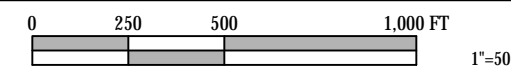




2011 IMAGERY FROM INDIANA STATE MAP.

LOCATION AND SCOPE OF WORK PLAN

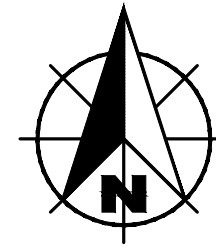


HORIZONTAL AND VERTICAL CONTROL INFORMATION

NOTES:

1. A FIELD SURVEY WAS PERFORMED IN NOVEMBER 2016 AND AUGUST 2017.
2. COORDINATES (INDIANA STATE PLANE, EAST ZONE, NAD 83) AND ELEVATIONS (NAVD 88) ARE BASED ON INCORS.
3. UNITS ARE U.S. SURVEY FEET.
4. CONTROL POINTS WERE SET USING GPS.

CONTROL POINTS				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
20	1691775.67	235830.53	757.1	5/8" REBAR
21	1691427.55	235641.43	755.0	5/8" REBAR
22	1690072.41	234515.43	754.7	5/8" REBAR
23	1690026.13	235131.79	755.0	5/8" REBAR
24	1689706.51	234759.47	755.0	5/8" REBAR
25	1688868.00	233776.51	754.1	5/8" REBAR
26	1688523.55	234177.25	756.5	5/8" REBAR
27	1688514.13	234537.53	757.6	5/8" REBAR
28	1689716.01	234545.98	754.6	5/8" REBAR
29	1689519.04	234622.43	756.8	5/8" REBAR



NOTES:

1. FORT HARRISON WELL FIELD CONSISTS OF EXISTING WELLS NO. 8, 9 AND 10.
2. INDIAN LAKE WELL FIELD CONSISTS OF EXISTING WELL NO. 14, 15R AND 16.
3. ALL OF THE WORK IS LOCATED WITHIN THE FLOODWAY OR FLOODPLAIN. DO NOT BEGIN EXCAVATION OR FILL ACTIVITIES OR WORK IN THE WATERWAY UNTIL ALL PERMITS ARE OBTAINED BY OWNER.
4. 100 YEAR FLOOD ELEVATIONS ARE SHOWN ON SHEET C1.

DRAWING INDEX		
PAGE NO.	SHEET NO.	DESCRIPTION
GENERAL		
01		TITLE SHEET
02	G1	DRAWING INDEX, LOCATION AND SCOPE OF WORK PLAN AND SURVEY CONTROL
03	G2	PLAN NOTES, UTILITY CONTACTS, LEGEND AND ABBREVIATIONS
SITE		
04	Y1	INDIAN LAKE AND FORT HARRISON WELL FIELD SITE PLANS
05	Y2	MISCELLANEOUS AND EROSION CONTROL DETAILS
CIVIL		
06	C1	GENERATOR PLATFORM PLAN, SECTION AND DETAILS
07	C2	WELL HOUSE MODIFICATIONS
08	C3	WELL HOUSE DETAILS AND SCHEDULES
STRUCTURAL		
09	S1	GENERAL NOTES
10	S2	TYPICAL REPAIR PROCEDURES
11	S3	WELL HOUSE PLANS
12	S4	WELL HOUSE 9 ELEVATIONS - 01
13	S5	WELL HOUSE 9 ELEVATIONS - 02
14	S6	WELL HOUSE 10 ELEVATIONS - 01
15	S7	WELL HOUSE 10 ELEVATIONS - 02
16	S8	GENERATOR PLATFORM FOUNDATION AND FRAMING PLANS
17	S9	STRUCTURAL DETAILS
18	S10	BRIDGE REINFORCEMENT PLAN, SECTION AND DETAILS
ELECTRICAL		
19	E1	INDIAN LAKE AND FORT HARRISON WELL HOUSE ELECTRICAL SITE PLANS
20	E2	INDIAN LAKE WELL HOUSE ELECTRICAL IMPROVEMENTS
21	E3	INDIAN LAKE ELECTRICAL DIAGRAMS AND DETAILS
22	E4	FORT HARRISON WELL HOUSE ELECTRICAL IMPROVEMENTS
23	E5	FORT HARRISON ELECTRICAL DIAGRAMS
24	E6	FORT HARRISON ELECTRICAL DIAGRAMS AND DETAILS

SCALE VERIFICATION

BAR IS ONE INCH LONG ON ORIGINAL DRAWING

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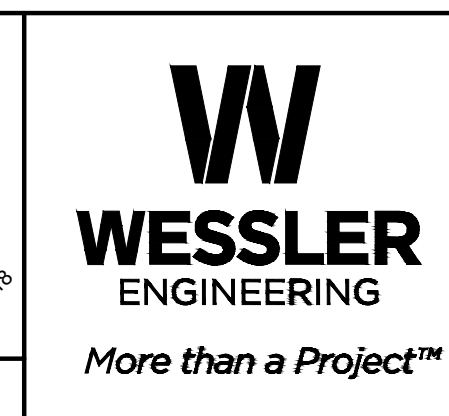
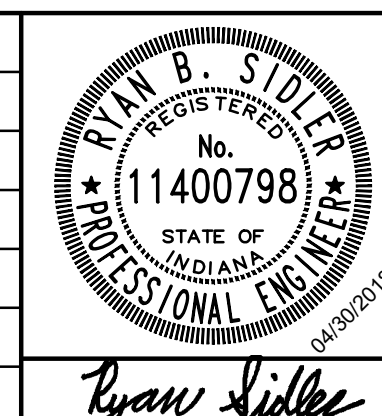
CHECKED BY
RBS

APPROVED BY
DLL

ISSUE DATE
MAY 2018

PROJECT NUMBER
194717-04-006

NO.	DATE	INITIALS	REVISION DESCRIPTIONS



WELL FIELD IMPROVEMENTS
CITY OF LAWRENCE UTILITIES
LAWRENCE, INDIANA

DRAWING INDEX, LOCATION AND SCOPE OF WORK PLAN
AND SURVEY CONTROL

SHEET NO.
G1

PAGE NO.
02

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Drawing: J:\Lawrence\Projects\194717_Lawrence Water Imp Ph 1\CAD\04-006 Well Field\DWG\Sheets\194717_GS.dwg | Layout: CA | Plotted: 04/27/18 @ 03:16:04 | LastSavedBy: CurtG

EXISTING FEATURES LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	BENCH MARK		CISTERN		EASEMENT - CONSTRUCTION/PERMANENT
	TEMPORARY BENCH MARK		ELECTRIC METER		LOT BOUNDARY
	SOIL BORING LOCATION		AIR CONDITIONING UNIT		PROPERTY BOUNDARY
	SECTION CORNER		UTILITY RISER (DEFINED BY UTILITY)		RIGHT-OF-WAY - TEMPORARY/PERMANENT
	DRILL HOLE IN CONCRETE/HARRISON MONUMENT		UTILITY PEDESTAL (DEFINED BY UTILITY)		SECTION BOUNDARY
	CONTROL POINT (SET/FOUND)		UTILITY MARKER (DEFINED BY UTILITY)		WETLANDS
	MAGNETIC NAIL (SET/FOUND)		JOINT POWER/TELEPHONE POLE		CONTOUR - INTERMEDIATE ELEVATION
	BOAT SPIKE (SET/FOUND)		LIGHT POLE		CONTOUR - INDEX ELEVATION
	PK NAIL (SET/FOUND)		LIGHT ON POWER POLE		OVERHEAD ELECTRIC
	RAILROAD SPIKE (SET/FOUND)		LIGHT ON JOINT POLE		OVERHEAD CABLE TV
	R/W MARKER - CONCRETE/GRANITE/STONE		POWER POLE		OVERHEAD TELEPHONE
	IRON PIPE/IRON PIN/REBAR (WITH DIAMETER)		TELEPHONE POLE		UNDERGROUND CABLE TV
	BRASS PLUG		LAMP POST		UNDERGROUND ELECTRIC
	CABLE TV MANHOLE		GUY ANCHOR		UNDERGROUND FIBER OPTIC
	ELECTRIC MANHOLE		GUY POLE OR STUB		GAS MAIN
	GAS MANHOLE		CONTROLLER CABINET		DIGESTER GAS
	OTHER MANHOLE		FLAG POLE		PETROLEUM MAIN
	TELEPHONE MANHOLE		POST		UNDERGROUND TELEPHONE
	TELEPHONE VAULT		GROUND LIGHT		WATER MAIN
	TRAFFIC MANHOLE		MAILBOX		WATER SERVICE
	TRAFFIC HANDHOLE		DOUBLE/MULTIPLE MAILBOX		FORCE MAIN
	WATER MANHOLE		MAST ARM POLE		GRAVITY SEWER PIPE
	AIR RELEASE VALVE		TRAFFIC SIGNAL STRAIN POLE		PLANT CHLORINE PIPE
	SANITARY SEWER MANHOLE		SIGNAL LOOP DETECTOR BOX		TOP OF BANK/TOE OF SLOPE
	DRAINAGE/STORM SEWER MANHOLE		SIGNAL LOOP DETECTOR LOOP		CENTERLINE OF DITCH/SWALE/STREAM
	SANITARY SEWER CLEANOUT		SIGN - SINGLE POST		FENCE - FIELD
	SEPTIC TANK		SIGN - DOUBLE POST		FENCE - METAL
	VALVE VAULT		SIGN - RAILROAD SIGNAL		FENCE - WOOD
	BEEHIVE INLET		SIGN - RAILROAD CROSSING		GUARDRAIL
	CURB INLET		BUSH		STREAM
	DROP INLET		STUMP		TREE/BRUSH LINE
	CATCH BASIN		TREE - CONIFEROUS		
	DOWNSPOUT		TREE - DECIDUOUS		
	GAS METER		ROCK OUTCROP		
	GAS VALVE		SATELLITE		
	GAS SERVICE VALVE				
	PETROLEUM VALVE				
	PETROLEUM SHUTOFF VALVE				
	GAS STATION MONITORING WELL				
	GAS STATION FILL CAP				
	NATURAL GAS WELL/STORAGE WELL				
	SPRINKLER HEAD				
	SPRINKLER CONTROL VALVE				
	WATER METER				
	WATER VALVE				
	WATER SERVICE VALVE				
	WATER WELL				
	WET WELL				
	FIRE HYDRANT				
	PROCESS VALVE				
	YARD HYDRANT				

