ON CONCRETE / WHITE ON ASPHALT EXCEPT WHEN MATCHING ADJACENT OR EXISTING COLOR WHEN THE PAVING IS AN EXPANSION OR SEGMENT OF A LARGER LOT.

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GENERAL NOTES III

FROST DESIGN NOTES
(BOTTOM OF FOUNDATIONS ABOVE FROST LEVEL)

1. CONCRETE FOUNDATIONS SHOULD BEAR DIRECTLY ON A PROPERLY COMPACTED FREE-DRAINING GRANULAR FILL CONSISTING OF NO. 57 STONE OR AN APPROVED EQUIVALENT.
2. GRANULAR FILL SHOULD EXTEND VERTICALLY TO THE MINIMUM RECOMMENDED REGIONAL FROST DEPTH AND LATERALLY 2/3RD FROM THE FOUNDATION PERIMETER (EXCLUDING SIDE OF PERIMETER ADJACENT TO CURB). GRANULAR FILL SHOULD BE PLACED IN 8 INCH LOOSE LIFTS AND COMPACTED WITH A VIBRATORY COMPACTOR. THE COMPACTION EQUIPMENT SHOULD BE OPERATED OVER THE FULL WIDTH OF THE FOUNDATION UNDERCUT AREA UNTIL VISIBLE DEFORMATION OF THE BACKFILL CEASES. CONTRACTOR SHALL VERIFY LOCAL FROST DEPTH WITH AHJ PRIOR TO CONSTRUCTION.
3. GEOTEXTILE (FILTER FABRIC) SHOULD BE PLACED BETWEEN THE GRANULAR BACKFILL AND COHESIVE SOILS TO PRECLUDE THE INFILTRATION OF FINES. SPEC AS FOLLOWS:
   SEPARATION GEOTEXTILE: WOVEN GEOTEXTILE FABRIC, MANUFACTURED FOR SEPARATION APPLICATIONS, MADE FROM POLYOLEFINS OR POLYESTERS; WITH ELONGATION LESS THAN 50 PERCENT; COMPLYING WITH AASHTO M 288 AND THE FOLLOWING, MEASURED PER TEST METHODS REFERENCED:

   SURVIVABILITY: CLASS 2; AASHTO M 288.
   GRAB TENSILE STRENGTH: 247 LBF (1100 N); ASTM D 4632.
   SEWN SEAM STRENGTH: 222 LBF (990 N); ASTM D 4632.
   TEAR STRENGTH: 90 LBF (400 N); ASTM D 4533.
   PUNCTURE STRENGTH: 90 LBF (400 N); ASTM D 4833.
   APPARENT OPENING SIZE: NO. 60 (0.250-MM) SIEVE, MAXIMUM; ASTM D 4751.
   PERMITTIVITY: 0.02 PER SECOND, MINIMUM; ASTM D 4491.
   UV STABILITY: 50 PERCENT AFTER 500 HOURS' EXPOSURE; ASTM D 4355.

NO FROST DESIGN NOTES
(BOTTOM OF FOUNDATIONS BELOW FROST LEVEL)

1. CONCRETE FOUNDATIONS SHOULD BE SUPPORTED ON A 6 INCH COMPACTED LAYER OF APPROVED FREE-DRAINING GRANULAR MATERIAL.
2. APPROVED MATERIAL SHOULD BE COMPACTED OVER THE FULL WIDTH OF THE INFILL AREA UNTIL VISIBLE DEFORMATION OF THE BACKFILL CEASES.

GROUNDING NOTES

1. COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).
4. ALL BELOW GRADE BONDS TO BE EXOTHERMIC WELDS OR IRREVERSIBLE COMPRESSION-TYPE CONNECTIONS LISTED FOR USE IN THE APPLICATION WHICH THEY ARE INSTALLED.
5. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
6. 2015 NEC 250.121 EXCEPTION: A WIRE-TYPE EQUIPMENT GROUNDING CONDUCTOR INSTALLED IN COMPLIANCE WITH 250.6(A) AND THE APPLICABLE REQUIREMENTS FOR BOTH THE EQUIPMENT GROUNDING CONDUCTOR AND THE GROUNDING ELECTRODE CONDUCTOR IN PARTS II, III, AND VI OF THIS ARTICLE SHALL BE PERMITTED TO SERVE AS BOTH AN EQUIPMENT GROUNDING CONDUCTOR AND A GROUNDING ELECTRODE CONDUCTOR.

ANCHORAGE INSTALLATION NOTES

1. DRILLING THROUGH EXISTING SLAB REBAR DURING POST-INSTALLED ANCHOR BOLTS INSTALLATION IS NOT PERMITTED.
2. POST-INSTALLED ANCHOR BOLT INSTALLATION SHALL BE PERFORMED BY PERSONNEL TRAINED TO INSTALL THE SYSTEM PER THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII), AS INCLUDED IN THE ANCHOR PACKAGING.
3. EXPANSION AND ADHESIVE ANCHORS SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS USING STANDARD EMBEDMENTS AND EDGE DISTANCES UNLESS NOTED OTHERWISE ON THE DRAWINGS.

AGE-RANDOLPH MA-PLANSHEETS.DWG Plotted on 21-Oct-2026 3:27 PM

DEMOLITION NOTES

1. GENERAL CONTRACTOR TO PROVIDE DEMOLITION PHASING PLAN TO APPLEGREEN ELECTRIC PRIOR TO START OF WORK AND PLAN TO MINIMIZE DISTURBANCE TO PARK & RIDE ACTIVITIES AND TRAFFIC.
2. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THIS PLAN ARE GIVEN FOR THE CONVENIENCE OF THE GENERAL CONTRACTOR AND SHOULD BE FIELD VERIFIED VIA UTILITY LOCATE AND HAND DIGGING TO DETERMINE THEIR ACCURACY. PRIOR TO THE START OF ANY DEMOLITION ACTIVITY, THE GENERAL CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES FOR MARKING ONSITE LOCATIONS OF EXISTING UTILITIES.
3. IT IS THE GENERAL CONTRACTORS RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES WHICH MAY HAVE BURIED OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE COMMENCING WORK. THE GENERAL CONTRACTOR SHALL PROVIDE 72 HOURS MINIMUM NOTICE TO ALL UTILITY COMPANIES PRIOR TO BEGINNING CONSTRUCTION.
4. ALL EXISTING UTILITIES SHOWN ARE LOCATED ACCORDING TO THE INFORMATION AVAILABLE TO THE PROJECT ENGINEER AT THE TIME THE DRAWINGS WERE PREPARED AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE PROJECT ENGINEER. GUARANTEE IS NOT MADE THAT ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN OR THAT THE LOCATION OF THOSE SHOWN ARE ACCURATE. FINDING THE ACTUAL LOCATION OF ANY EXISTING UTILITIES IS THE GENERAL CONTRACTOR'S RESPONSIBILITY AND SHALL BE DONE BEFORE HE COMMENCES ANY WORK IN THE VICINITY. FURTHERMORE, THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY AND ALL DAMAGE DUE TO THE GENERAL CONTRACTORS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE OWNER, ENGINEER, OR MASSDOT, WILL ASSUME NO LIABILITY FOR ANY DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE OPERATIONS IN THE VICINITY OF EXISTING UTILITIES OR STRUCTURES, NOR FOR TEMPORARY BRACING AND SHORING OF SAME. IF IT IS NECESSARY TO SHORE, BRACE, SWING OR RELOCATE A UTILITY, THE UTILITY COMPANY OR DEPARTMENT AFFECTED SHALL BE CONTACTED BY THE GENERAL CONTRACTOR AND THEIR PERMISSION OBTAINED REGARDING THE METHOD TO USE FOR SUCH WORK.
5. THE GENERAL CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES ONE COPY OF THE CONTRACT DOCUMENTS INCLUDING PLANS, SPECIFICATIONS, COPIES OF ANY REQUIRED CONSTRUCTION PERMITS, AND EROSION CONTROL PLANS AND INSPECTION REPORTS (SWPPP).
6. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER / PROJECT ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND NOTIFICATION TO THE PROJECT ENGINEER. NO CONSIDERATION WILL BE GIVEN TO CHANGE ORDERS FOR WHICH THE OWNER AND PROJECT ENGINEER WERE NOT CONTACTED PRIOR TO CONSTRUCTION OF THE AFFECTED ITEM.
7. QUANTITIES SHOWN HERE ARE APPROXIMATE AND ARE PROVIDED FOR CONVENIENCE ONLY AND NOT FOR BID PURPOSES. GENERAL CONTRACTOR SHALL VERIFY QUANTITIES NECESSARY TO DEMO FACILITIES SHOWN.

PAVING NOTES

1. PRIVATE CURB RAMPS ON THE SITE (I.E. OUTSIDE PUBLIC STREET RIGHT-OF-WAY) SHALL CONFORM TO ADA STANDARDS.
2. ALL PEDESTRIAN CURB RAMPS, CURB RAMPS, STRIPING, AND PAVEMENT MARKINGS SHALL CONFORM TO ADA STANDARDS, LATEST EDITION.
3. GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL PAVEMENT MARKINGS FOR FIRE LANES, PARKING STALLS, HANDICAPPED PARKING SYMBOLS, AND MISCELLANEOUS STRIPING WITHIN PARKING LOT AND AROUND BUILDING AS SHOWN ON THE PLANS. ALL PAINT AND PAVEMENT MARKINGS SHALL ADHERE TO AHJ AND OWNER STANDARDS.
4. THE MINIMUM LENGTH OF OFFSET JOINTS AT RADIUS POINTS SHALL BE 2 FEET.
5. BEFORE PLACING PAVEMENT, GENERAL CONTRACTOR SHALL VERIFY THAT SUITABLE ACCESSIBLE PEDESTRIAN ROUTES (PER ADA) EXIST TO AND FROM EVERY DOOR AND ALONG SIDEWALKS, ACCESSIBLE PARKING SPACES, ACCESS AISLES, AND ACCESSIBLE ROUTES. IN NO CASE SHALL AN ACCESSIBLE RAMP SLOPE EXCEED 1 VERTICAL TO 12 HORIZONTAL. IN NO CASE SHALL SIDEWALK CROSS SLOPE EXCEED 2.0 PERCENT. IN NO CASE SHALL LONGITUDINAL SIDEWALK SLOPE EXCEED 5.0 PERCENT. ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL NOT EXCEED 2.0 PERCENT SLOPE IN ANY DIRECTION.

GEOTECHNICAL NOTE

THESE DRAWINGS WERE PRODUCED WITHOUT THE BENEFIT OF A CURRENT GEOTECHNICAL REPORT. GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING SITE CONDITIONS TO BE IN CONFORMANCE WITH THE CURRENT GEOTECHNICAL REPORT AND NOTIFY ENGINEER AND PROJECT TEAM OF ANY DISCREPENCIES PRIOR TO THE SCHEDULING OF ANY SITE DISTURBANCE ACTIVITIES. GENERAL CONTRACTOR SHALL COORDINATE UPDATING THE CURRENT GEOTECHNICAL REPORT AS REQUIRED OR SHALL EMPLOY THE GEOTECHNICAL RECOMMENDATIONS OF THE PREVIOUSLY APPROVED PLAN.

RANDOLPH
MAZZEO DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	######	6	21
PROJECT FILE NO.	######		

GENERAL NOTES IV

AGE-RANDOLPH MA-PLANSHEETS.DWG Plotted on 21-Oct-2026 3:27 PM

RANDOLPH
MAZZEO DR

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PROJECT FILE NO.	######		

EXISTING SITE PLAN



0 10 20 30 40

SCALE: 1" = 10'

NOTES

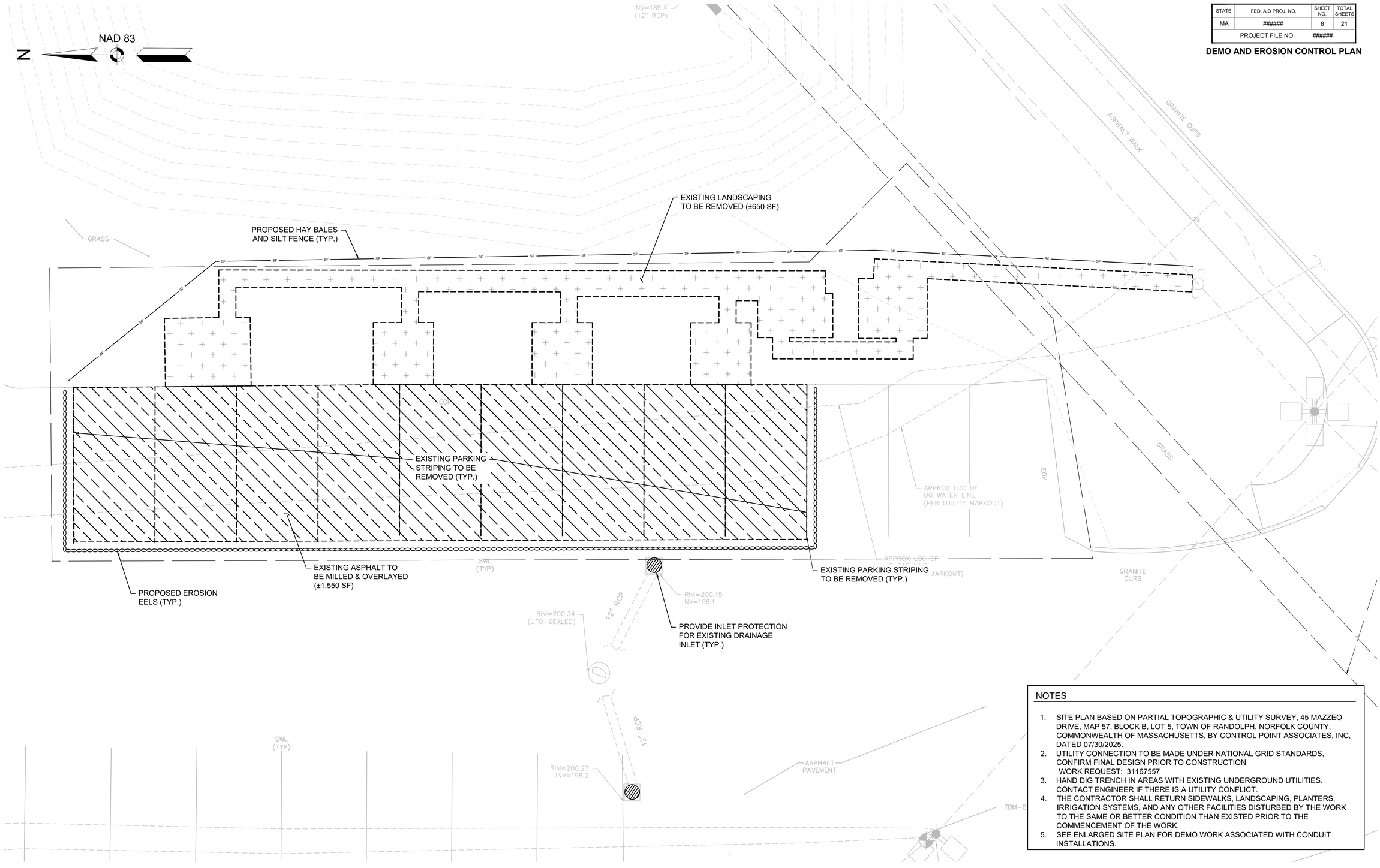
1. SITE PLAN BASED ON PARTIAL TOPOGRAPHIC & UTILITY SURVEY, 45 MAZZEO DRIVE, MAP 57, BLOCK B, LOT 5, TOWN OF RANDOLPH, NORFOLK COUNTY, COMMONWEALTH OF MASSACHUSETTS, BY CONTROL POINT ASSOCIATES, INC, DATED 07/30/2025.
2. UTILITY CONNECTION TO BE MADE UNDER NATIONAL GRID STANDARDS, CONFIRM FINAL DESIGN PRIOR TO CONSTRUCTION
   WORK REQUEST: 31167557
3. HAND DIG TRENCH IN AREAS WITH EXISTING UNDERGROUND UTILITIES. CONTACT ENGINEER IF THERE IS A UTILITY CONFLICT.
4. THE CONTRACTOR SHALL RETURN SIDEWALKS, LANDSCAPING, PLANTERS, IRRIGATION SYSTEMS, AND ANY OTHER FACILITIES DISTURBED BY THE WORK TO THE SAME OR BETTER CONDITION THAN EXISTED PRIOR TO THE COMMENCEMENT OF THE WORK.
5. SEE ENLARGED SITE PLAN FOR DEMO WORK ASSOCIATED WITH CONDUIT INSTALLATIONS.