*NOTE: THIS TABLE IS A LISTING OF TYPICAL EXISTING SYMBOLS AND MAY NOT INCLUDE ALL EXISTING SYMBOLS FOUND WITHIN THIS PLAN SET. ALL PROPOSED ITEMS WILL BE CALLED OUT ON THEIR PLAN SHEETS. IF A QUESTION ARISES ON THE MEANING OF ANY SYMBOL NOT LISTED IN THIS TABLE, PLEASE CONTACT THE ENGINEER FOR CLARIFICATION. THE SYMBOLS ARE NOT TO SCALE.

TABLE OF ABBREVIATIONS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
AFF	ABOVE FINISHED FLOOR	IPS	IRON PIPE SIZE
ALUM	ALUMINUM	ISPC	INDIANA STATE PLANE COORDINATE
APP	APPARENT	LB	POUND(S)
APPROX	APPROXIMATE(LY)	LF	LINEAR FEET
ASPH	ASPHALT	LN	LANE
ASSOC	ASSOCIATES	LS	LIFT STATION
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	MA EX	MATCH EXISTING
AVE	AVENUE	MJ	MECHANICAL JOINT
AVG	AVERAGE	MATL	MATERIAL
BLDG	BUILDING	MAX	MAXIMUM
BLVD	BOULEVARD	MH	MANHOLE
BM	BENCHMARK	MIN	MINIMUM
CO	CLEANOUT	MISC	MISCELLANEOUS
CI	CAST IRON	N	NORTHING, NORTH
CL	CENTER LINE	NGS	NATIONAL GEODETIC SURVEY
CMA	COLD MIX ASPHALT	NO.	NUMBER
CMP	CORRUGATED METAL PIPE	OC	ON CENTER
CMU	CONCRETE MASONRY UNIT	OD	OUTSIDE DIAMETER
CONC	CONCRETE	PC	POINT OF CURVE (BEGIN CURVE)
CONT	CONTINUOUS	POLY	POLYETHYLENE
CNR	CORNER	PI	POINT OF INTERSECTION
CP	CONTROL POINT	POT	POINT ON TANGENT
CPP	CORRUGATED PLASTIC PIPE	PT	POINT OF TANGENT (END CURVE)
CR STN	CRUSHED STONE	PSI	POUNDS PER SQUARE INCH
CYD	CUBIC YARD	P	POINT
D	DEPTH	PVC	POLYVINYL CHLORIDE
DI	DUCTILE IRON	R	RADIUS
DI MJ	DUCTILE IRON MECHANICAL JOINT	ROW	RIGHT-OF-WAY
DBL	DOUBLE	RCP	REINFORCED CONCRETE PIPE
DIA	DIAMETER	RD	ROAD
DIP	DUCTILE IRON PIPE	S	SOUTH
DIPS	DUCTILE IRON PIPE SIZE	SR	STATE ROUTE
DR	DRIVE	SST	STAINLESS STEEL
E	EASTING, EAST	SVA	SERVICE VALVE ASSEMBLY
EF	EACH FACE	SB	SOIL BORING
EW	EACH WAY	SCHED	SCHEDULE
EA	EACH	SDR	STANDARD DIMENSION RATIO
EJ	EAST JOINT IRON WORKS	SECT	SECTION
EL	ELEVATION	SF	SQUARE FEET
EX	EXTENSION	SHT	SHEET
EXP	EXTENSION	SPECS	SPECIFICATION(S)
FFE	FINISH FLOOR ELEVATION	SQ	SQUARE
FM	FORCE MAIN	SRF	STATE REVOLVING FUND
FND	FOUND	ST	STREET
FT	FEET	STA	STATION
F	FOOTING	SYD	SQUARE YARD
GALV	GALVANIZED	TBM	TEMPORARY BENCHMARK
GPS	GLOBAL POSITIONING SYSTEM	TC	TOP OF CASTING
HMA	HOT MIX ASPHALT	TYP	TYPICAL
HDPE	HIGH DENSITY POLYETHYLENE	USGS	US GEOLOGICAL SURVEY
HORIZ	HORIZONTAL	VERT	VERTICAL
ID	INSIDE DIAMETER	VLV	VALVE
IE	INVERT ELEVATION	W	WIDTH, WEST
INC	INCORPORATED	WSE	WATER SURFACE ELEVATION
INDOT	INDIANA DEPARTMENT OF TRANSPORTATION	YR	YEAR
INSTR	INSTRUMENT		
INV	INVERT		

*NOTE: THIS TABLE IS A LISTING OF TYPICAL ABBREVIATIONS AND MAY NOT INCLUDE ALL ABBREVIATIONS FOUND WITHIN THIS PLAN SET. IF A QUESTION ARISES ON THE MEANING OF AN ABBREVIATION NOT LISTED IN THIS TABLE, PLEASE CONTACT THE ENGINEER FOR CLARIFICATION.

- GENERAL NOTES:**
- NOTIFY THE ENGINEER IF ANY CONFLICTING INFORMATION BECOMES APPARENT IN THE CONTRACT DOCUMENTS AS SOON AS POSSIBLE AND PRIOR TO THE COMMENCEMENT OF ANY WORK IN THE VICINITY OF OR RELATIVE TO THE APPARENT CONFLICT SO THAT CLARIFICATION MAY OCCUR PRIOR TO CONSTRUCTION.
 - ANY ALTERATIONS TO THESE DRAWINGS NOT AUTHORIZED BY WESSLER ENGINEERING AND NOT IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS AND RECORDS ON FILE AT WESSLER ENGINEERING SHALL RELIEVE WESSLER ENGINEERING OF ANY RESPONSIBILITY FOR THE ACCURACY OF THE DRAWINGS.
 - USE CAUTION DURING THE EXECUTION OF WORK TO PREVENT DAMAGE TO STATE, COUNTY, MUNICIPAL, AND PRIVATE PROPERTY. REPAIR ALL DAMAGES AS A RESULT OF OPERATIONS, INCLUDING DAMAGE TO DRAINAGE STRUCTURES, FIELD TILES, PUBLIC/PRIVATE ROADS, AND LANDSCAPING (INCLUDING FENCING). REPAIR AND REPLACE DAMAGED ITEMS AT NO ADDITIONAL COST TO THE OWNER. PERFORM ALL REPAIR AND REPLACE WORK TO THE SATISFACTION OF THE PERMITTING AGENCY, THE OWNER AND THE ENGINEER. TAKE CARE TO AVOID DAMAGE TO PAVED AREAS WHICH ARE NOT SPECIFICALLY CALLED OUT FOR REPAIR OR REPLACEMENT. REPAIR OR REPLACE ALL SUCH PAVEMENTS WHICH ARE DAMAGED BY CONSTRUCTION ACTIVITIES AND CONSTRUCTION TRAFFIC AT NO ADDITIONAL COST TO THE OWNER.
 - OBTAIN ALL TEMPORARY EASEMENTS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT AT NO ADDITIONAL COST TO THE OWNER.
 - COMPLY WITH ALL APPLICABLE PERMITS AND REGULATIONS. APPLICABLE PERMITS ISSUED TO THE OWNER WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT ALL APPLICABLE PERMITTING AGENCIES WITHIN THE TIME PERIOD SPECIFIED BY THAT AGENCY PRIOR TO BEGINNING CONSTRUCTION.
 - ALL PRIVATE WELL LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE. FIELD VERIFY AND DETERMINE EXACT LOCATIONS OF ALL PRIVATE WELLS IN THE PROJECT AREA.
 - ALL EXISTING AND NEW UTILITY INFORMATION, INCLUDING BUT NOT LIMITED TO LOCATION, SIZE AND INVERT ELEVATION, IS SHOWN BASED UPON AVAILABLE INFORMATION. THE ENGINEER DOES NOT GUARANTEE OR ASSUME SUCH INFORMATION TO BE TRUE, ACCURATE, ALL INCLUSIVE OR EVEN APPROXIMATE. CONTACT THE INDIANA UNDERGROUND PLANT PROTECTION SERVICE (IUPPS) AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY CONSTRUCTION ACTIVITY. CONTACT NON-MEMBER UTILITIES DIRECTLY.
 - DETERMINE WHICH UTILITIES MAY CONFLICT WITH WORK AND VERIFY THEIR LOCATION, SIZE AND ELEVATION PRIOR TO CONSTRUCTION AND DETERMINE IF THERE ARE ANY DISCREPANCIES OR CONFLICTS. IF ANY DISCREPANCIES OR CONFLICTS ARE DISCOVERED, NOTIFY THE ENGINEER AS SOON AS POSSIBLE.
 - COORDINATE ALL WORK WITH THE RESPECTIVE UTILITIES. SCHEDULE WORK ACCORDINGLY, AND NOTIFY ALL UTILITIES A MINIMUM OF TWO (2) WEEKS IN ADVANCE OF ANY CONSTRUCTION ACTIVITY.
 - COORDINATE PLANNED UTILITY SERVICE INTERRUPTIONS WITH THE RESPECTIVE UTILITIES AND THE UTILITIES' AFFECTED CUSTOMERS. SERVICE INTERRUPTIONS SHOULD NOT LAST MORE THAN FOUR (4) HOURS. GIVE WRITTEN NOTICE TO ALL AFFECTED UTILITY CUSTOMERS AND PROPERTY OWNERS AT LEAST TWENTY-FOUR (24) HOURS BUT NOT MORE THAN SEVENTY-TWO (72) HOURS PRIOR TO ANY PLANNED INTERRUPTION OF UTILITY SERVICE.
 - USE CAUTION DURING THE EXECUTION OF WORK TO PREVENT DAMAGE TO EXISTING UTILITIES. REPAIR OR REPLACE ALL PUBLIC AND PRIVATE FACILITIES DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS. BRACE AND PROTECT ALL UTILITY POLES AND EXISTING STRUCTURES ADJACENT TO NEW EXCAVATIONS. UTILITY POLE BRACING SHALL BE AS DIRECTED BY THE GOVERNING UTILITY.
 - MAINTAIN EXISTING STORMWATER DRAINAGE FOR THE ENTIRE DURATION OF THE PROJECT.
 - DO NOT DISTURB EXISTING MANHOLES OR INLETS, UNLESS NOTED OTHERWISE.
 - ALL EQUIPMENT, APPURTENANCES AND PIPING REMOVED AS PART OF THE DEMOLITION SHALL FIRST BE OFFERED TO THE OWNER FOR SALVAGE. DELIVER SALVAGED ITEMS SELECTED BY OWNER TO A LOCATION DESIGNATED BY THE OWNER OR ENGINEER. IN THE EVENT THE OWNER DOES NOT ELECT TO KEEP THE REMOVED ITEMS, REMOVE SUCH ITEMS FROM THE SITE AND DISPOSE OF AT A LOCATION APPROVED FOR SUCH DISPOSAL AT THE CONTRACTOR'S EXPENSE.
 - COORDINATE STAGING AREA LOCATIONS WITH THE OWNER.
 - THE WORK SHOWN ON THESE DRAWINGS IS OCCURRING IN WHICH BURIED ELECTRICAL CONDUIT AND SMALL PIPING MAY EXIST THROUGHOUT AND IN THE VICINITY OF THE PROJECT AND MAY NOT BE SHOWN ON THESE DRAWINGS. EXPECT TO ENCOUNTER BURIED ELECTRICAL AND COMMUNICATIONS WIRING, WITH OR WITHOUT CONDUIT, SMALL PIPING, AND FIELD TILE WHILE DIGGING ON THIS SITE.
 - INSPECT THE SITE PRIOR TO BIDDING TO UNDERSTAND THE EXTENT OF THE DEMOLITION WORK INVOLVED AND ADJUST BID ACCORDINGLY.
 - ALL EQUIPMENT TO BE REMOVED THAT HAS ELECTRICAL COMPONENTS, CONDUIT AND WIRING, OR SMALL PIPING CONNECTED SHALL HAVE THE ELECTRICAL COMPONENTS AND SMALL PIPING REMOVED BACK TO THE SOURCE UNLESS OTHERWISE SHOWN.

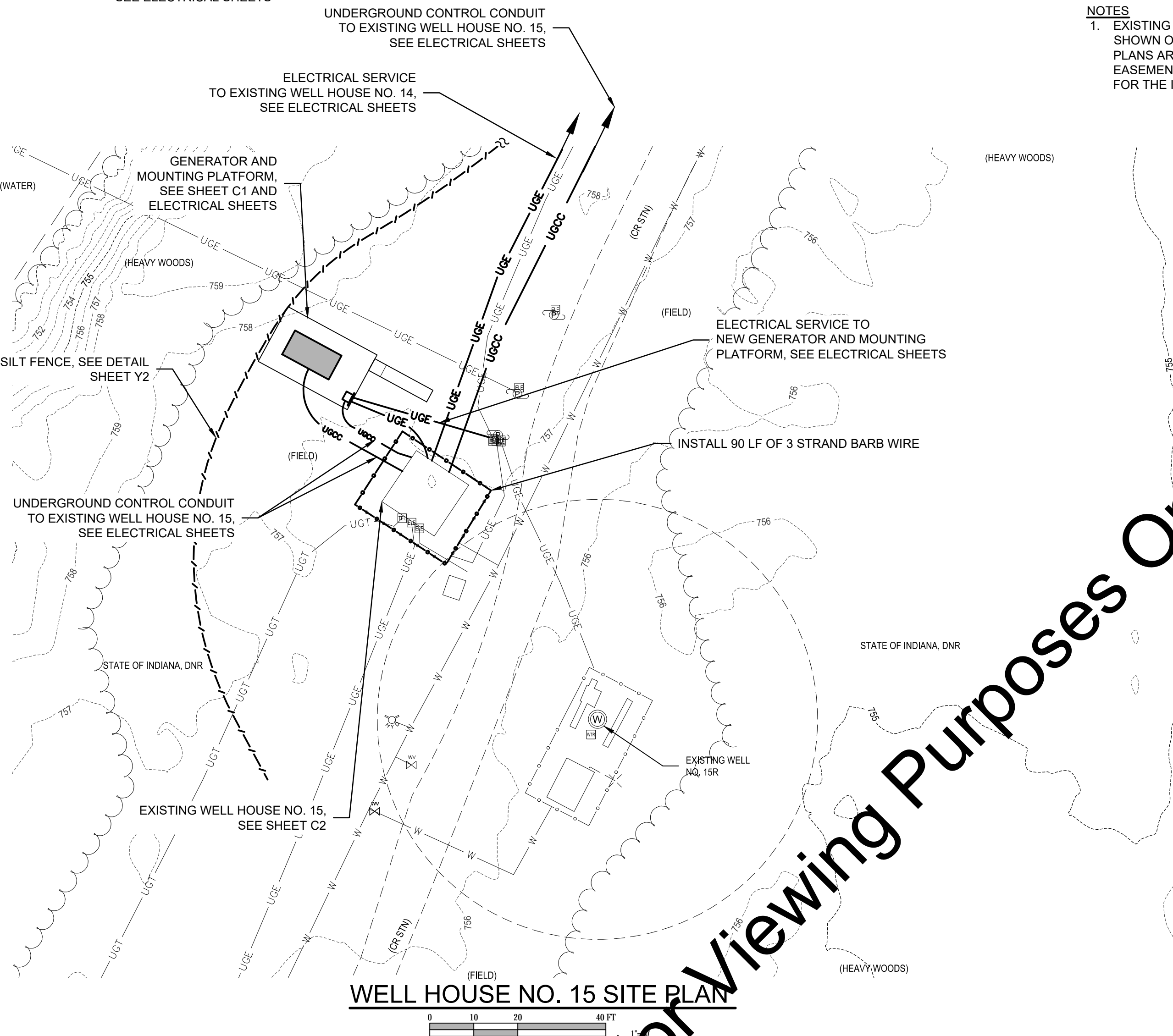
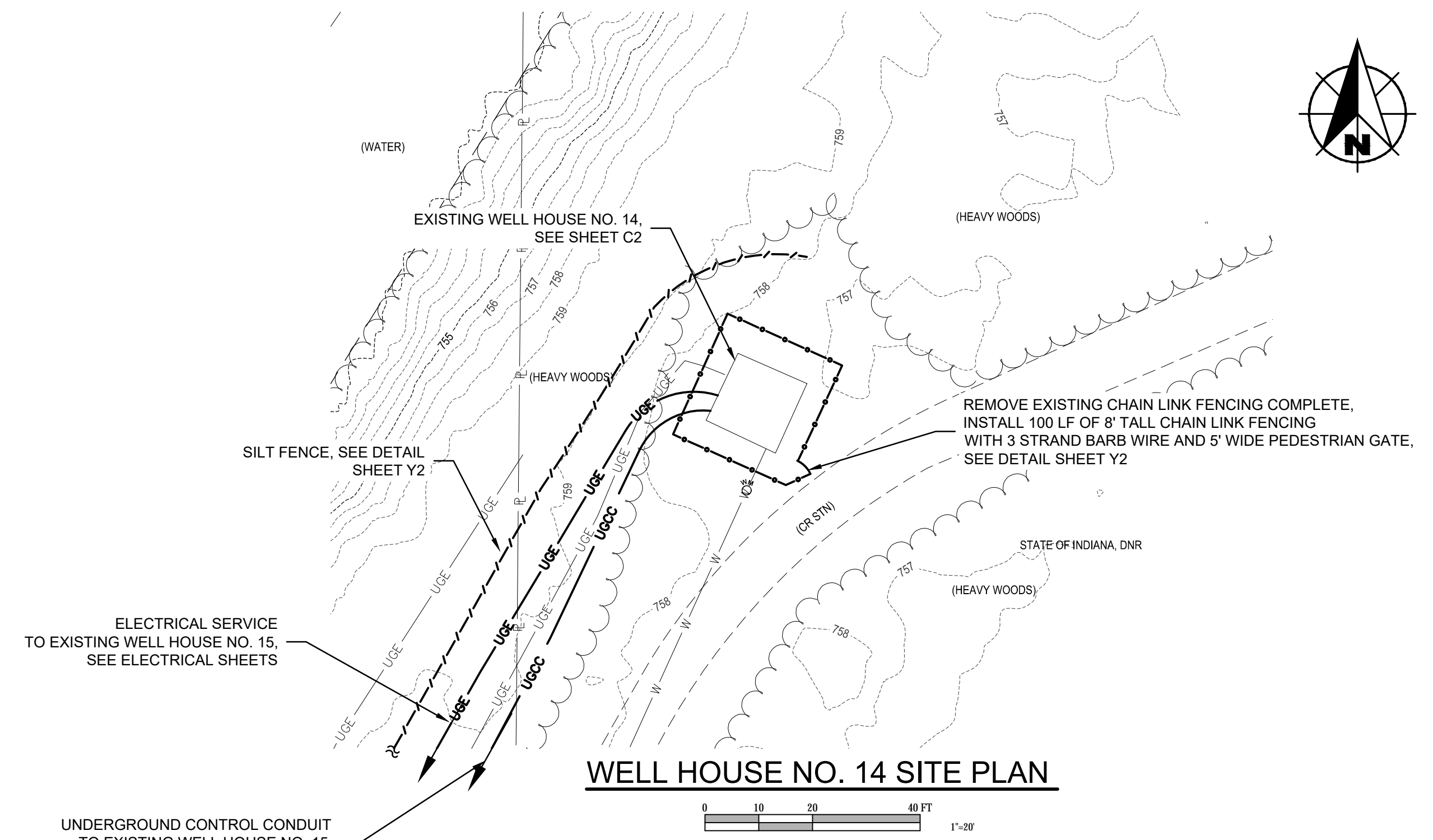
UTILITY CONTACTS