AGE-RANDOLPH MA-PLANSHEETS.DWG Plotted on 21-Oct-2026 3:27 PM

RANDOLPH
MAZZEO DR

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MA	######	8	21
PROJECT FILE NO.	######		

DEMO AND EROSION CONTROL PLAN



NOTES

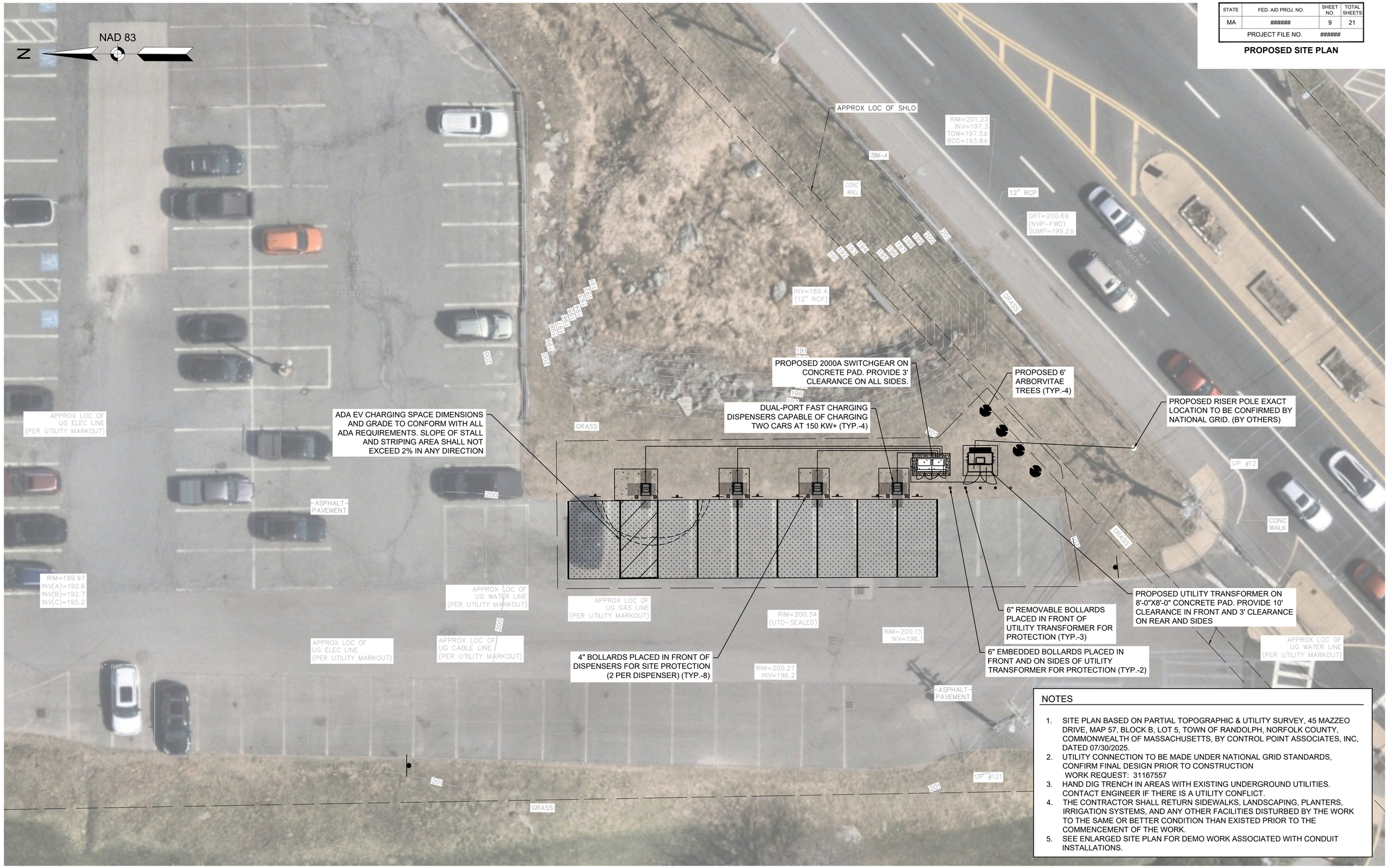
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AGE-RANDOLPH MA-PLANSHEETS.DWG Plotted on 21-Oct-2026 3:27 PM

RANDOLPH
MAZZEO DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	######	9	21
PROJECT FILE NO.		######	

PROPOSED SITE PLAN



0 10 20 30 40

SCALE: 1" = 10'

NOTES

1. SITE PLAN BASED ON PARTIAL TOPOGRAPHIC & UTILITY SURVEY, 45 MAZZEO DRIVE, MAP 57, BLOCK B, LOT 5, TOWN OF RANDOLPH, NORFOLK COUNTY, COMMONWEALTH OF MASSACHUSETTS, BY CONTROL POINT ASSOCIATES, INC, DATED 07/30/2025.
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RANDOLPH
MAZZEO DR

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ENLARGED SITE PLAN

AGE-RANDOLPH MA-PLANSHEETS.DWG Plotted on 21-Oct-2026 3:27 PM

NAD 83

N

INV=189.4
(12" RCP)

6/13 PROPOSED 2000A SWITCHGEAR ON CONCRETE PAD. PROVIDE 3' CLEARANCE ON ALL SIDES.

1/16 PROPOSED POST FOR CCTV CAMERA

1-3/13 5/13 DUAL-PORT FAST CHARGING DISPENSERS CAPABLE OF CHARGING TWO CARS AT 150 KW+ (TYP.-4)

7/15 PROPOSED UNDERGROUND ELECTRICAL CONDUITS ROUTED TO PROPOSED LEVEL 3 DUAL PORT CHARGERS (TYP.)

4/13 4" BOLLARDS PLACED IN FRONT OF DISPENSERS FOR SITE PROTECTION (2 PER DISPENSER) (TYP. - 8)

PROPOSED PARKING SIGNAGE MOUNTED ON C-CHANNEL GALVANIZED STEEL SIGN POST (TYP. -7)

PROPOSED ACCESSIBLE SIGNAGE MOUNTED ON C-CHANNEL GALVANIZED STEEL SIGN POST (TYP. -1)

PROPOSED UNDERGROUND ELECTRICAL CONDUITS ROUTED FROM PROPOSED TRANSFORMER TO PROPOSED SWITCHGEAR (TYP.) 6/15

PROPOSED UTILITY TRANSFORMER ON 8'-0"X8'-0" CONCRETE PAD. PROVIDE 10' CLEARANCE IN FRONT AND 3' CLEARANCE ON REAR AND SIDES

GRASS

ASPHALT WALK

GRANITE CURB

10.00'

7.25'

3.00'

5.50'

5.50'

1A 1B 2A 2B 3A 3B 4A 4B

18.00' TYP

PROPOSED 1' WIDE PERIMETER GRAVEL YARD 4/13

EOP

GRASS

APPROX LOC OF UG WATER LINE (PER UTILITY MARKOUT)

APPROX LOC OF UG GAS LINE (PER UTILITY MARKOUT)

GRANITE CURB

12.00' 8.50' 9.25' 9.25' 9.25' 9.25' 9.25' 9.25' 9.25'

ACCESSIBLE EV CHARGING SPACE AND ACCESS AISLE DIMENSIONS AND GRADE TO CONFORM WITH ALL ADA REQUIREMENTS. SLOPE OF STALL AND STRIPING AREA SHALL NOT EXCEED 2% IN ANY DIRECTION

5M CHARGER CORD RANGE USING CABLE MANAGEMENT

3.5M CHARGER CORD RANGE WITHOUT CABLE MANAGEMENT

EXISTING PAVEMENT TO BE SEAL COATED AND RESURFACED AT CHARGING STALLS (AS REQUIRED)

RIM=200.15
NV=196.1

RIM=200.34
(UTO-SEALED)

12" RCP

12" RCP

RIM=200.27
INV=196.2

ASPHALT PAVEMENT

TBM-B

NOTES

1. SITE PLAN BASED ON PARTIAL TOPOGRAPHIC & UTILITY SURVEY, 45 MAZZEO DRIVE, MAP 57, BLOCK B, LOT 5, TOWN OF RANDOLPH, NORFOLK COUNTY, COMMONWEALTH OF MASSACHUSETTS, BY CONTROL POINT ASSOCIATES, INC, DATED 07/30/2025.
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5. SEE ENLARGED SITE PLAN FOR DEMO WORK ASSOCIATED WITH CONDUIT INSTALLATIONS.

0 5 10 15 20

SCALE: 1" = 5'

RANDOLPH
MAZZEO DR

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MA	######	11	21
PROJECT FILE NO.	######		

TRAFFIC CONTROL PLAN

Plotted on 21-Oct-2026 3:27 PM
AGE-RANDOLPH MA-PLANSHEETS.DWG

NAD 83

N

CONSTRUCTION GATE(S) FOR PROPOSED TEMPORARY CHAIN LINK CONSTRUCTION FENCE TO BE DETERMINED BY THE CONTRACTOR. CONTRACTOR TO ENSURE GATES DO NOT CONFLICT WITH PEDESTRIAN ACCESS PATH.

THIS AREA WILL BE SHUT DOWN FOR THE DURATION OF CONSTRUCTION. ALL STAGING SHALL OCCUR WITHIN THE CONSTRUCTION AREA.

PARKING SPACES TO BE CLOSED DURING CONSTRUCTION: 12 STANDARD STALLS

PROPOSED TEMPORARY CHAIN LINK CONSTRUCTION FENCE

W20-1

W20-1

APPROX LOC OF UG WATER LINE (PER UTILITY MARKOUT)

APPROX LOC OF PROPERTY LINE

APPROX LOC OF UG WATER LINE (PER UTILITY MARKOUT)

CONC WALL

12" RCP

GRT=200.69
(NVP-FWD)
SUMP=199.2±

INV=189.4
(12" RCP)

TOW=197.5±
BOS=193.8±

RIM=200.34
(UTO-SEALED)

RIM=200.15
NV=196.1

RIM=200.27
INV=196.2

LEGEND:

- TYPE III BARRICADE
- WORK ZONE LIMITS
- WARNING SIGN

SIGN LEGEND:



W20-1

TRAFFIC CONTROL NOTES

1. CONTRACTOR WILL USE TEMPORARY CHAIN LINK SELF SUPPORTING FENCE ALONG THE PERIMETER OF THE CONSTRUCTION AREA. "DANGER, KEEP OUT" SIGNS WILL BE PLACED ON THE BARRIERS.