<p>GAS CITIZENS ENERGY GROUP ATTN: RICHARD MILLER RMILLER@CITIZENSENERGYGROUP.COM 2150 DR MARTIN LUTHER KING JR STREET INDIANAPOLIS, IN 46202 1-317-927-4684</p>	<p>SEWER AND WATER CITY OF LAWRENCE UTILITIES ATTN: SCOTT SALSBERY SSALSBERY@CITYOFLAWRENCE.ORG 9001 EAST 59TH STREET LAWRENCE, IN 46216 1-317-542-0511</p>	<p>CABLE TV COMCAST CABLEVISION ATTN: DALE LAMBERT DALE_LAMBERT@CABLE.COMCAST.COM 9750 EAST 150TH STREET SUITE 1600 NOBLESVILLE, IN 46060 1-765-646-9113</p>
<p>COMMUNICATION AT&T - DISTRIBUTION ATTN: MICHAEL HAYNES MH2623@ATT.COM 5858 NORTH COLLEGE AVENUE INDIANAPOLIS, IN 46220 1-317-252-4007</p>	<p>FIELD CONTACT ATTN: ANDREW HALL AHALL@CITYOFLAWRENCE.ORG 9201 HARRISON PARK COURT LAWRENCE, IN 46216 1-317-502-5279</p>	<p>COMMUNICATIONS/FIBER OPTIC ONPOINT CONSTRUCTION MANAGEMENT (308) 212-0387</p>
<p>ELECTRIC INDIANAPOLIS POWER AND LIGHT COMPANY ATTN: MS RHONDA WILLIAMS RHONDA.WILLIAMS@AES.COM 1230 WEST MORRIS STREET INDIANAPOLIS, IN 46221 1-317-261-5203</p>		

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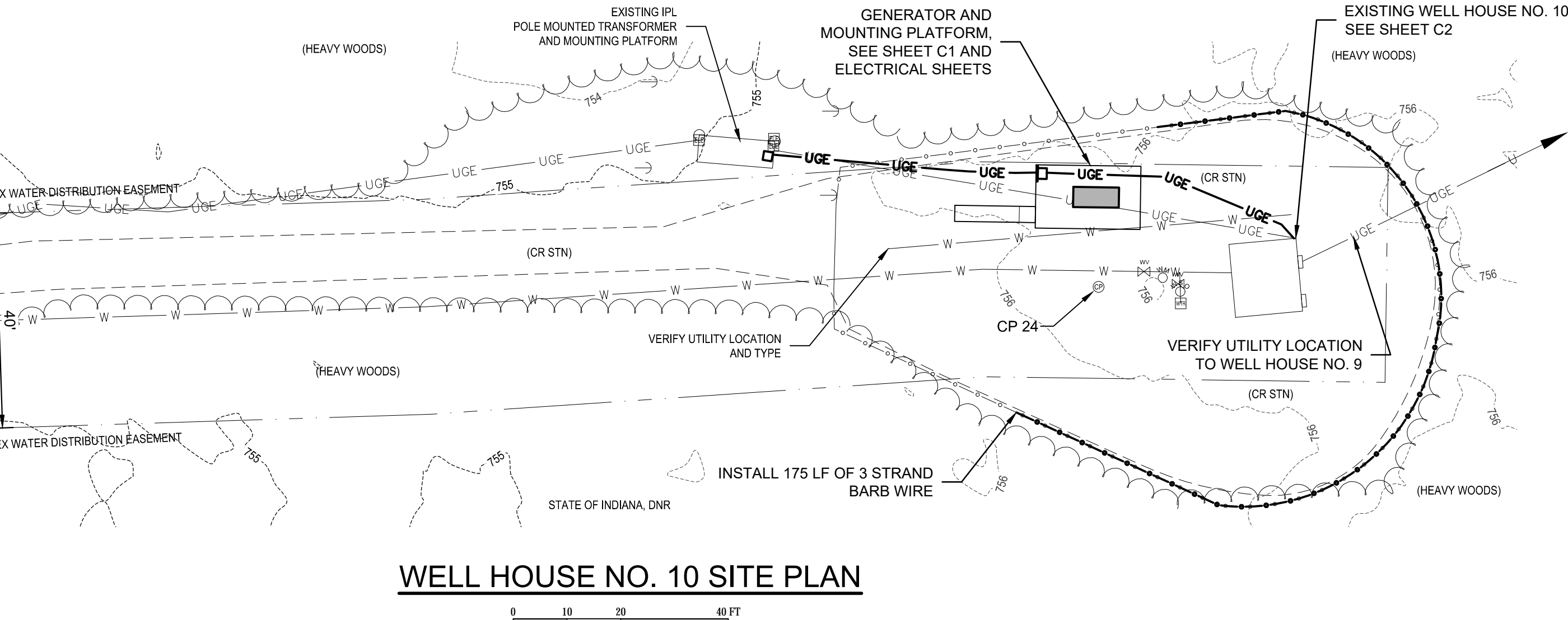
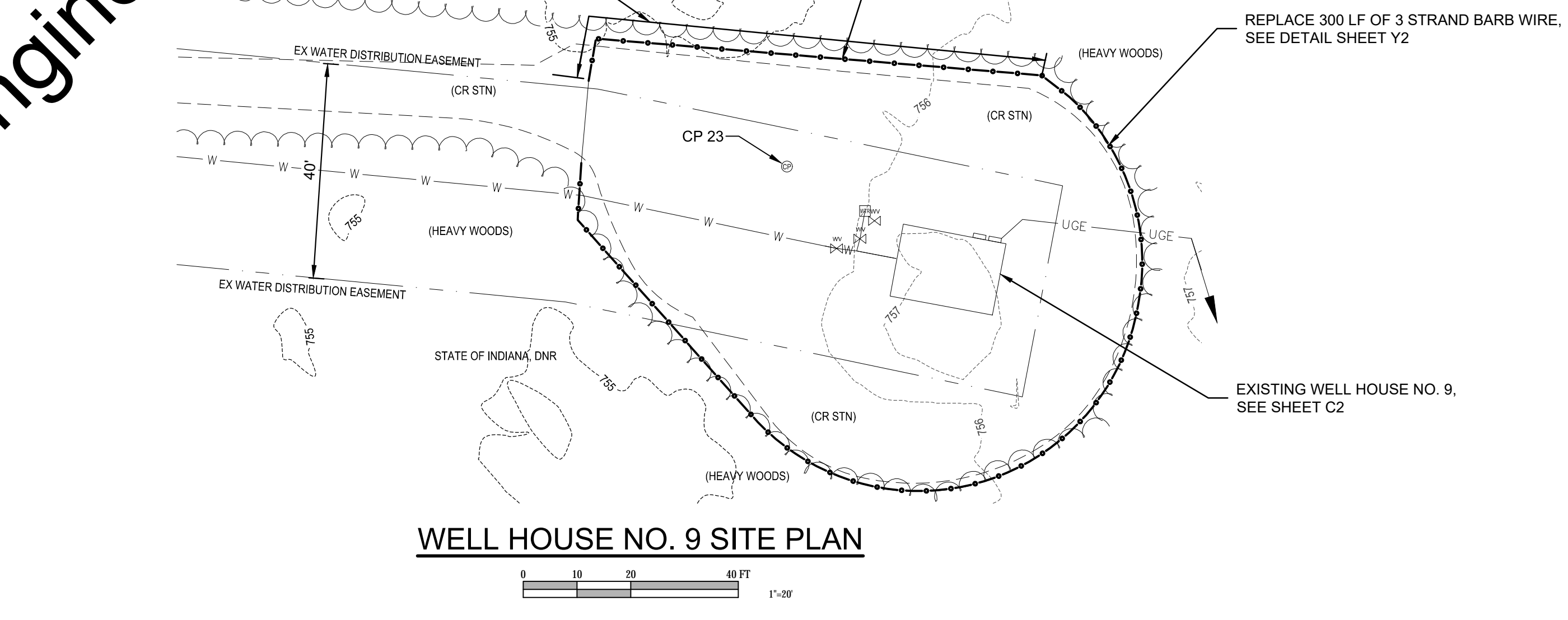
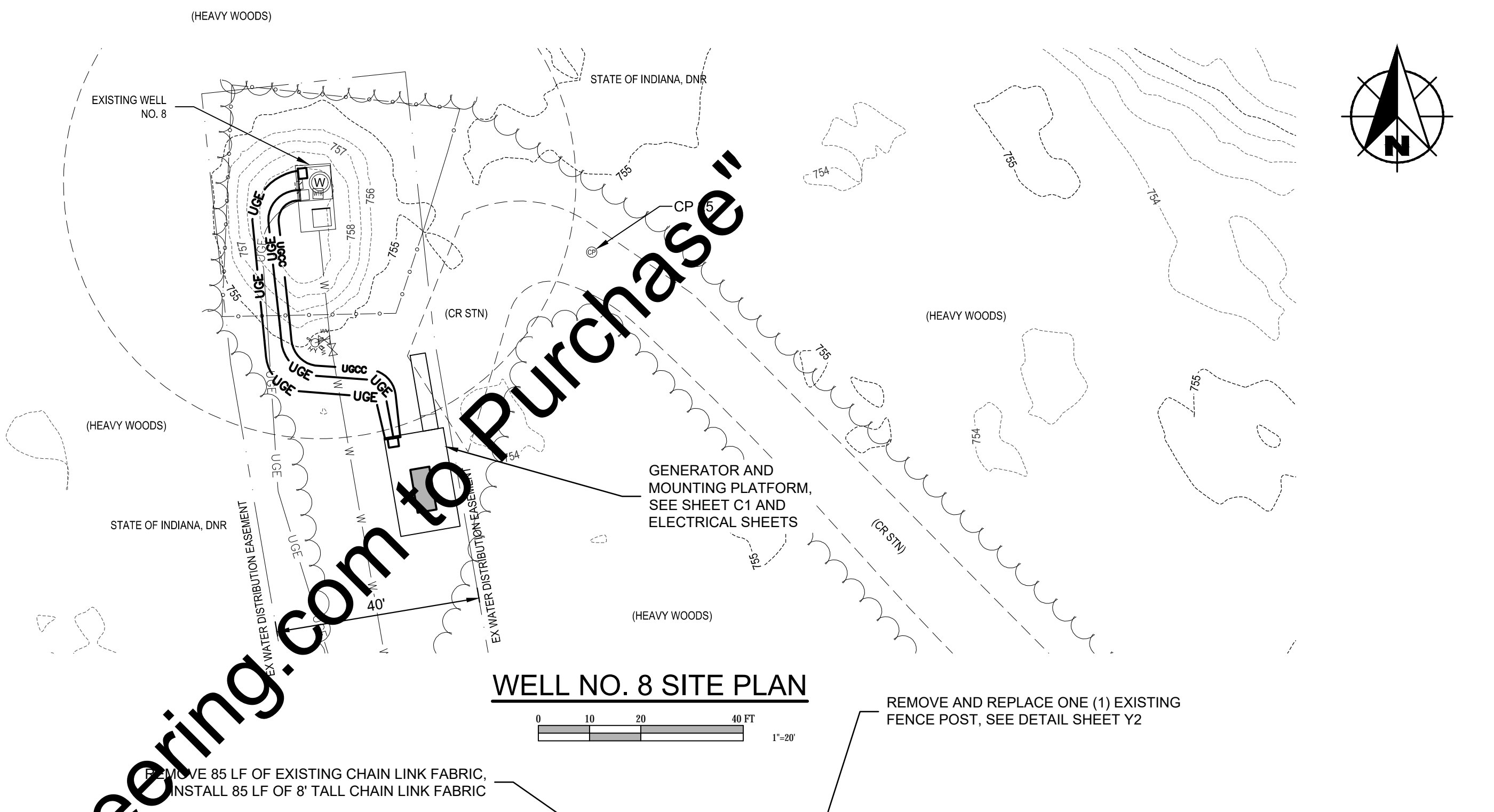
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	<p>CHECKED BY</p> <p>RBS</p>	<p>APPROVED BY</p> <p>DLL</p>					<p>PAGE NO.</p> <p>03</p>
	<p>ISSUE DATE</p> <p>MAY 2018</p>	<p>PROJECT NUMBER</p> <p>194717-04-006</p>					
	<p>PLAN NOTES, UTILITY CONTACTS, LEGEND AND ABBREVIATIONS</p>						

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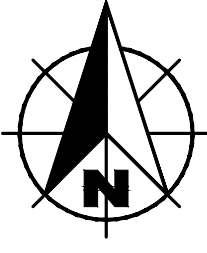
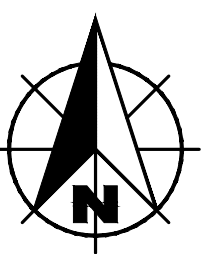
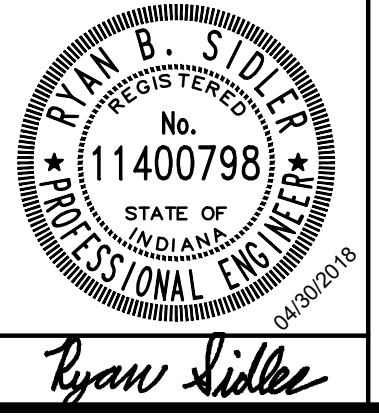
NOTES

1. EXISTING WELLS, WELL BUILDINGS AND WATER MAINS SHOWN ON THE INDIAN LAKE WELL HOUSE NO. 14 AND 15 SITE PLANS ARE LOCATED IN AN EXISTING WATER DISTRIBUTION EASEMENT THAT EXTEND BEYOND THE CONSTRUCTION LIMITS FOR THE INDIAN CREEK WELL FIELD WORK.