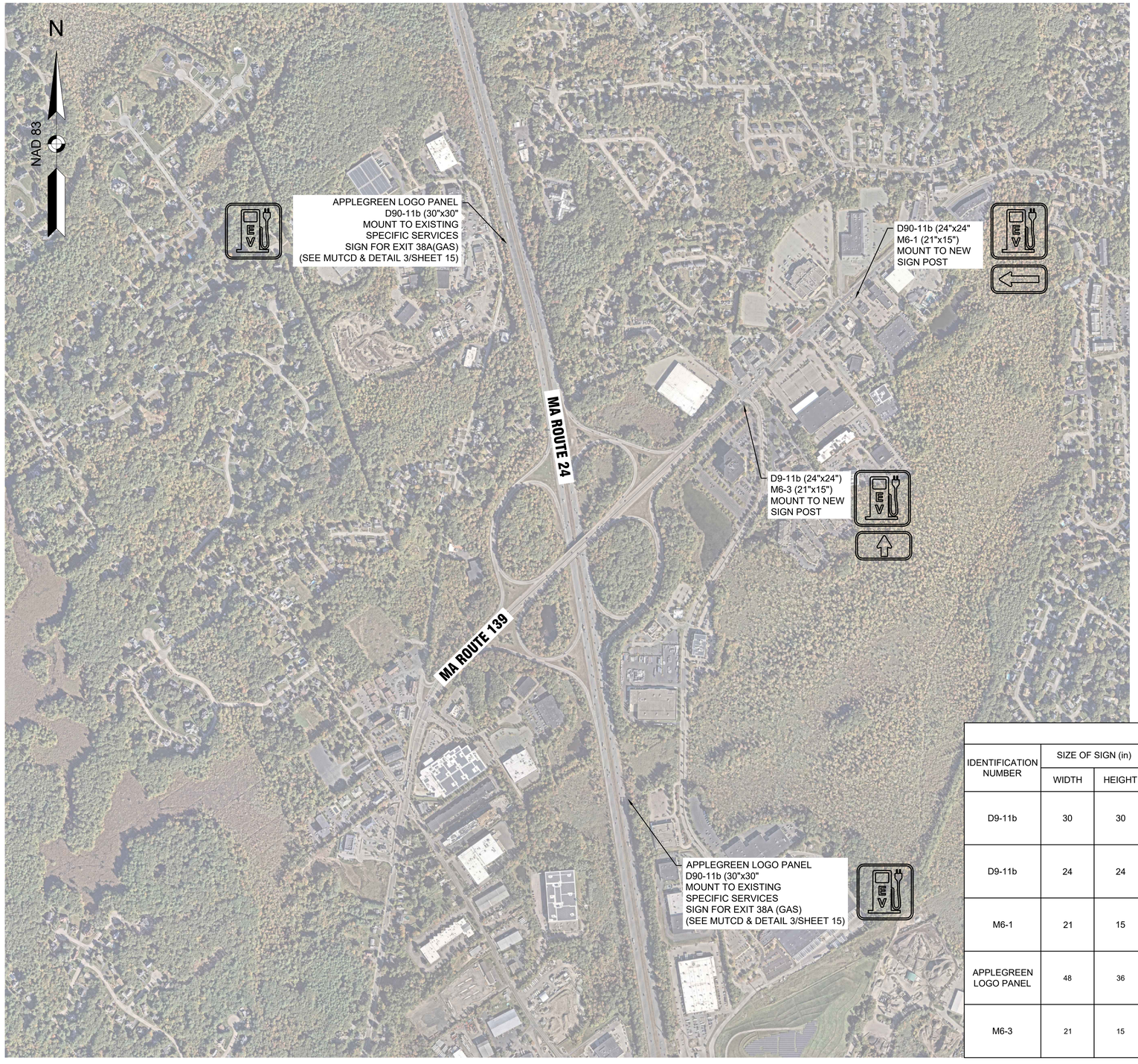
0 10 20 30 40

SCALE: 1" = 10'

RANDOLPH
MAZZEO DR

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PROJECT FILE NO.	######		

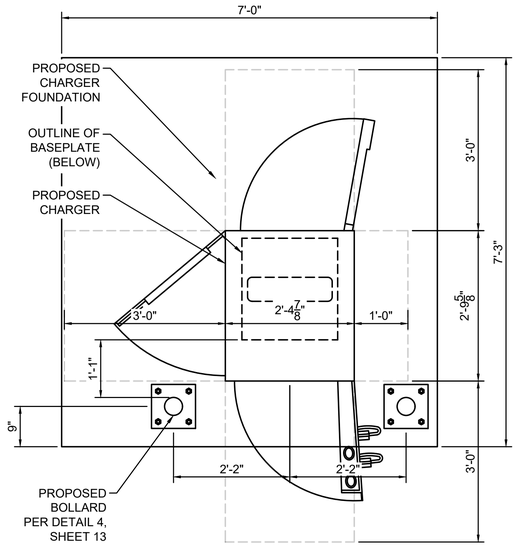
TRAFFIC SIGN PLAN



TRAFFIC SIGN SUMMARY (ALL PHASES)

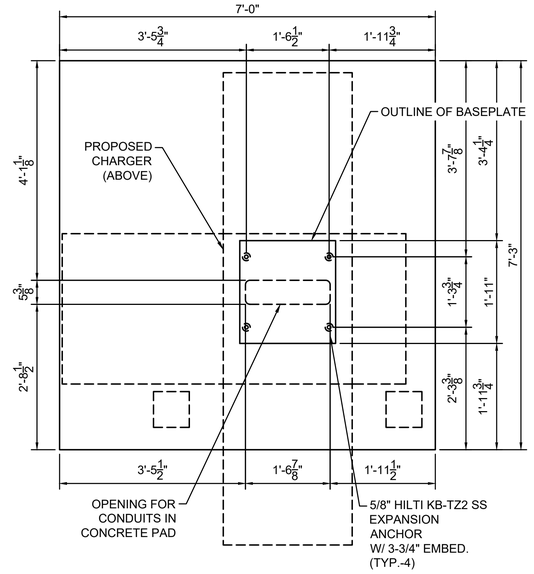
IDENTIFICATION NUMBER	SIZE OF SIGN (in)			TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH	HEIGHT	LEGEND	LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR		BACK-GROUND	LEGEND	BORDER		
D9-11b	30	30		SEE MUTCD			2	BLUE	WHITE	WHITE	6.25	12.50
D9-11b	24	24		SEE MUTCD			2	BLUE	WHITE	WHITE	4.0	8.00
M6-1	21	15		SEE MUTCD			1	BLUE	WHITE	WHITE	2.2	2.2
APPLEGREEN LOGO PANEL	48	36	-	SEE DETAIL 4 ON SHEET 15			2	GREEN	WHITE	WHITE	12.0	24
M6-3	21	15		SEE MUTCD			1	BLUE	WHITE	WHITE	2.2	2.2

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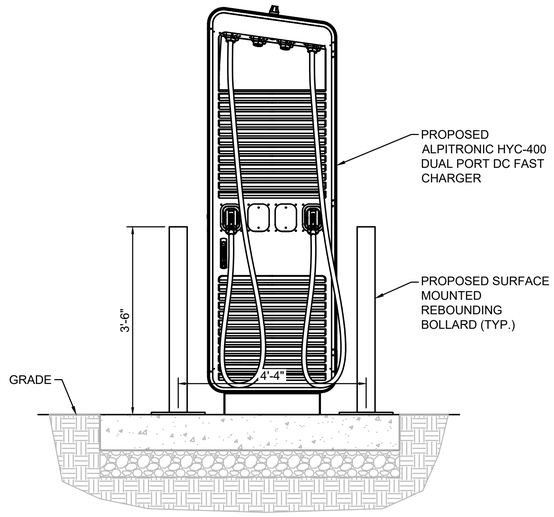
NOTE:
CONTRACTOR TO VERIFY DIMENSIONS WITH EQUIPMENT SUPPLIER PRIOR TO CONSTRUCTION.

EV CHARGER CLEARANCE DETAIL — SCALE N.T.S — 1

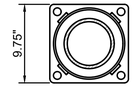


NOTE:
CONTRACTOR TO VERIFY DIMENSIONS WITH EQUIPMENT SUPPLIER PRIOR TO CONSTRUCTION.

EV CHARGER CONDUIT OPENING DETAIL — SCALE N.T.S — 2



DC FAST CHARGER ELEVATION DETAIL — SCALE N.T.S — 3

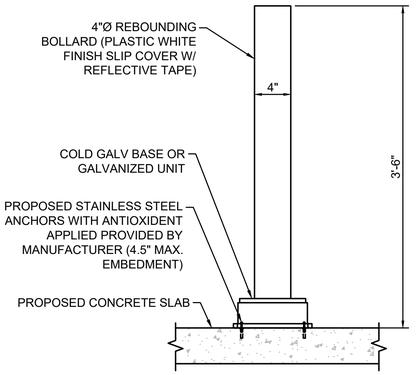


BASE PLATE TOP VIEW

RANDOLPH MAZZEO DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	#######	13	21
PROJECT FILE NO.	#######		

CONSTRUCTION DETAILS I



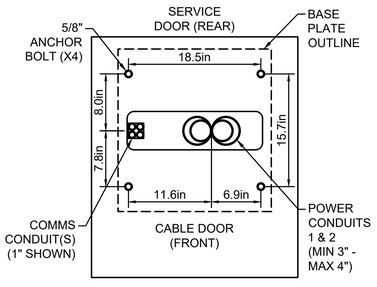
NOTES:

1. BOUNCE BACK BOLLARD (P/N: BBBTP-04-WH-42-GALV) OR APPROVED EQUAL. PLATE COVER (TP1687-7.55-RD-WHITE) OR APPROVED EQUAL.
2. PROPOSED BOLLARD TO BE INSTALLED PER MANUFACTURER RECOMMENDATIONS.
3. PROPOSED ANCHORS PROVIDED BY MANUFACTURER.
4. CONTRACTOR SHALL VERIFY PROPOSED REINFORCEMENT LOCATIONS PRIOR TO DRILLING. MAINTAIN AT LEAST 1" GAP BETWEEN ANCHORS AND PROPOSED REINFORCEMENT.

REBOUNDING BOLLARD DETAIL — SCALE N.T.S. — 4

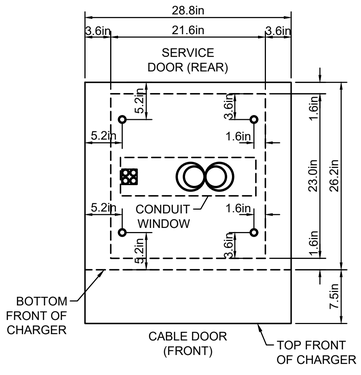
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HYC400 BASEPLATE DIMENSION AND CONDUIT ENTRY LOCATION

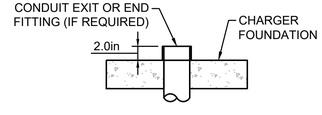


NOTE: TO MEET EQUIPMENT SPACE AND WIRE REQUIREMENTS, POWER CONDUITS MUST BE CENTERED EXACTLY TO THE B-PHASE AS SHOWN.

HYC400 BASEPLATE DIMENSION INSIDE CHARGER HOUSING

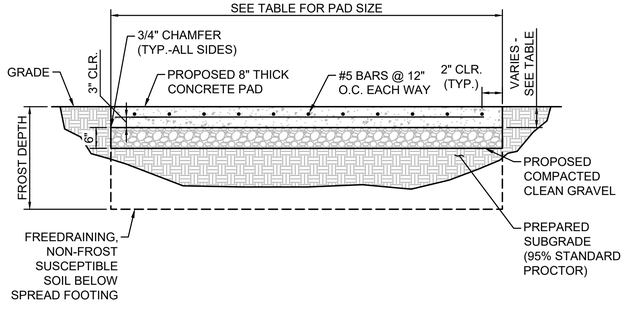


CONDUIT HEIGHT REQUIREMENT



NOTE: TO MEET BEND RADIUS REQUIREMENTS, TOP OF CONDUIT SHALL BE LESS THAN 2" ABOVE CHARGER FOUNDATION.

HYC400 BASEPLATE DIMENSIONS & CONDUIT WINDOW DETAILS — SCALE N.T.S. — 5



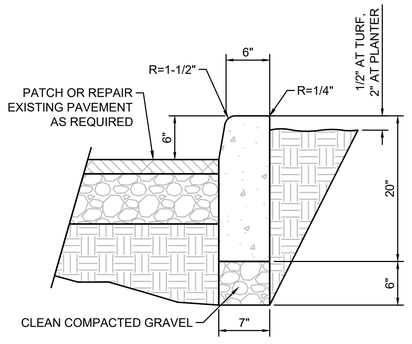
CONCRETE PAD DIMENSIONS				
PAD TYPE	L	W	t (THICKNESS)	AREA
CHARGER	7'-3"	7'-0"	8"	50.75 S.F.
SWITCHBOARD	7'-3"	4'-2"	10"	30.20 S.F.

NOTE:

1. SEE CONCRETE NOTES ON SHEET #5.
2. TOP OF EQUIPMENT PAD IS INTENDED TO BE LEVEL. GC TO COORDINATE PAD EMBEDMENT DEPTH WITH ACTUAL SITE GRADING PLANS.
3. CONTRACTOR SHALL VERIFY FROST DEPTH PRIOR TO CONSTRUCTION.

CONCRETE PAD DETAILS — SCALE 3/4"=1'-0" — 6

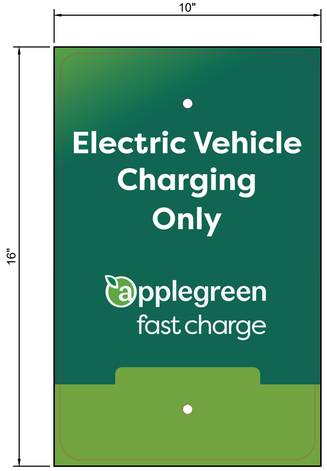
STEEL TROWEL FINISH CONC. CURB W/ ROUNDED EDGES (PROVIDE EXPANSION JOINT AT 30'-0" O.C. MAX.)



NOTES:

1. SAW CUT AREA TO BE REPAIRED/REPLACED. DISPOSE OF DEBRIS PROPERLY OFF SITE.
2. INSTALL FORMS AS NECESSARY.
3. COMPACT EXISTING SUBGRADE MATERIAL TO ACHIEVE COMPACTION 95% MAX STANDARD PROCTOR.
4. CONCRETE TO BE 4000 PSI AIR ENTRAINED CONCRETE.
5. INSTALL CONTROL JOINTS EVERY 15 LINEAR FEET.

CONCRETE CURB DETAIL — SCALE N.T.S — 7



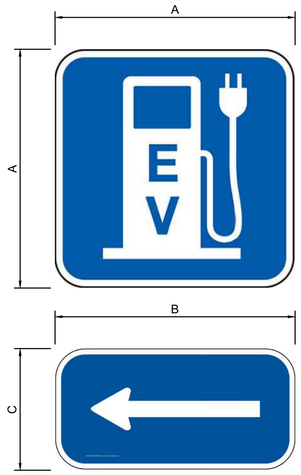
APPLEGREEN SIGNAGE DETAIL — SCALE N.T.S — 1



NOTE:

1. SIGNS BASED ON US ACCESS BOARD WEBSITE (https://www.access-board.gov/evse/) OBTAINED ON 09/03/26.

ACCESSIBLE SIGNAGE DETAIL — SCALE N.T.S — 2



SIGN TABLE			
	A	B	C
LOCAL ROADS	24"	21"	15"
INTERSTATE	30"	30"	21"

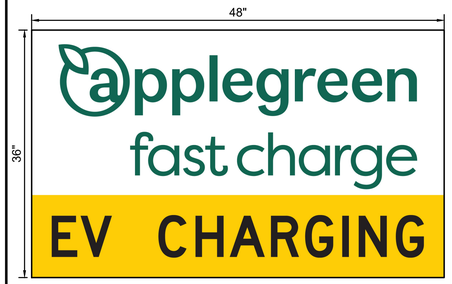
SIGN SPECS:

- 1.5" RADIUS CORNERS
- (2) 0.375" DRILL HOLES 1", CENTERED TOP & BOTTOM
- BACKGROUND COLOR: BLUE
- LOGO COLOR: WHITE

NOTES:

1. SIGNS TO BE INSTALLED PER TRAFFIC SIGN PLAN, AS TYPE F MOUNTS ON THE SIGN POSTS.
2. SIZE, LOCATION AND QUANTITY OF SIGNS TO BE VERIFIED WITH MASSACHUSETTS DOT PRIOR TO ORDERING AND INSTALLING.

WAYFINDING SIGNAGE DETAILS — SCALE N.T.S — 3

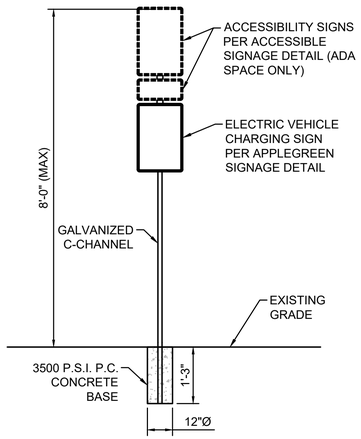


APPLEGREEN LOGO SIGN DETAIL — SCALE N.T.S. — 4

RANDOLPH
MAZZEO DR

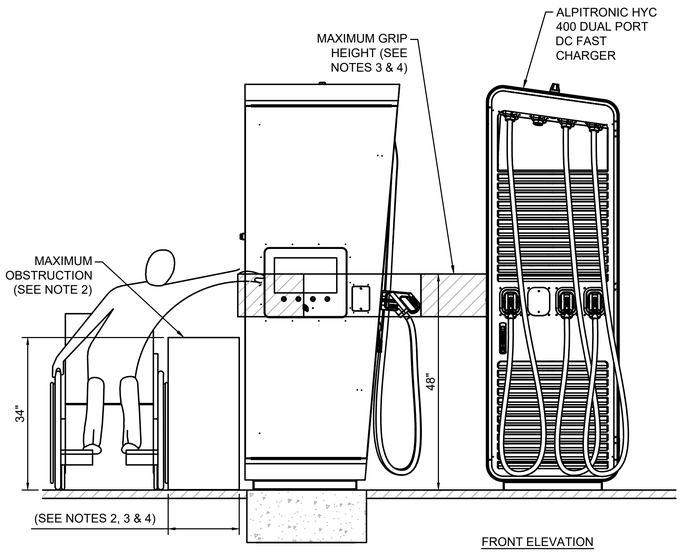
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	######	14	21
PROJECT FILE NO.	######		

CONSTRUCTION DETAILS II



SINGLE POST

SIGN POST DETAIL — SCALE N.T.S. — 5

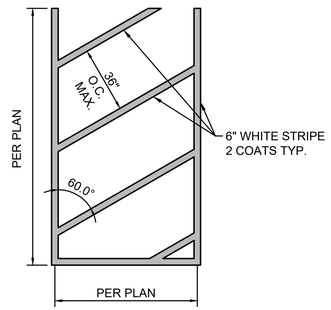


SIDE ELEVATION — FRONT ELEVATION

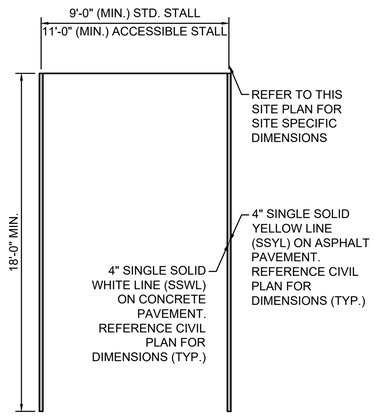
NOTES:

1. DETAIL IS IN REFERENCE TO 2010 ADA STANDARDS OF ACCESSIBLE DESIGN.
2. PER 2010 ADA STANDARDS OF ACCESSIBLE DESIGN SECTION 308.3.1 & 308.3.2, MAXIMUM OBSTRUCTION TO BE NO LARGER THAN 24 INCHES IN WIDTH AND 34 INCHES IN HEIGHT.
3. PER 2010 ADA STANDARDS OF ACCESSIBLE DESIGN SECTION 308.3.1 & 308.3.2, THE HIGH SIDE REACH SHALL NOT EXCEED 48 INCHES MAXIMUM FOR A REACH DEPTH OF 10 INCHES MAXIMUM.
4. PER 2010 ADA STANDARDS OF ACCESSIBLE DESIGN SECTION 308.3.1 & 308.3.2, WHERE THE REACH DEPTH EXCEEDS 10 INCHES, THE HIGH SIDE REACH SHALL NOT EXCEED 46 INCHES MAXIMUM FOR A REACH DEPTH OF 24 INCHES MAXIMUM.
5. OPERABLE PART OF CABLE HANDLE COMPLIES WITH REACH RANGES PER 2010 ADA STANDARDS OF ACCESSIBLE DESIGN SECTION 309.
6. PER 2010 ADA STANDARDS OF ACCESSIBLE DESIGN SECTION 308.3.2, EXCEPTIONS 2, OPERABLE PARTS OF CABLE HANDLE SHALL BE PERMITTED TO BE 54 INCHES MEASURED FROM THE SURFACE OF THE VEHICULAR WAY WHERE CABLE HANDLES ARE INSTALLED ON EXISTING CURBS.

GRAB HEIGHT DETAIL — SCALE N.T.S. — 6



ACCESS AISLE STRIPING — SCALE N.T.S. — 7

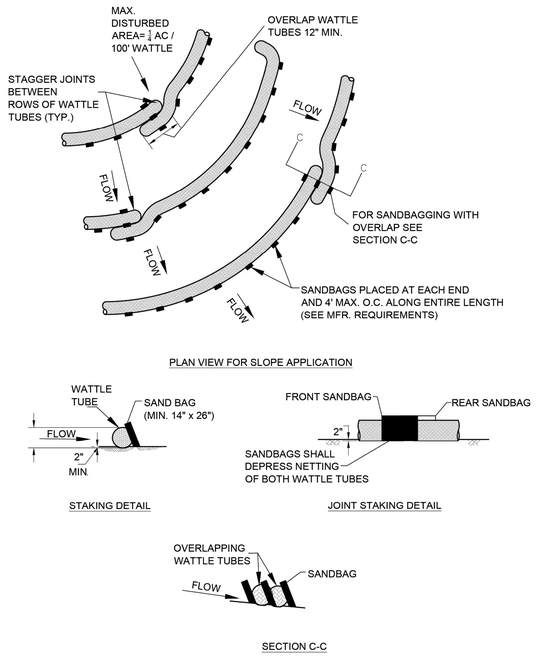


EV STALL

EV PARKING STRIPING — SCALE N.T.S. — 8

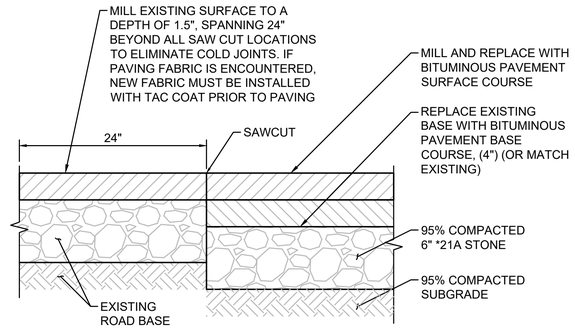
NOT USED — SCALE N.T.S — 9

AGE-RANDOLPH MA-PLANSHEETS.DWG Plotted on 21-Oct-2026 3:27 PM



EROSION EELS

SCALE N.T.S. | 1

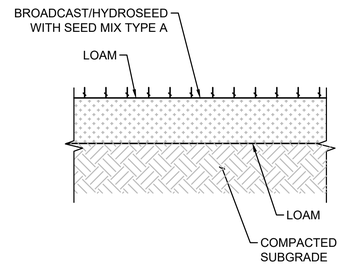


NOTE:

CONTRACTOR TO VERIFY THAT ASPHALT RESTORATION MATCHES EXISTING STYLE.

ASPHALT RESTORATION DETAIL

SCALE N.T.S. | 2



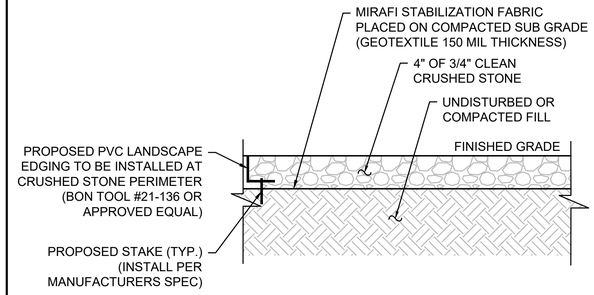
LOAM AND SEED DETAIL

SCALE N.T.S. | 3

RANDOLPH
MAZZEO DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	######	15	21
PROJECT FILE NO.	######		

CONSTRUCTION DETAILS III

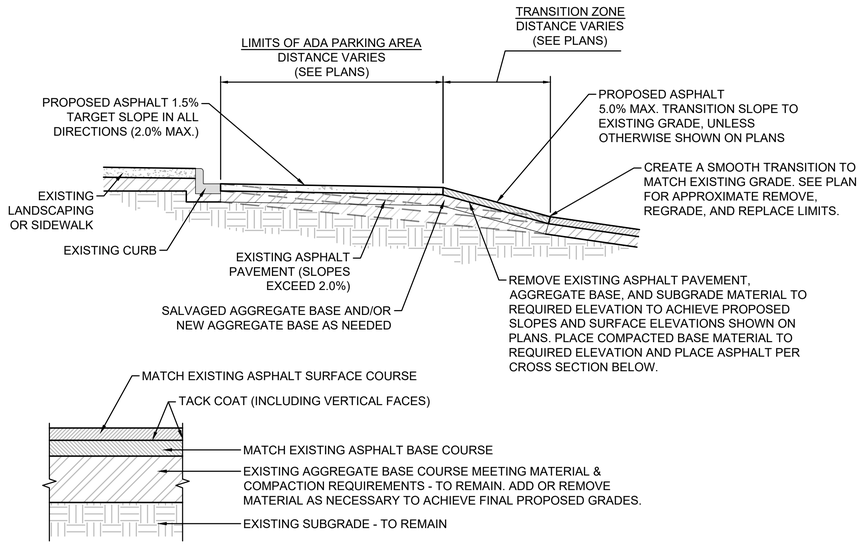


NOTES:

1. BEARING STRATA MEDIUM TO DENSE INSET GRANULAR MATERIAL OR COMPACTED GRAVEL FILL. 95% COMPACTION.
2. FILL SHALL CONSIST OF CLEAN SOIL. NO DELETERIOUS MATERIALS OR ORGANICS TO BE USED.
3. PROVIDE LANDSCAPE EDGING AROUND PERIMETER OF GRAVEL YARD.

GRAVEL YARD DETAIL

SCALE N.T.S. | 4

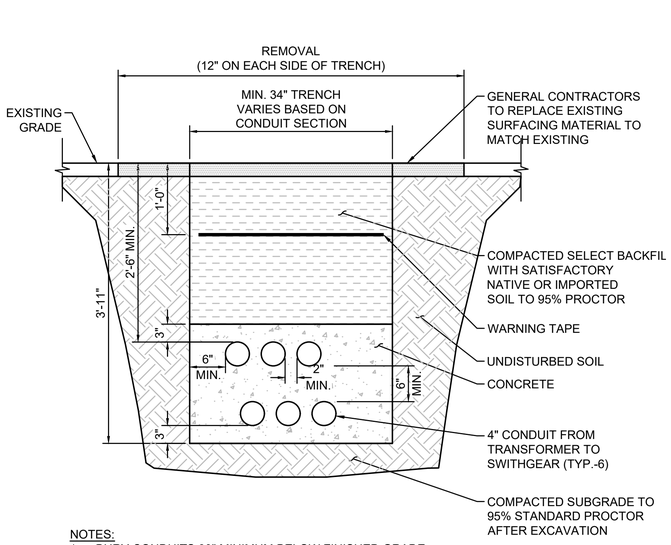


NOTES:

1. SURFACE COURSE SHALL BE INSTALLED AT THE SAME TIME AS ADJACENT PAVEMENT REPAIR SURFACE COURSES.
2. THE AGGREGATE BASE COURSE SHALL BE INSPECTED BY THE TESTING AGENCY, OWNER OR DESIGN CONSULTANT AFTER ASPHALT REMOVAL AND BASE PREPARATION, PRIOR TO ASPHALT REPLACEMENT.

ASPHALT PAVEMENT DETAIL (REMOVE, REGRADE, AND REPLACE)

SCALE N.T.S. | 5

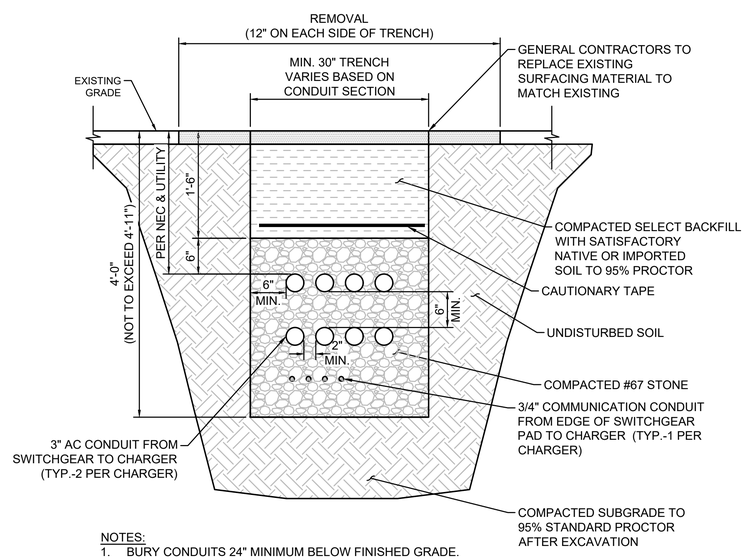


NOTES:

1. BURY CONDUITS 30" MINIMUM BELOW FINISHED GRADE.
2. CONDUIT SIZES PER CONDUIT SCHEDULE.
3. A MINIMUM HORIZONTAL AND VERTICAL CLEARANCE OF 12" IS REQUIRED FOR ALL EXISTING UTILITY CROSSINGS OF PROPOSED CONDUIT. ANY DECIATIONS WILL REQUIRE WRITTEN APPROVAL FROM PROJECT ENGINEER OR OWNER'S REPRESENTATIVE.