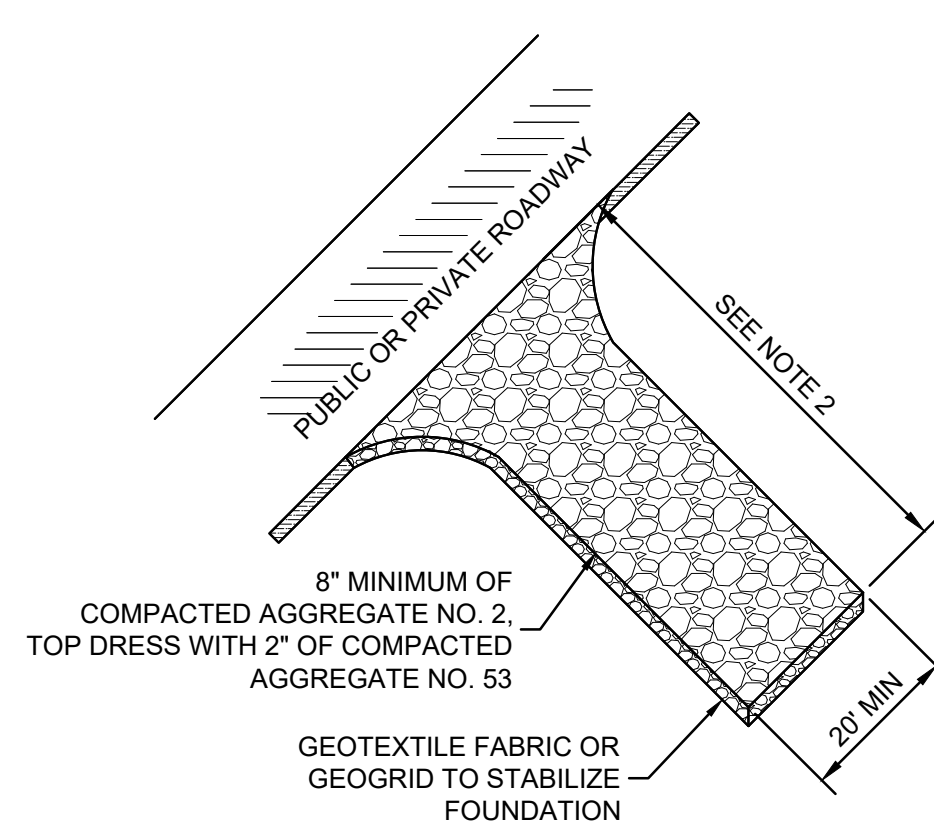
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<p>SCALE VERIFICATION</p> <p>BAR IS ONE INCH LONG ON ORIGINAL DRAWING</p>	<p>DRAWN BY</p> <p>CLG</p>	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	<p>WELL FIELD IMPROVEMENTS</p> <p>CITY OF LAWRENCE UTILITIES</p> <p>LAWRENCE, INDIANA</p> <p>INDIAN LAKE AND FORT HARRISON WELL FIELD SITE PLANS</p>	<p>SHEET NO.</p> <p>Y1</p>
	<p>CHECKED BY</p> <p>RBS</p>						<p>PAGE NO.</p> <p>04</p>
	<p>APPROVED BY</p> <p>DLL</p>						
	<p>ISSUE DATE</p> <p>MAY 2018</p>						
	<p>PROJECT NUMBER</p> <p>194717-04-006</p>						



EROSION CONTROL SCHEDULE	
CONSTRUCTION ACTIVITY	SCHEDULE CONSIDERATION
NOTIFY IDEM RULE 5 COORDINATOR (317-233-1864) AND THE STORMWATER AUTHORITY WITHIN 48 HOURS PRIOR TO STARTING CONSTRUCTION. POST THE CONTACT INFORMATION AT THE CONSTRUCTION ENTRANCE. INCLUDE A COPY OF THE NOTICE OF INTENT (NOI) AND THE ONSITE PERSON WHO IS RESPONSIBLE FOR IMPLEMENTING THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP). THE SWPPP SHOULD BE ONSITE AND WEEKLY SITE INSPECTION REPORTS MUST BE AVAILABLE WITHIN 48 HOURS OF REQUEST.	WITHIN 48 HOURS PRIOR TO STARTING CONSTRUCTION.
CONSTRUCTION ACCESS - ENTRANCE TO SITE, CONSTRUCTION ROUTES, AREAS DESIGNATED FOR EQUIPMENT PARKING OR MATERIAL STAGING.	THIS IS THE FIRST LAND-DISTURBING ACTIVITY. AS SOON AS CONSTRUCTION BEGINS, STABILIZE ANY BARE AREAS WITH AGGREGATE AND TEMPORARY VEGETATION.
SEDIMENT TRAPS AND BARRIERS - BASIN TRAPS, SILT FENCE.	AFTER CONSTRUCTION IS ACCESSED, BASINS SHALL BE INSTALLED, WITH THE ADDITION OF MORE TRAPS AND BARRIERS AS NEEDED DURING GRADING.
RUNOFF CONTROL - DIVERSIONS, PERIMETER PROTECTION, CHECK DAMS, OUTLET PROTECTION.	RUNOFF CONTROL PRACTICES SHALL BE INSTALLED AFTER THE INSTALLATION OF SEDIMENT TRAPS AND BEFORE LAND GRADING. ADDITIONAL RUNOFF CONTROL MEASURES MAY BE INSTALLED DURING GRADING.
RUNOFF CONVEYANCE SYSTEM - STABILIZE STREAM BANKS, STORM DRAINS, CHANNELS, INLET AND OUTLET PROTECTION, SLOPE DRAINS.	AS NECESSARY, STABILIZE STREAM BANKS AND SIDE SLOPES OF RUNOFF SYSTEMS AS SOON AS POSSIBLE. USE EROSION CONTROL BLANKETS OR SLOPE DRAINS TO PREVENT EROSION. INSTALL INLET PROTECTION TO PREVENT SEDIMENTS FROM ENTERING STORM DRAINAGE SYSTEMS. PROTECT STORM OUTLETS TO PREVENT EROSION.
LAND CLEARING AND GRADING - SITE PREPARATION (CUTTING, FILLING, AND GRADING, SEDIMENT TRAPS, BARRIERS, DIVERSIONS, DRAINS, SURFACE ROUGHENING).	IMPLEMENT CLEARING AND GRADING AFTER INSTALLATION OF SEDIMENT TRAPS AND RUNOFF CONTROL MEASURES, AND INSTALL ADDITIONAL CONTROL MEASURES AS GRADING CONTINUES. CLEAR BORROW AND DISPOSAL AREAS AS NEEDED, AND MARK TREES AND BUFFER AREAS FOR PRESERVATION.
SURFACE STABILIZATION - TEMPORARY AND PERMANENT SEEDING, MULCHING, SODDING, RIPRAP, EROSION CONTROL BLANKET.	APPLY TEMPORARY OR PERMANENT STABILIZING MEASURES IMMEDIATELY TO ANY DISTURBED AREAS WHERE WORK HAS BEEN EITHER COMPLETED OR DELAYED.
CONSTRUCTION - STRUCTURES, UTILITIES, PAVING.	DURING CONSTRUCTION, INSTALL ANY EROSION AND SEDIMENT CONTROL MEASURES THAT ARE NEEDED.
LANDSCAPING AND FINAL STABILIZATION - TOPSOILING, TREES AND SHRUBS, PERMANENT SEEDING, MULCHING, SODDING, RIPRAP.	THIS IS THE LAST CONSTRUCTION PHASE. STABILIZE ALL DISTURBED AREAS, INCLUDING BORROW AND SPOIL AREAS, AND REMOVE ALL TEMPORARY CONTROL MEASURES. A UNIFORM DENSITY OF 70% VEGETATED COVER IS REQUIRED.

EROSION CONTROL SCHEDULE
SCALE: NONE



- NOTES:**
- PLACE CONSTRUCTION ENTRANCE AS REQUIRED AND AT ALL TEMPORARY CONSTRUCTION DRIVES THAT ARE INSTALLED.
 - FOR LARGE SITES (2 ACRES OR LARGER) THE MINIMUM LENGTH IS 150'. FOR SMALLER SITES (LESS THAN 2 ACRES) THE MINIMUM LENGTH IS 50'.
 - PROVIDE CULVERT OR OTHER METHODS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
- MAINTENANCE:**
- INSPECT DAILY AND REPLACE DISPLACED STONE.
 - IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED ONTO ADJACENT ROADWAY.
 - RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
 - AT COMPLETION OF PROJECT COMPLETELY REMOVE AND RESTORE SITE TO ORIGINAL CONDITIONS, OR AS APPLICABLE USE FOR BASE OF NEW PERMANENT DRIVE, MAINTAINING DESIGN ELEVATIONS AND SECTION.

CONSTRUCTION ENTRANCE
SCALE: NONE

MECHANICAL PROPERTIES	TEST METHOD	UNITS	INDUSTRY STANDARD
GRAB TENSILE STRENGTH	ASTM D4632	KN (LB)	0.9 (205) X 0.9 (205)
GRAB TENSILE ELONGATION	ASTM D4632	%	50 X 50
PUNCTURE STRENGTH	ASTM D4833	KN (LB)	0.58 (130)
MULLEN BURST STRENGTH	ASTM D3786	kPa (PSI)	2618 (380)
TRAPEZOID TEAR STRENGTH	ASTM D4533	KN (LB)	0.36 (80) X 0.36 (80)
UV RESISTANCE	ASTM D4355	%	(10) (80)
APPARENT OPENING SIZE	ASTM D4751	Mm (US STD SIEVE)	75 (3)
FLOW RATE	ASTM D4491	1/MIN/M ² (GAL/MIN/FT ²)	1.0 (95)
PERMITTIVITY	ASTM D4491	S ⁻¹	1.2

- MAINTENANCE:**
- DURING THE ACTIVE DEWATERING PROCESS, INSPECTION OF THE PUMPING BAG SHOULD BE REVIEWED FREQUENTLY. SPECIAL ATTENTION SHOULD BE PAID TO THE BUFFER AREA FOR A LOSS OF EROSION AND CONCENTRATION OF FLOW. OBSERVE WHERE POSSIBLE THE VISUAL QUALITY OF THE EFFLUENT AND DETERMINE IF ADDITIONAL TREATMENT CAN BE PROVIDED.
 - DISPOSE OF ACCUMULATED SEDIMENT REMOVED DURING PUMPING OPERATIONS IN CONFORMANCE WITH THE SPECIFICATIONS.
 - REPLACE THE BAG OR DISPOSE OF SILT WHEN HALF FULL OF SEDIMENT OR WHEN SEDIMENT HAS REDUCED THE FLOW RATE TO AN IMPRACTICAL RATE.