TRENCH DETAIL - TRANSFORMER TO SWITCHGEAR

SCALE N.T.S. | 6



NOTES:

1. BURY CONDUITS 24" MINIMUM BELOW FINISHED GRADE.
2. CONDUIT SIZES PER CONDUIT SCHEDULE.
3. A MINIMUM HORIZONTAL AND VERTICAL CLEARANCE OF 12" IS REQUIRED FOR ALL EXISTING UTILITY CROSSINGS OF PROPOSED CONDUIT. ANY DECIATIONS WILL REQUIRE WRITTEN APPROVAL FROM PROJECT ENGINEER OR OWNER'S REPRESENTATIVE.

TRENCH DETAIL - SWITCHGEAR TO CHARGERS

SCALE N.T.S. | 7

AGE-RANDOLPH MA-PLANSHEETS.DWG Plotted on 21-Oct-2026 3:28 PM

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	######	16	21
PROJECT FILE NO.	######		

CAMERA POLE DETAIL

DESIGN CRITERIA

MASSACHUSETTS BUILDING CODE, 10TH EDITION (2021 IBC WITH AMENDMENTS)

FOUNDATION DESIGN PARAMETERS:

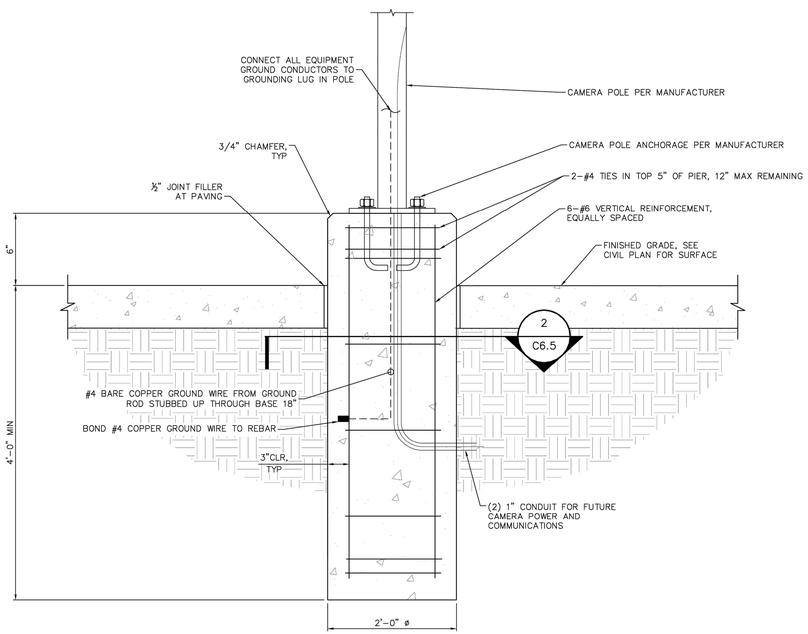
1. CAMERA POLE PARAMETERS:
   - MAX CAMERA POLE HEIGHT: 10'–0" (10'–6" ABOVE FINISHED GRADE)
   - POLE: LITHONIA LIGHTING (RSA 10 4C) 4" ROUND STRAIGHT ALUMINUM POLE, (0.125" WALL THICKNESS)
   - CAMERA POLE WEIGHT: 26 LBS (APPROXIMATE)
   - CAMERA WEIGHT: 50 LBS (APPROXIMATE)
   - EPA: 3.0 FT^2 (APPROXIMATE)
2. MAXIMUM ULTIMATE WIND SPEED (3 SECOND GUST) = 113 MPH, RISK CATEGORY II
3. SOIL PARAMETERS BASED ON 2021 IBC PRESUMPTIVE SOIL CLASS 5:
   - ALLOWABLE END BEARING PRESSURE = 1,500 PSF
   - LATERAL BEARING PRESSURE = 100 PCF
   - COHESION = 130 PCF
4. THIS FOUNDATION SHALL NOT BE USED AT LOCATIONS WHERE THE GROUND SLOPE EXCEEDS 4 INCHES PER FOOT.

CAMERA POLE GENERAL NOTES

1. THE CAMERA POLE FOUNDATION SHALL HAVE A MINIMUM CONCRETE STRENGTH OF 4,500 PSI (MAX W/C = 0.45)
2. CONCRETE SHALL BE NORMAL WEIGHT, NOT TO EXCEED 150 PCF.
3. ANCHOR BOLTS SHALL BE SPECIFIED BY POLE MANUFACTURER.

NOTES:

1. OWNER TO PROVIDE SPECIAL INSPECTIONS IN ACCORDANCE WITH THE REQUIREMENTS OF 2021 IBC SECTION 1704.2.4 IF REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
2. THE CAMERA POLE BASE IS DESIGNED FOR A 4" DIAMETER ROUND POLE NOT TO EXCEED 10'–0" TALL (NOT INCLUDING CONCRETE FOUNDATION REVEAL). THE ASSOCIATED FIXTURE IS A CCTV CAMERA (MAX EPA: 3.0 FT^2). IF THESE DIMENSIONS ARE EXCEEDED, THE ENGINEER SHALL BE NOTIFIED BEFORE INSTALLATION TO CONFIRM THE BASE DESIGN.
3. THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR APPROVAL OF THE EMBEDMENT DEPTH PRIOR TO POURING THE CAMERA POLE FOUNDATIONS IF GROUNDWATER IS ENCOUNTERED ON SITE.
4. CAMERA POLE FOUNDATION DESIGN BASED ON 2021 IBC PRESUMPTIVE SOIL CLASS 5 (TABLE 1806.2).



1 C6.5 CAMERA POLE BASE DETAIL

SCALE: NTS

LITHONIA LIGHTING®

Catalog Number

Notes

Type

FEATURES & SPECIFICATIONS

INTENDED USE — **These specifications are for USA standards only.** Round Straight Aluminum is a general purpose light pole for up to 30-foot mounting heights. This pole provides a lighter and naturally corrosion-resistant option for mounting area light fixtures and floodlights.

CONSTRUCTION —

Pole Shaft: The pole shaft is of uniform dimension and wall thickness and is made of 6061 or 6063 series aluminum alloy in a T4 temper and is heat treated to a T6 after welding, with a minimum yield strength of 35 ksi. The shaft is uniform in cross-section down length of pole with no taper. Available shaft diameters are 4", 4.5" 5", and 6".

Pole Top: Options include 4" tall tenon top, drilled for side mount fixture, tenon with drilling (includes extra handhole) and open top. A removable cast aluminum top cap with set screws is provided for all poles that will receive drilling patterns for side-mount luminaire arm assemblies or when ordered with open top (PT) option. The top cap resists intrusion of moisture and environmental contaminants.

Handhole: A non-reinforced handhole with grounding provision is provided near the base. Standard positioning varies with shaft width as follows: 4", 4.5", and 5" shaft, handhole at 12"; 6" shaft, handhole at 18". Positioning the handhole lower than standard may not be possible and requires engineering review; consult Tech Support-Outdoor for further information. All handholes for a pole specified with openings for 4" through 6" shaft width has nominal dimension of 2" x 4" with surface mount overlap design. Standard and extra handholes come with cover and attachment hardware.

Bolt Caps/Base Cover: Pole base plate utilizes cast aluminum A365 bolt caps to cover anchor bolt and nut assembly. 1 piece, span aluminum base cover available as an option.

Anchor Base/Bolts: Anchor base is cast from A356 alloy aluminum and is heat treated to a T6 temper after welding. Anchor bolts are manufactured to ASTM F1554 Standards Grade: 55, (55 KSI minimum yield strength and tensile strength of 75-95 KSI). Upper portion of anchor bolt is galvanized per ASTM A-153; bolts have an "L" bend on bottom end and are galvanized a minimum of 12" on the threaded end. Each hot-dipped galvanized anchor bolt is furnished with two hex nuts and two flat washers.

HARDWARE — All structural and non-structural fasteners are stainless-steel.

GROUNDING — Provision located immediately inside handhole rim. Grounding hardware not included (provided by others).

FINISH — Exterior of pole and base plate is protected by a zinc-infused TGIC (Triglycidyl Isocyanurate) powder coat finish that provides superior resistance to corrosion and weathering and meets SA and SB classifications of ASTM D3359. A tightly controlled multi-stage process ensures superior adhesion as well as a minimum finish thickness of 3 mils. Other standard finished include anodized and brushed. Architectural Colors and Special Finishes are available by quote and include, RAL Colors, Custom Colors and Extended Warranty Finishes.

GROUNDING — Grounding provision is located in handhole near the base. Grounding hardware is not included (provided by others).

INSTALLATION — **Do not** erect poles without having fixtures installed. Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use Lithonia Lighting factory templates. If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage. Lithonia Lighting is not responsible for the foundation design.

WARRANTY — 1-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

NOTE: Actual performance may differ as a result of end-user environment and application.
Specifications subject to change without notice.

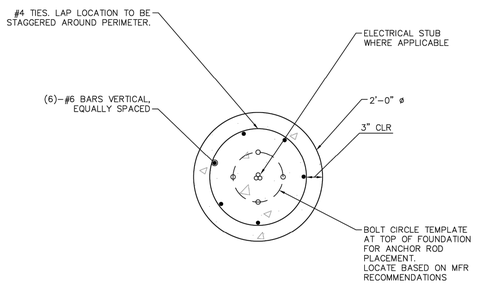


Anchor Base Poles

RSA

ROUND STRAIGHT ALUMINUM

RSA 10 4C



2 C6.5 BASE DETAIL SECTION

SCALE: NTS

No.	REVISIONS	DATE	BY
0	ISSUE FOR PERMITTING	10/12/26	AKD

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601
PHONE: 919 677-2000 FAX: 919 677-2050
WWW.KIMLEY-HORN.COM
#F-0102

ZACHARY M. MEDVEY
CIVIL
No. 59034
REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

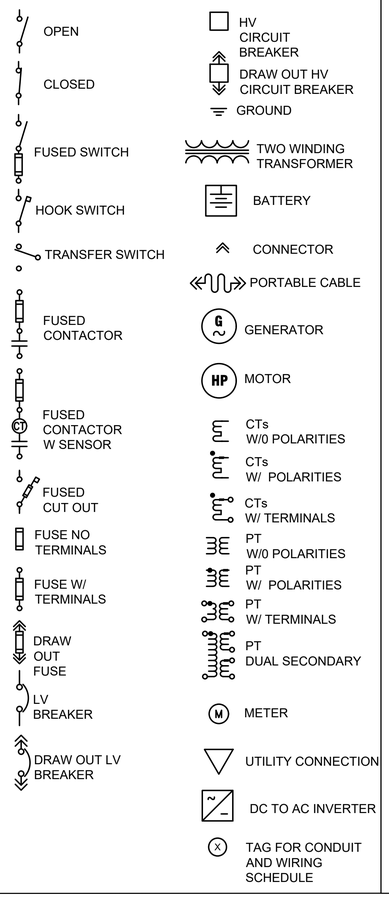
KHA PROJECT	016523004
DATE	10/12/26
SCALE	AS SHOWN
DESIGNED BY	AKD
DRAWN BY	AKD
CHECKED BY	ZM

STRUCTURAL DETAILS

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

AGE-RANDOLPH MA-PLANSHEETS.DWG Plotted on 21-Oct-2026 3:28 PM

SYMBOLS



ABBREVIATIONS

A, AMPS	AMPERES	IMC	INTERMEDIATE METAL CONDUIT	SPECS	SPECIFICATIONS
AB	ANCHOR BOLT	ISC	INTERRUPTING SHORT CIRCUIT	ST	STRAIGHT TIP
A/C	AIR CONDITIONER	IG	ISOLATED GROUND	STD	STANDARD
AC	ALTERNATING CURRENT	INST	INSTANTANEOUS	STP	SHIELDED TWISTED PAIR
AF	AMPERE FRAME	JB	JUNCTION BOX	SWBD	SWITCHBOARD
AFF	ABOVE FINISHED FLOOR	KAIC	KILO AMPERES INTERRUPTION CAPACITY	SYM	SYMMETRICAL
AFG	ABOVE FINISHED GRADE	KCMIL	KILO CIRCULAR MILS	TBD	TO BE DETERMINED
AIC	AMPERE INTERRUPTING CURRENT	KV	KILOVOLTS	TD	TIME DELAY
AL	ALUMINUM	KVA	KILOVOLT-AMPERES	TEL	TELEPHONE
AS	AMPERE SWITCH	KW	KILO WATTS	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
AT	AMPERES TRIP	KWH	KILO WATT-HOURS		
ATS	AUTOMATIC TRANSFER SWITCH	LCP	LIGHTING CONTROL PANEL	TYP	TYPICAL
AWG	AMERICAN WIRE GAUGE	LTG	LIGHTING	UG	UNDERGROUND
BC	BARE COPPER	MAX	MAXIMUM	UL	UNDERWRITERS LABORATORIES
BLDG	BUILDING	MCC	MOTOR CONTROL CENTER	UON	UNLESS OTHERWISE NOTED
BMS	BUILDING MANAGEMENT SYSTEM	MCB	MAIN CIRCUIT BREAKER	UPB	UNDERGROUND PULLBOX
C	CONDUIT	MCM	KILO CIRCULAR MILS	UTP	UNSHIELDED TWISTED PAIR
CB	CIRCUIT BREAKER	MCP	MOTOR CIRCUIT PROTECTOR	V	VOLTS
CC	CENTER TO CENTER	MFR	MANUFACTURER	VA	VOLT-AMPERES
CCS1/CCS2	COMBINED CHARGING SYSTEM TYPE 1/2	MH	MANHOLE	VFD	VARIABLE FREQUENCY DRIVE
CEC	CALIFORNIA ELECTRICAL CODE	MIN	MINIMUM	VFI	VACUUM FUSED INTERRUPTER
CHAdeMO	CHArge de MOve (EV CHARGING STANDARD)	MISC	MISCELLANEOUS	VP	VAPORPROOF
CKT	CIRCUIT	MLO	MAIN LUGS ONLY	W	WATTS, WIRE
℄	CENTER LINE	MTD	MOUNTED	WH	WATER HEATER
CLG	CEILING	MSB	MAIN SWITCHBOARD	WP	WEATHERPROOF
CLR	CLEAR	MSG	MAIN SWITCHGEAR	WT	WATERTIGHT
CO	CONDUIT ONLY WITH PULL ROPE	MV	MEDIUM VOLTAGE	XFMR	TRANSFORMER
CONC	CONCRETE	MVA	MEGA VOLT AMPERES	XLPE	CROSS-LINKED POLYETHYLENE
CU	COPPER	(N)	NEW	XP	EXPLOSION PROOF
DB	DIRECT BURIAL	N	NEUTRAL		
DC	DIRECT CURRENT	NC	NORMALLY CLOSED		
DIA	DIAMETER	NEC	NATIONAL ELECTRICAL CODE		
DN	DOWN	NIC	NOT IN CONTRACT		
DP	DISTRIBUTION PANEL	NL	NIGHT LIGHT		
DWG	DRAWING	NO	NORMALLY OPEN		
EM	EMERGENCY	NRTL	NATIONAL RECOGNIZED TESTING LABORATORY		
EGC	EQUIPMENT GROUNDING CONDUCTOR				
EMT	ELECTRICAL METALLIC TUBING	NTS	NOT TO SCALE		
EPO	EMERGENCY POWER OFF	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED		
EQ	EQUAL				
EQUIP	EQUIPMENT	OH	OVERHEAD		
EV	ELECTRIC VEHICLE	OM	MULTIMODE FIBER		
(E)	EXISTING	P	POLE		
FA	FIRE ALARM	PH, Ø	PHASE		
FACP	FIRE ALARM CONTROL PANEL	PB	PUSHBUTTON		
FLA	FULL LOAD AMPERES	PDU	POWER DISTRIBUTION UNIT		
(F)	FUTURE	PNL	PANEL		
GEC	GROUNDING ELECTRODE CONDUCTOR	POCC	POINT OF COMMON CONNECTION		
GND, GRND	GROUND	PV	PHOTOVOLTAIC		
GALV	GALVANIZED	PVC	POLYVINYL CHLORIDE		
GRS	GALVANIZED RIGID STEEL	(R)	EXISTING TO BE REMOVED		
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	(RE)	NEW LOCATION OF RELOCATED DEVICE		
HH	HANDHOLE				
HOA	HAND-OFF-AUTO	(RL)	EXISTING TO BE RELOCATED		
HP	HORSEPOWER	RELT	REDUCED ENERGY LET THROUGH BREAKER		
HV	HIGH VOLTAGE				
HVAC	HEATING, VENTILATION, AIR CONDITIONING	SCA	SHORT CIRCUIT AVAILABLE		
HZ	HERTZ	SEC	SECONDARY		