SOURCE:
KRISTAR
DANDY DEWATERING BAG
SEDCATCH

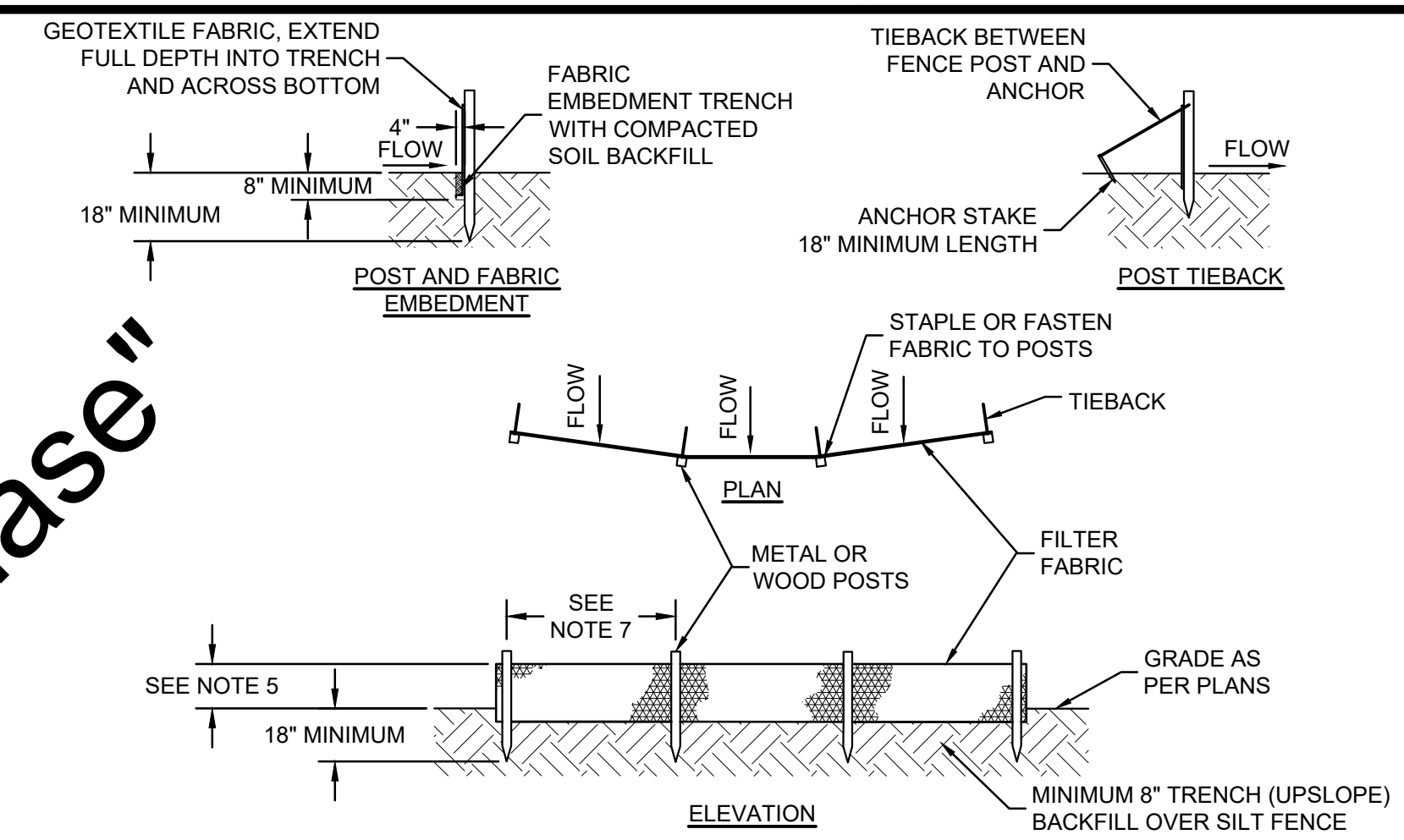
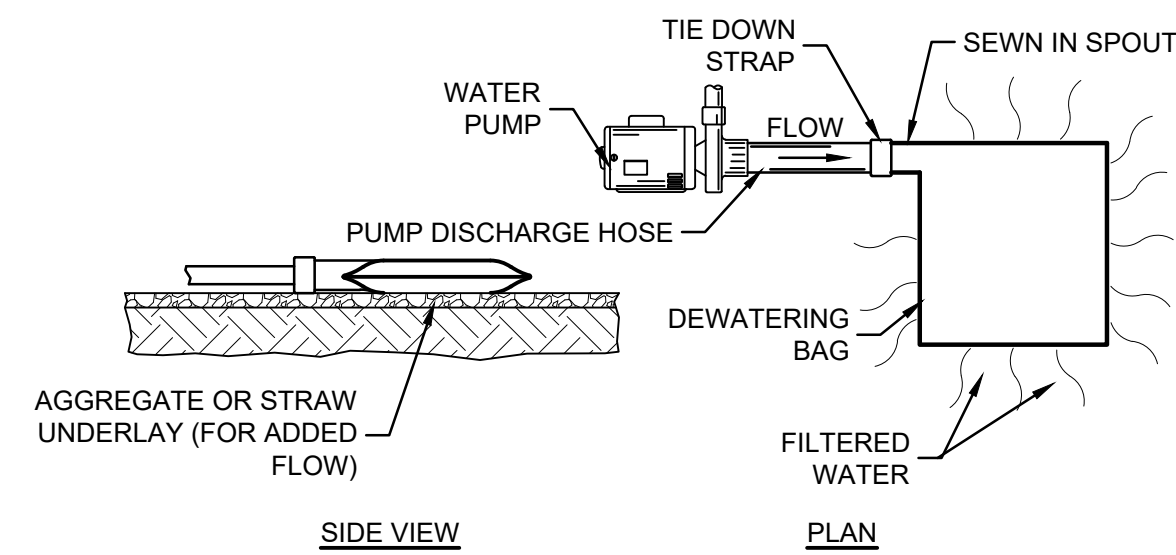
PUMPING BAG
SCALE: NONE
EROSION CONTROL SCHEDULE

- PRE-CONSTRUCTION**
- INSTALL ALL SEDIMENT BARRIERS (SILT FENCE), PRESERVE EXISTING VEGETATION UPSLOPE AND DOWNSLOPE OF SEDIMENT BARRIERS WHERE POSSIBLE.

- CONSTRUCTION ACTIVITIES**
- BEGIN EARTHWORK OPERATIONS AND CONSTRUCTION OF STRUCTURES AND UTILITIES. INSTALL ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AS NEEDED DURING CONSTRUCTION.
 - UPON COMPLETION OF CONSTRUCTION ACTIVITIES, PERMANENTLY STABILIZE ALL DISTURBED AREAS (FINAL GRADE, SEED AND MULCH, ETC.) AFTER THE END OF THE SEASONAL SOIL PROTECTION CHART.
 - MAINTAIN ALL TEMPORARY SEDIMENT AND EROSION CONTROL BEST MANAGEMENT PRACTICES (BMPs) UNTIL ALL VEGETATED AREAS HAVE A MINIMUM 70% COVERAGE DENSITY OF PERENNIAL VEGETATION. REMOVE BMPs ONCE VEGETATION IS ADEQUATELY ESTABLISHED.