RANDOLPH
MAZZEO DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	######	17	21
PROJECT FILE NO.	######		

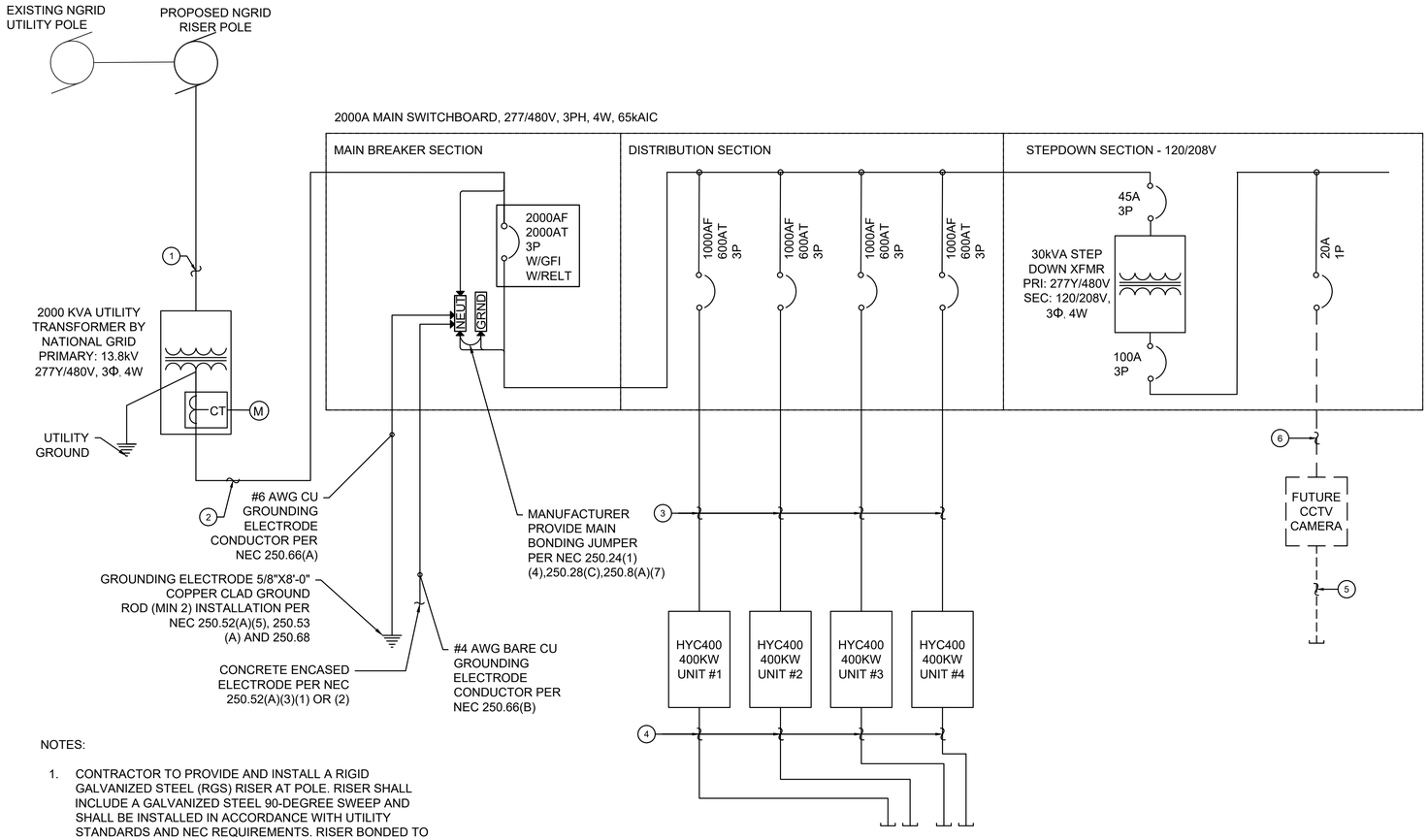
ELECTRICAL LEGEND

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RANDOLPH
MAZZEO DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	#######	18	21
PROJECT FILE NO.	#######		

SINGLE LINE DIAGRAM



NOTES:

1. CONTRACTOR TO PROVIDE AND INSTALL A RIGID GALVANIZED STEEL (RGS) RISER AT POLE. RISER SHALL INCLUDE A GALVANIZED STEEL 90-DEGREE SWEEP AND SHALL BE INSTALLED IN ACCORDANCE WITH UTILITY STANDARDS AND NEC REQUIREMENTS. RISER BONDED TO POLE GROUND. BOND CONNECTION MADE WITH APPROVED GROUNDING CLAMP AND CONDUCTOR, & LOCATED AT LEAST 8 FEET ABOVE TOP OF GRADE.
2. CONDUIT FROM RISER POLE TO UTILITY TRANSFORMER AND UTILITY TRANSFORMER TO SWITCHBOARD SHALL BE 4" PVC DB SCH 60 (CONCRETE ENCASED CONDUIT). CONDUIT INSTALLATION SHALL COMPLY WITH UTILITY REQUIREMENTS, INCLUDING CONCRETE ENCASEMENT WHERE REQUIRED. MINIMUM BURIAL DEPTH SHALL BE 30 INCHES, UNLESS OTHERWISE DIRECTED BY THE UTILITY.

EV LOAD SUMMARY		
DESCRIPTION	QTY	LOAD (KVA)
SERVICE ENTRANCE SWITCHBOARD		
HYC400 CHARGERS (480A)	4	1600
TOTAL LOAD		1600
TOTAL CONNECTED AMPS (480V, 3ϕ)		1924.5 A
SERVICE ENTRANCE SWITCHBOARD SIZE (480V, 3ϕ)		2000 A
UTILITY TRANSFORMER SIZE		2000 KVA
TOTAL EV LOAD (SITE)		1600.00

CONDUIT AND WIRING SCHEDULE			
TAG ◯	FROM	TO	CONFIGURATION
1	PROPOSED UTILITY SERVICE	UTILITY TRANSFORMER	*(2) 4" SCH 60 DB PVC CONDUIT (2) 4" SCH 60 DB PVC SPARE CONDUIT
2	UTILITY TRANSFORMER	PROPOSED SWITCHBOARD	(3) 1/0 AWG AL, (1) 1/0 AWG AL NEUT IN EACH OF (6) 4" SCH 40 PVC CONDUIT
3	PROPOSED SWITCHBOARD	PROPOSED HYC400 UNIT	(3) 350 MCM CU, (1) #1 AWG CU EGC IN EACH OF (2) 3" SCH 40 PVC CONDUIT
4	EDGE OF SWITCHGEAR PAD	PROPOSED HYC400 UNIT	***3/4"SCH 40 PVC COMMS CONDUIT FOR FUTURE USE TO BE CAPPED BELOW GRADE
5	EDGE OF SWITCHGEAR PAD	FUTURE CCTV CAMERA	***3/4"SCH 40 PVC COMMS CONDUIT FOR FUTURE USE TO BE CAPPED BELOW GRADE
6	PROPOSED SWITCHBOARD	FUTURE CCTV CAMERA	**3/4" SCH 40 PVC CONDUIT FOR FUTURE USE TO BE CAPPED BELOW GRADE

NOTES:

* CONTRACTOR SHALL PROVIDE CONDUIT PER NATIONAL GRID UTILITY SKETCH. CONTRACTOR SHALL COORDINATE WITH NATIONAL GRID ON TYPE OF CONDUIT TO ENSURE THEY MEET NATIONAL GRID STANDARDS.

** FOR PHASE 1: CONTRACTOR TO INCLUDE TRACER WIRE IN SPARE CONDUITS TO ENSURE CONDUIT CAN BE LOCATED FOR FUTURE USE.
FOR PHASE 2: INSTALL (3) 350 MCM CU, (1) #1 AWG CU EGC IN EACH OF THE (2) 3" SCH 40 PVC CONDUIT FOR FUTURE HYC400 UNIT.
FOR PHASE 2: INSTALL (2) #12 AWG CU, (1) #12 AWG CU EGU IN (1) 3/4" SCH 40 PVC CONDUIT FOR FUTURE CCTV CAMERA.

*** FOR PHASE 1: CONTRACTOR TO INCLUDE TRACER WIRE IN SPARE CONDUITS TO ENSURE CONDUIT CAN BE LOCATED FOR FUTURE USE.

SECONDARY SERVICE LENGTHS		
	LINEAR LENGTH	ESTIMATED LENGTH (+25')
UTILITY TRANSFORMER TO SWITCHGEAR	5'	30'
TOTAL LENGTH OF AC AL WIRE (PER CONDUIT):		90'
TOTAL LENGTH OF NEUT. AL WIRE (PER CONDUIT):		30'
NUMBER OF WIRE FILLED CONDUIT:		6
TOTAL LENGTH OF AC AL WIRE*:		540'
TOTAL LENGTH OF NEUT. AL WIRE*:		180'

NOTES:

1. SEE CONDUIT & WIRE SCHEDULE FOR WIRE CONFIGURATION.

* TOTAL LENGTH OF AC AL WIRE = 3 WIRES PER CONDUIT X ESTIMATED LENGTH X NUMBER OF FILLED CONDUITS

ELECTRICAL SCHEDULE NOTES:

1. CONDUCTOR LENGTHS ARE ESTIMATES ONLY. FINAL ROUTING AND LENGTHS SHALL BE DETERMINED BY CONTRACTOR IN FIELD BASED ON PHYSICAL MEASUREMENTS. CONTRACTOR SHALL ORDER CONDUCTORS PER FIELD MEASUREMENTS.
2. HAND DIG AND RELOCATE (AS NEEDED) ANY EXISTING UNDERGROUND UTILITIES LOCATED IN THE PROJECT AREA.
3. CONTRACTOR TO INCLUDE TRACER WIRE IN SPARE CONDUITS TO ENSURE CONDUIT CAN BE LOCATED FOR FUTURE USE.
4. ALL TERMINATED CONDUCTORS TO BE LABELED WITH P-TOUCH LABELING.

AC SERVICE LENGTHS		
	LINEAR LENGTH	ESTIMATED LENGTH*
SWITCHGEAR TO CHARGER #1	80'	105'
SWITCHGEAR TO CHARGER #2	60'	85'
SWITCHGEAR TO CHARGER #3	40'	65'
SWITCHGEAR TO CHARGER #4	20'	45'
TOTAL LENGTH OF AC CU WIRE**:		900'
TOTAL LENGTH OF GND. AC CU WIRE:		300'
NUMBER OF WIRE SETS:		2
TOTAL LENGTH OF AC CU WIRE***:		1800'
TOTAL LENGTH OF GND. CU GROUND:		600'

NOTES:

* AC CONDUCTORS: 25 FT IS ADDED TO THE HORIZONTAL RUN LENGTH TO ACCOUNT FOR BURIED DEPTH & TRANSITIONS.

** TOTAL LENGTH OF AC CU WIRE = 3 WIRES X SUM OF ESTIMATED LENGTH

*** ESTIMATED LENGTH OF CU WIRE = (SUM OF ESTIMATED LENGTH X 3 WIRES PER CONDUIT)

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12.0 Transformer pad

The *Customer* shall provide and install a concrete transformer foundation in accordance with the *Company* standards. Precast concrete transformer foundations built to *Company* standards are available from a variety of vendors listed on page 53. Spec sheets of the different size pads are shown on pages 37 thru 40.

Cast in place pads shall meet the following specifications. Concrete shall be a Mix M-4 detailed specifications are on pages 45 thru 48. Reinforcing in pad shall be # 5 grade 60 bars and shall conform to ASTM STANDARD A 615 of latest date. Reinforcing rods are to be located in center of the slab, with a minimum of 2 inches of clearance from face of concrete. All transformer pads must have and adequate base of 2 inches of sand and 12 inches of gravel as shown on pages 37 thru 40. The gravel shall be thoroughly compacted and the sand thoroughly wetted immediately before placing the concrete.

Massachusetts, New Hampshire and Rhode Island

The location of the concrete transformer pad, on the *Customer* premises, shall be approved by the *Company* in advance of the construction. The *Company* must, with sufficient notification (24 hours minimum) from the *Customer*, inspect the forming and reinforcing of the pad, the sub grade preparation, and the ground grid **prior** to the pouring of concrete. This requirement is critical. Failure to have inspection done may result in the need to remove and rebuild the concrete foundation

New York

The location of the concrete transformer pad, on the *Customer* premises, shall be approved by the *Company* in advance of the construction.

13.0 Transformer Secondary

Size and number of secondary cables shall be in accordance with the NEC and shall be approved by the electrical inspector or AHJ of the town or city involved. Maximum number of secondary cables to be physically connected to the Company's pad-mounted transformer is outlined below:

4 Hole Spades	6 sets 750 kcmil Max.
6 Hole Spades	8 sets 750 kcmil Max.
10 Hole Spades	10 sets 600 kcmil or 8 sets of 750 kcmil

Secondary cable requirements greater than this, will require a separate compartment, handhole, or bus duct.

Secondary cable shall not be installed until pad mount transformer has been set to ensure adequate length of secondary cable and connections.

All acceptable spade terminals are shown in Figures 1, 2 and 3. Minimum terminal thickness is to be ¼ inch, with 9/16 inch holes.

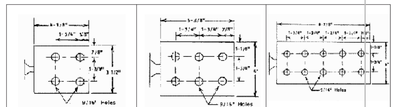


Figure 1		Figure 2		Figure 3	
kVA Rating	L.V. Rating	kVA Rating	L.V. Rating	kVA Rating	L.V. Rating
75 – 300	208Y/120	500	208Y/120	750 – 1000	208Y/120
75 – 500	480Y/277	750 – 1500	480Y/277	2000 – 2500	480Y/277

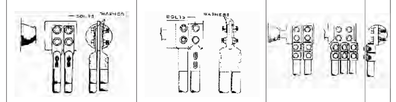


Figure 4	Figure 5	Figure 6
4 Cables – 500 kcmil & Below		

Notes:

1. *Figure 4 – Compression connections will accommodate up to four cables with a maximum individual lug width of 1¼ inch.*
2. *Figure 5 – Compression connections will accommodate two cables with lug greater than 1⅝ inch width.*
3. *Figure 6 – Typical example of bolted connections for two, four or six cables to maximum capacity of lug.*
4. *Metering (CT's) mounted inside the padmounted transformer may reduce the number of sets of secondary that can be installed by blocking off some holes on the secondary spade. In some cases the customer may be required to purchase a secondary splice box.*
5. *A list of a few manufacturers that supply the connectors is located on page 56.*

13.1 Transformer Secondary Connections

All connectors and connector fasteners shall be furnished, installed, owned and maintained by the customer/developer. Connectors shall be approved by the *Company* prior to purchase. Final electrical connection to the transformer secondary terminals shall be inspected by the *Company*. The customer/developer shall make all final connections to the spades of the pad-mount transformer to a final torque of 40 foot pounds. Size and number of secondary cables shall be in accordance with the NEC and shall be approved by the electrical inspector or AHJ for the town or city involved.

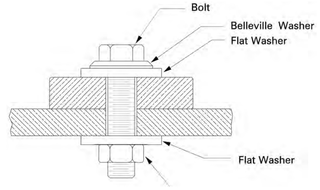
13.2 Secondary Bolt Assembly

The customer/developer shall supply and install aluminum connectors for use with aluminum cable or copper connectors for use with copper cable. Tin plated connectors can also be used as an alternate connector for aluminum and copper connectors. Connector shall be a cable to flat clamp or compression type connector, with a minimum of two holes in the flat pad and two clamping elements or two compressions per cable, and must be approved by *company* representative. Bolts and flat washers shall be grade 304 stainless steel. Belleville washers shall be grade 301 stainless steel. Nuts shall be waxed grade 316 stainless steel.

A. A flat washer is placed between the concave side of the belleville washer and the surface of the member being joined. The belleville is thus captured between the head of the bolt and the large flat washer. The flat washer should have an outside diameter greater than the flattened belleville's such that no overhand results. Select a flat washer that is twice as thick as the belleville for strength. (If not available, stack two or three thinner washers to achieve the same effect).

B. With the belleville washer captured between the flat washer and the bolt head, fit the assembly into its hole. When the washers are fitted in position, there should be no interference with washers of adjacent bolts and no overhang over surface edges.

C. Tighten the nut on the bolt (with a washer of its own) until a sudden, noticeable increase in torque is required to continue. The belleville washer is now flat. It is not necessary to "back off" the nut after tightening to this point.



13.3 Secondary Splice Box

A secondary splice box may be required where the customer's number of secondary cables exceeds the maximum allowed amount on the transformer. Supplying and installing this box is the *customer's* responsibility. The cables from the transformer to this box are to be specified by *company's* representative. The *customer* is responsible to supply and install the cables.

Once the service is energized the *company* will take over ownership of only the secondary cables from the transformer to the secondary splice box.

A list of a few manufacturers that supply the secondary splice box is located on page 56.

14.0 Transformer Sweep Entry

Conduit shall be installed as shown on Pages 37 thru 40 before slab is poured. Use 36 inch radius sweeps, with couplings, nipples and bushings as required. Sweeps for primary cables shall be galvanized steel or schedule 40 PVC. Conduits shall be raised a minimum of 1 inch approximately over the concrete slab. Expanding foam Hilti Inc. CF810 shall be used to fill inside the conduits after the primary/secondary is installed. Ownership of cable will determine who installs the foam on each cable. After pulling tape is in, install the expanding foam in any spare/empty conduits. Place a rag into empty conduits prior to the foam as a support for the foam while curing takes place.

After the concrete pad is cured, the remainder of the conduit primary and secondary openings through pad will be sealed with grout. Before sealing steel sweeps, the sweeps must have a bond clamp attached with a #4 Cu tap to connect to the ground grid. Fill the conduit primary and secondary openings with sand (no aggregate) to a grade of approximately 2 inches below the top of the concrete pad. Place a layer of concrete grout (no aggregate) 1 to 2 inches thick on top of the sand layer to seal the conduit entrance. Do not cover the conduit ground clamps with grout. The expanding foam may be used as an alternate for filling in the opening with sand and concrete grout. Ownership of conduits and pad will determine who seals openings. See page 62 for further details in *company* bulletin *09-09 Three Phase Pad-mounted Transformer Sealing*.

Expanding Foam
CF810 available at
Hilti Inc. 1-800-879-8000
Stuart C Irby Co 1-315-453-2970 and 1-315-329-0038

Spare conduits can also be sealed with conduit plugs, see page 54 for a list of manufacturers.

15.0 Transformer Grounding and Bonding

The ground grid shall be 2/0, bare, soft drawn, 19 strand copper wire. The wire shall be installed 12 inches below finished grade and located around the transformer pad as shown on page 17. Bond to all exposed metallic conduit and leave 3 feet of wire above pad for grounding transformer, one lead in the primary conduit window opening and the other lead in the secondary conduit window opening.

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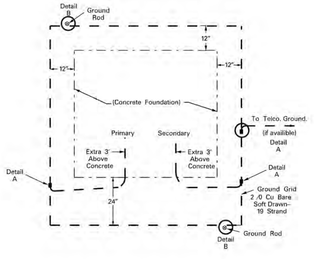
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ELECTRICAL DETAILS I

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PRE-CAST TRANSFORMER PAD DETAIL

Two 5/8 inch diameter, 8 feet long copper weld ground rods and approved connectors shall be installed to 12" below finished grade. Leave the ground rods and grid exposed until inspected the *Company*. The ground grid is to be complete and backfilled prior to energizing the transformer. Connections to ground grid to be made as shown on Details A and B below, except that exothermic welding ("cad weld") shall be an acceptable alternative to a compression connection. Bolted connectors are only acceptable for the ground grid connections to the ground rods. The company will install the ground taps onto the transformer.



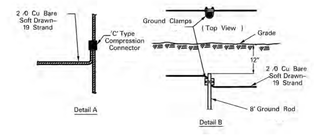
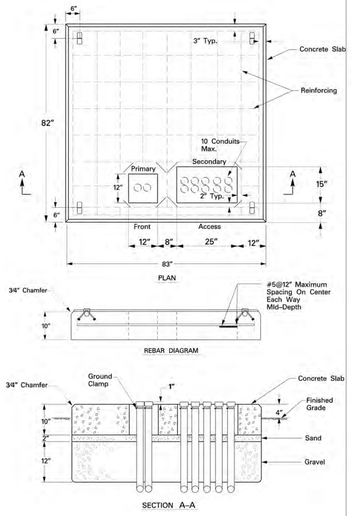


Figure 27.0-2 15kV Transformer Pad 750- 2500kVA 44-114 (ref-44-114/UF8B)



9.0 Transformer Clearance From Objects

Clearances from objects:

A. An area measuring 10 feet from any point of the transformer pad shall be kept free of all:

- buried water lines, storm drainage lines, gas lines, other electric lines;
- underground fuel storage tanks; and
- above grade fire hydrants, cell towers, self contained diesel or diesel byproduct fueled generators, and outdoor enclosed generators.

Note: The 10 ft. clearance may be reduced with a noncombustible barrier (see Note 3) and shall not be less than five (5) feet from the edge of the transformer pad. The *Customer* or their authorized representative shall obtain this clearance reduction approval from the *Company* and the local AHJ(Authority Having Jurisdiction), as necessary, prior to the noncombustible barrier installation.

B. An area measuring 25 feet from any point of the transformer pad shall be kept free of all:

- exposed water lines, gas piping, sewer lines;
- open conductor electric lines; and
- above grade gas meters or regulator vents, fuel storage tanks or dispensing units, and non-enclosed gasoline/ propane / LP or LNG gas fueled generators.
- chemical storage silos / tanks.

Note: The 25 ft. clearance may be reduced to 10 ft. with a noncombustible barrier (see Note 3) and shall not be less than five (5) feet from the edge of the transformer pad. The *Customer* or their authorized representative shall obtain this clearance reduction approval from the *Company* and the local AHJ(Authority Having Jurisdiction), as necessary, prior to the noncombustible barrier installation.

10.0 Transformer Accessibility

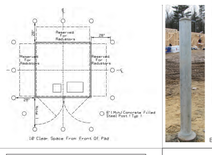
Equipment shall be located within 10 feet of a way open to vehicular traffic and a minimum distance from any structure such as poles, fences, etc. as a means to permit accessibility for installation and maintenance. A minimum of 10 feet of clear space shall be maintained in front of the equipment doors to permit installation and removal of separable connectors and fuses with shotgun stick.

11.0 Transformer Mechanical Protection/Bollards

Whenever possible, equipment should be located so it is not subject to vehicular damage. If this is not feasible, adequate guards such as concrete filled pipes (Bollards) shall be placed to protect the equipment.

Bollards shall consist of 6 inch minimum diameter hot dip galvanized or painted steel pipes filled with concrete. When Bollards can not be painted at the time of installation, painted covers shall be installed. Page 56 shows manufacturer. Bollards are to be 5 feet above the ground and a minimum of 4 feet below the ground. Bollards to be set in a concrete footing as shown in detail below. Concrete is to be crowned on top of all bollards. Bollards shall be installed with due care to avoid interfering with ground grid and conduits. Refer to Pages 37 thru 40 for Transformer Pad dimensions. For switchgear locations, see pages 34 and 35.

The number, type (galvanized or steel) and locations of bollards shall be determined by Distribution Design/Planning, taking into account proximity to traffic and to buildings as well as other barriers to traffic. Other factors such as salt spray and fertilizers may impact type of bollard required. Suggested bollard locations and dimensions are shown below. The location of bollards shall not impede a door opening of 100 degrees.





Notes:

1. *Six foot minimum clearance from front of pad.*
2. *Distribution Design/Planning shall designate the number and location of Bollards by marking the Bollards of this drawing as follows:*
3. *Bollards shall be supported with a 12" minimum diameter concrete footing 6" below grade to base of the bollard.*
4. *For installations around oil containment curbs, install bollards six feet minimum on all applicable sides.*

32.0 Concrete Approved Precast Manufacturers

Arrow Concrete Products
560 Salmon Brook St
Granby,CT 06035
Jim Jurczyk
1-860-653-5063

Fort Miller Company
P.O. Box 98
Schuylerville, NY 12871
Joe O'Malley
1-518-695-5000

Hoytes Concrete Products
7839 New Floyd Road
Rome NY 13440
Thomas Hoytes
1-877-336-7789

Kistner Concrete Products Inc.
5550 Hinman Rd
Lockport, NY 14094
1-716- 434-6157
Old Castle Precast
41 Almeida Rd
Hehoboth MA 02769
Bruce Blackledge
1-508-336-7600

United Concrete
173 Church St.
Yalesville CT 06492
Tom Long
1-203-535-4114

D.A. Collins
101 Route 67
Mechanicville, NY 12118
Andrew Timmis
1-518-664-9855

Grimm - Green Island
Green Island, NY 12183
1-518- 272-1100

Jefferson Concrete
22850 Murrock Circle
Watertown NY 13601
1-315-788-4171

Lakelands Concrete
7520 E. Main St. Lima NY 14485
Carl Ashley
1-585-624-1990

Shea Concrete
87 Haverhill Street
Amesbury, MA 01913
Greg Stratus
1-800-696-7432

Utility Precast Inc.
153 Cranberry Highway
Rochester MA 02770
1-508-291-1314

PRE-CAST TRANSFORMER PAD, CLEARANCES, & BOLLARD DETAIL - CONTINUED

17.0 Riser Pole

The *Company* shall designate conduit riser locations on the pole. All primary risers shall be Galvanized Steel, this includes the 90 degree sweep. Per NESC all steel risers must be bonded 6" down from top of riser and the bond must be at least 8' high from finished grade.

The *Customer* is responsible for providing and installing the bond clamps and the tap. The *Company* will make the bond connection from that riser bond tap to the ground system on the pole. Spare riser sweep shall be bonded also. Riser sweep in Direct Buried applications shall be concrete encased. Approved materials reference is located on page 54.

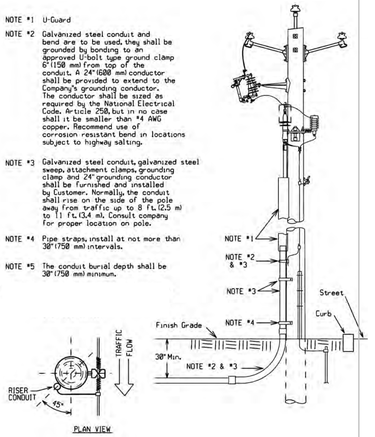
NOTE *1 U-Guard

NOTE *2 Galvanized steel conduit and bend are to be used, they shall be grounded by bonding to an approved U-bolt type ground clamp 6'-(150 mm) from top of the conduit. A 24"(600 mm) conductor shall be provided to extend to the Company's grounding conductor. The conductor shall be sized as required by the National Electrical Code, Article 250, but in no case shall it be smaller than #4 AWG copper. Recommend use of corrosion resistant bend in locations subject to highway salting.

NOTE *3 Galvanized steel conduit, galvanized steel sweep, attachment clamps, grounding clamp and 24" grounding conductor shall be furnished and installed by Customer. Normally, the conduit shall rise on the side of the pole away from traffic up to 8 FT.(2.5 m) to 11 ft.(3.4 m). Consult company for proper location on pole.

NOTE *4 Pipe straps, install at not more than 36"(750 mm) intervals.

NOTE *5 The conduit burial depth shall be 36"(750 mm) minimum.



20.0 Trench Requirements

Final grades shall be established; the surface rough graded with in 6" from finished grade, roadway and property boundaries shall be staked or marked by the *Customer* before any trenching is started. Trench spoils shall be kept a distance of 2" minimum from excavated trench.

The *Customer* shall adhere to the construction plan and specifications specifying trench locations, trench depth and concrete encasement. Any deviation shall be subject to approval by the *Company*.

The *Company* shall be notified in advance of the backfilling of any electric facility (e.g. concrete, conduit, manholes, riser bends). The *Company* reserves the right to require re-excavation of the conduits and foundations if the *Customer* fails to have inspection done or backfills before inspection.

Trenches shall not be backfilled until concrete has set (for at least two hours) and until after approval by authorized *Company* personnel. *Note: if trench is subjected to traffic then the trench shall set for at least 12 hours.* All backfill shall be sand or gravel containing stones less than 1" in any dimension. Backfilling shall not take place over any open-ended (unplugged) conduits. *Company* approved red "Warning" tape shall be installed directly above the *Company's* cable eight to twelve inches below finished grade. Laying the warning tape directly on the cable, concrete or conduit is not acceptable. Certain installations in the public way may require flowable fill instead in place of normal backfill.

20.1 Trench Depth New York/New England Concrete Encased Conduit

Burial depths for electrical conduit shall be maintained not less than 30" from the top of the concrete encasement to grade during all phases of construction. The trench bottom shall be solid, undisturbed earth. Earth showing signs of peat, cinders, rubble, or any conditions not suitable for a stable foundation shall be reported to the *Company* for recommendation. Small pockets of unsuitable soil shall be replaced with compacted gravel (max. 2" stone). At riser pole end concrete encasement just before riser sweep.

20.2 Trench Depth Conduit Direct Buried New York (under certain circumstances agreeable with the *company*)

Burial depths for electrical conduit shall be maintained not less than 30" from the top of the conduit to grade during all phases of construction. The trench bottom shall be solid, undisturbed earth. Earth showing signs of peat, cinders, rubble, or any conditions not suitable for a stable foundation shall be reported to the *Company* for recommendation. Small pockets of unsuitable soil shall be replaced with compacted gravel (max. 2" stone).

20.3 Trench Depth Direct Buried New York

Burial depths for electrical cable shall be maintained not less than 30" to grade during all phases of construction. The trench bottom shall be solid, undisturbed earth. Earth showing signs of peat, cinders, rubble, or any conditions not suitable for a stable foundation shall be reported to the *Company* for recommendation. Small pockets of unsuitable soil shall be replaced with compacted gravel (max. 2" stone). Then 2" minimum of sand shall be the base to lay the cable on top of with another 4" minimum of sand to cover cable.

Pictures of a Riser Pole Installation



Riser Pole Bonding
Rigid Galvanized Steel. Bond higher than 8' and at least 6" from top.



Completed Riser Pole
The Company will specify on which quarter of the pole the riser shall be installed, away from traffic.

33.0 Approved Material – Underground Commercial Installations

National Grid Item ID	Item Description	Manufacturer 1 Part Number	Manufacturer 2 Part Number	Manufacturer 3 Part Number
	Conduit—Straight			
2010404	Conduit, 4", schedule 60 DB PVC	Carlon: 48815	IPEX: 8741	Cantex: A79EA42
2011024	Conduit, Galvanized, 4"	By Description		
	Conduit—Blends			
5690446	Bend, Galvanized, 4" 36" radius	BaynesJones 400R9036	Conditmfg TUB490D36RGALEL	
5690493	Bend, PVC Sch 40, 4", 90 Degree, 36" Rad.	Cantex: 5233842	Carlon: UA6FNB	Certifsaft 59734
	Spacers			
5646963	Spacer, 4", Base	GS Industries: 186-1	IPEX: 29573	
5646960	Spacer, 4", Inter.	GS Industries: 185-1	IPEX: 29557	
	Conduit Accessories			
5641210	Riser Strap, 4"	Electrical Materials: 50-4 USHD	BaynesJones MINRLAC HD-296	
7011830	Lag Screw, 1/4" x 2"	Elect. Materials: 106 or 106M	Joslyn J26486.1	PLH LSNW-142
3503074	Pipe Grd. Connector, 4" and 5"	Burndy GAR3905-BU	Thomasbett (0)3905-BU	
2010424	Temporay Duct Plug, 4" DB	Carlon: P258NT	Scepter 57	
2011254	Duct Plug Galvanized 4"	Crousehind PLG105		
2010434	Adapter, Female, PVC-Steel, 4"	Carlon: E942N	Cantex: 5140052	Scepter FA55
5693359	Coupling, 5 Degree, Bell-Spigot, 4"	Carlon: E244N	Cantex: 6151452	Certifsaft 59544
2010444	Coupling, 5 Degree, Bell-Bell, 4"	Ameripipe FT518	Carlon E2440NF	Scepter 7604360040
2010454	Straight Coupling, 4"	Carlon: E240N	Scepter 760443540	
2010464	Bell End Female 4"	Carlon: E997N	Cantex: 5144012	
9202062	Mule Tape	NEPTCO WP2500P	Amco DLWP25	Condux 08096303
2011254	Plug Galvanized. 4" Threaded for Spare Riser	CROUSEHIND PLG105		
9202201	Plug Conduit 4" with metal loop for mule tape.	Carlon MAEPG7		

RANDOLPH
MAZZEO DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	######	20	21
PROJECT FILE NO.		######	

ELECTRICAL DETAILS II

AGE-RANDOLPH MA-PLANSHEETS.DWG Plotted on 21-Oct-2026 3:28 PM

RISER POLE, TRENCHING, & CONDUIT DETAILS

SCALE N.T.S. | 1

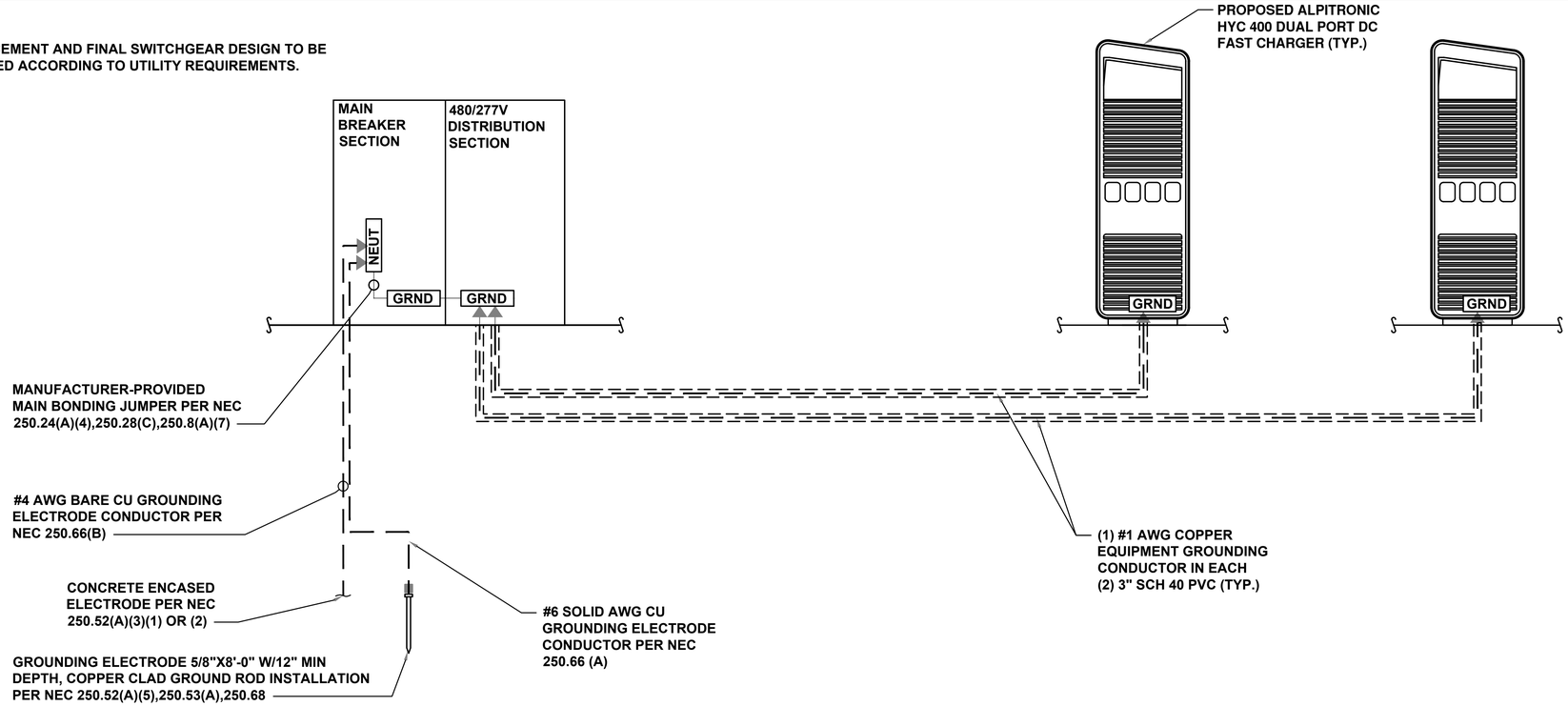
UTILITY S.O.W. RESPONSIBILITES	
SCOPE OF WORK	BY
PROVIDE NEW IN-LINE POLE	NGRID
PROVIDE NEW RISER POLE	NGRID
PROVIDE & INSTALL PRIMARY CONDUCTORS (RISER POLE TO XFMR)	NGRID
PROVIDE & INSTALL PRIMARY SWEEPS, CLAMPS, CONDUITS & TRENCHING (RISER POLE TO XFMR)	CONTRACTOR
MAKE RISER BOND TAP TO GROUND SYSTEM CONNECTIONS	NGRID
PROVIDE UTILITY TRANSFORMER & ASSOCIATED GROUNDING	NGRID
MAKE PRIMARY CONNECTIONS INTO TRANSFORMER	NGRID
MAKE UTILITY TRANSFORMER SECONDARY CONNECTIONS	NGRID
PROVIDE & INSTALL UTILITY TRANSFORMER PAD OIL CONTAINMENT & RISER	CONTRACTOR, SEE SHEET 17 FOR APPROVED SUPPLIERS OF PAD
PROVIDE & INSTALL SECONDARY TRENCHING & CONDUITS	CONTRACTOR
PROVIDE & INSTALL SECONDARY CONDUCTORS	CONTRACTOR

UTILITY S.O.W. RESPONSIBILITIES

SCALE N.T.S. | 2

NOTE:

1. METER PLACEMENT AND FINAL SWITCHGEAR DESIGN TO BE COORDINATED ACCORDING TO UTILITY REQUIREMENTS.



RANDOLPH
MAZZEO DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	######	21	21
PROJECT FILE NO.	######		

GROUNDING DETAILS

AGE-RANDOLPH MA-PLANSHEETS.DWG Plotted on 21-Oct-2026 3:28 PM

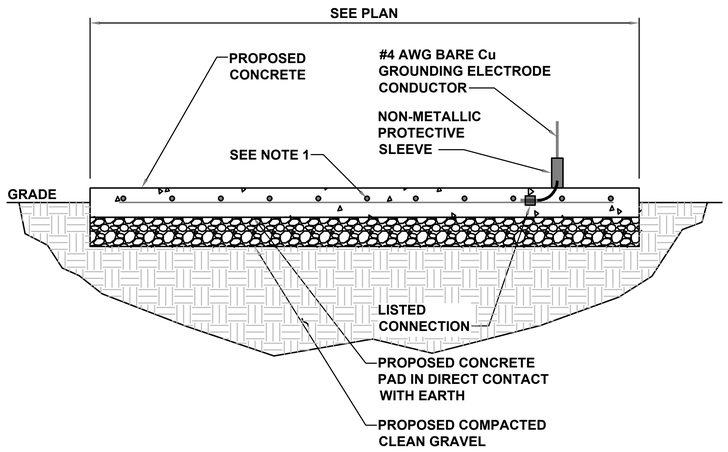
CONCRETE ENCASED ELECTRODE DETAIL

SCALE N.T.S. — 1

CONCRETE ENCASED ELECTRODE DETAIL

NOTE

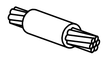
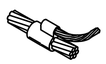
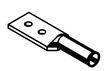
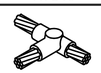
1. REBAR BONDED TOGETHER WITH STEEL TIE WIRES OR EXOTHERMIC WELDING



SCALE N.T.S. — 2

CADWELD CONNECTION DETAIL

CADWELD CONNECTIONS
OR ENGINEER APPROVED EQUAL

 **CABLE TO REBAR** TEE CONNECTION HORIZONTAL CABLE TAP TO VERTICAL REBAR TYPE RJ	 **HORIZONTAL SPLICE** SPLICE OF HORIZONTAL CABLES TYPE SS	 **PARALLEL HORIZONTAL CONDUCTORS** PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLES TYPE PT
BURNDY CONNECTIONS OR ENGINEER APPROVED EQUAL	 **HORIZONTAL STEEL SURFACE** TO FLAT STEEL SURFACE OR HORIZONTAL PIPE TYPE HS	 **PARALLEL HORIZONTAL CONDUCTORS** PARALLEL DEAD END TAP OR HORIZONTAL THRU CONDUCTOR TYPE PC
 **BOND JUMPER** FIELD FABRICATED GREEN STRANDED INSULATED TYPE 2-YA-2	 **VERTICAL PIPE** CABLE DOWN AT 45° TO RANGE OF VERTICAL PIPES TYPE VS	 **VERTICAL STEEL SURFACE** CABLE DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE TYPE VS
 **COPPER LUGS** TWO HOLE - LONG BARREL LENGTH TYPE YA-2	 **HORIZONTAL TEE** TEE OF HORIZONTAL RUN AND TAP CABLES TYPE TA	 **THROUGH CABLE TO GROUND ROD** THROUGH CABLE TO TOP OF GROUND ROD TYPE GT

SCALE N.T.S. — 3

GROUNDING NOTES

NOTES:

1. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.

SCALE N.T.S. — 4