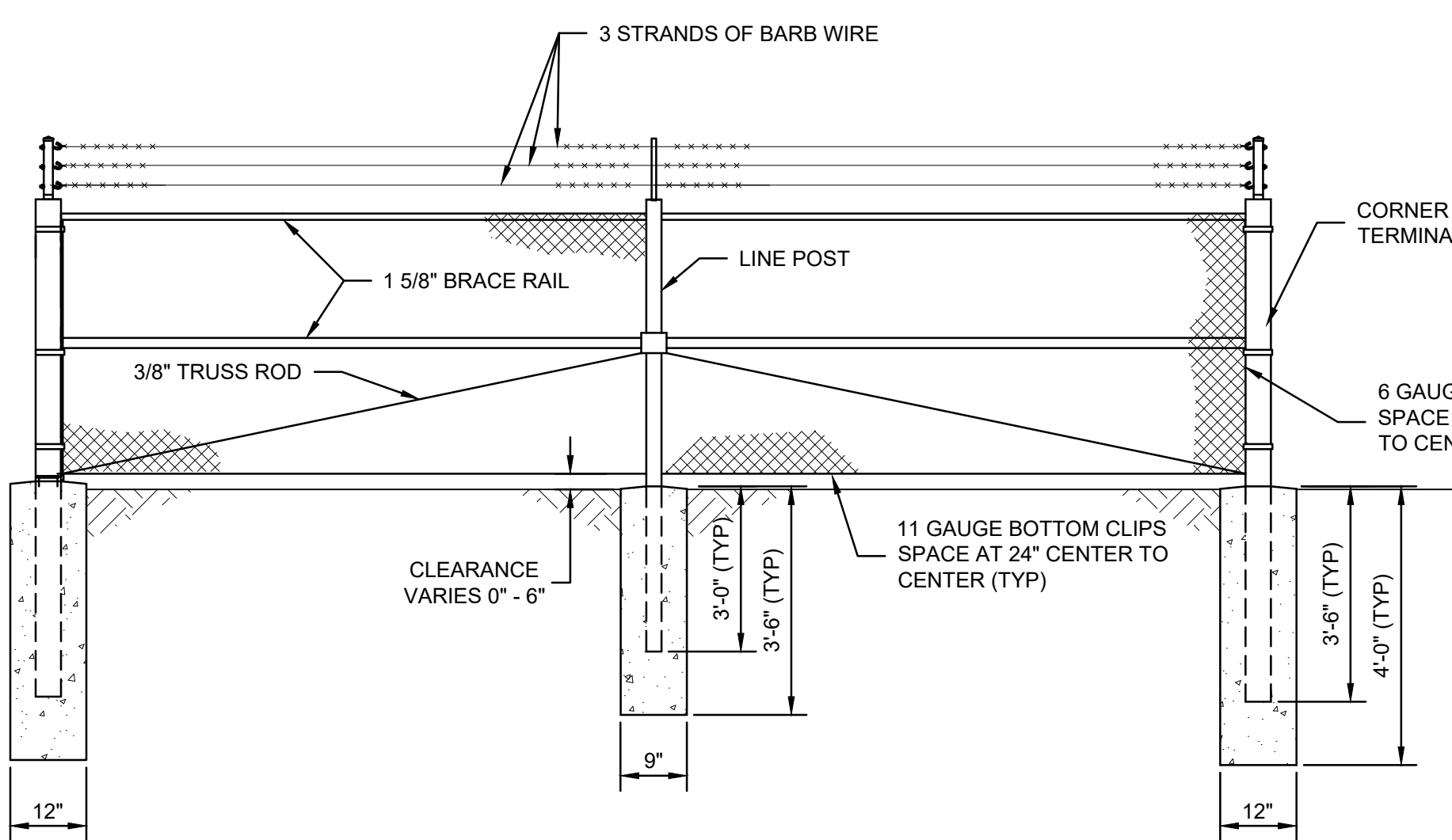
MAINTENANCE:

- MAINTENANCE REQUIREMENTS PROVIDED IN SPECIFICATIONS.



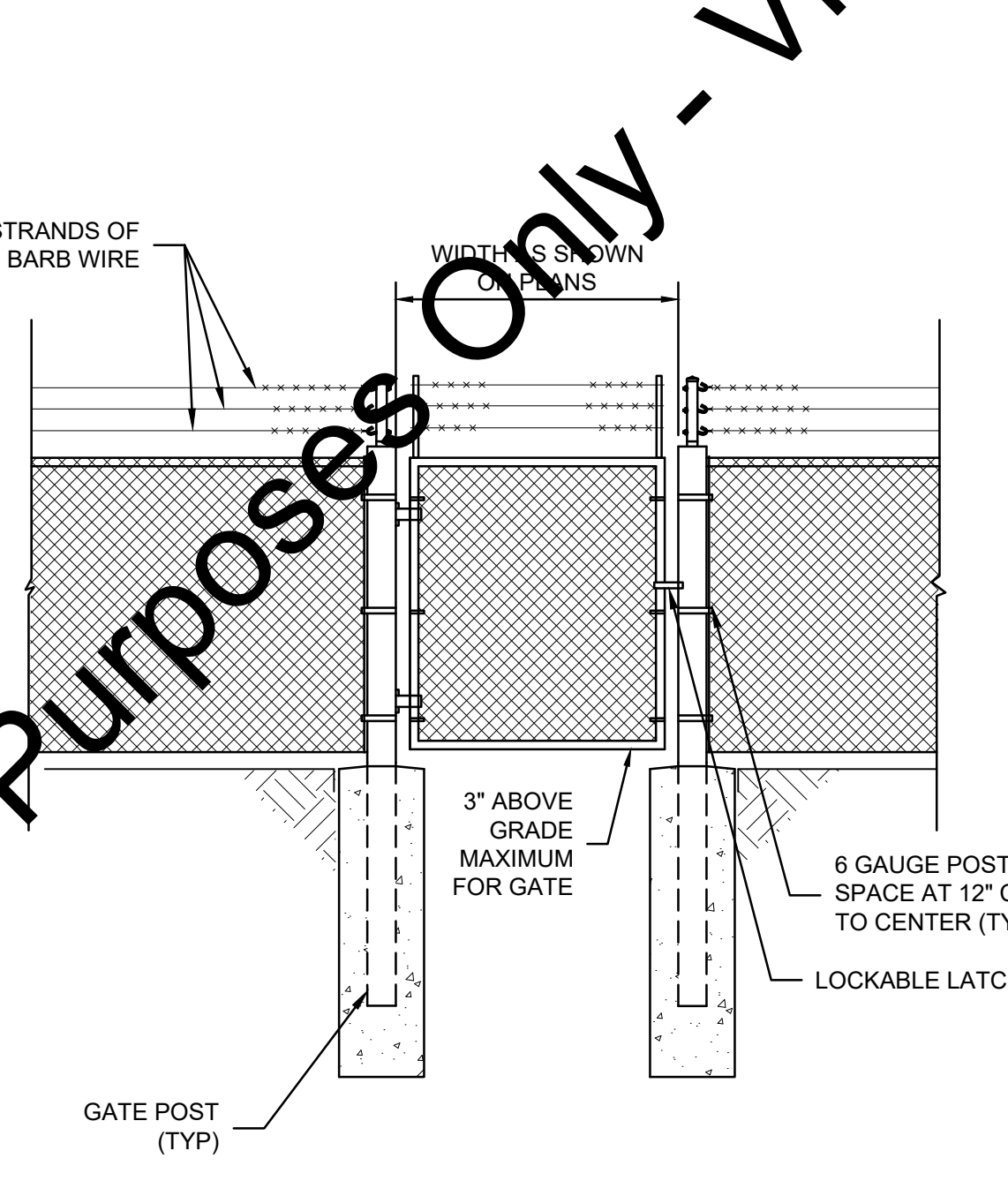
- NOTES:**
- SYNTHETIC FILTER FABRIC SHALL BE A PERVIOUS SHEET OF WOVEN OR NON-WOVEN GEOTEXTILE FABRIC AND SHALL BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE FOLLOWING REQUIREMENTS:
 - TEXTILE STRENGTH AT 20% (MAXIMUM) ELONGATION, PER ASTM D4632.
 - WOVEN EXTRA STRENGTH - 50 LB/LINEAR INCH (MINIMUM), NON-WOVEN EXTRA STRENGTH - 70 LB/INCH (MINIMUM).
 - WOVEN STANDARD STRENGTH - 30 LB/LINEAR INCH (MINIMUM), NON-WOVEN STANDARD STRENGTH - 50 LB/INCH (MINIMUM).
 - APPARENT OPENING SIZE (AOS) (U.S. SIEVE) - NO. 30 PARTICLE SIZE OF 0.6 mm (MAXIMUM), ASTM D4751.
 - PERMITTIVITY - 0.05 S⁻¹ (MAXIMUM), ASTM D4491.
 - POSTS FOR SILT FENCES SHALL BE EITHER 2" DIAMETER WOOD OR EQUIVALENT METAL POSTS WITH A MINIMUM LENGTH OF 5'.
 - ANCHOR STAKES FOR SILT FENCES SHALL BE 1"x2" WOOD (PREFERRED) OR EQUIVALENT METAL WITH A MINIMUM LENGTH OF 18".
 - FENCE REINFORCEMENT FOR SILT FENCES USING STANDARD STRENGTH FILTER CLOTH SHALL BE A MINIMUM OF 42" IN HEIGHT, A MINIMUM OF 14 GAUGE, AND SHALL HAVE A MAXIMUM MESH SPACING OF 6".
 - THE HEIGHT OF THE BARRIER SHALL BE A MINIMUM OF 18" AND A MAXIMUM OF 30".
 - THE FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER FABRIC SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6" OVERLAP, AND SECURELY SEALED.
 - POSTS SHALL BE SPACED A MAXIMUM OF 6' APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 18"). WHEN STANDARD STRENGTH FABRIC IS USED WITH THE WIRE SUPPORT FENCE, POST SPACING SHALL NOT EXCEED 8'.
 - THE SPACING OF TIEBACKS SHALL EQUAL THE SPACING OF THE POSTS. ADDITIONAL POST DEPTH OR TIEBACKS MAY BE REQUIRED IN UNSTABLE SOILS.
 - A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4" WIDE AND A MINIMUM OF 6" DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
 - WHEN STANDARD STRENGTH FILTER FABRIC IS USED WITH A WIRE MESH SUPPORT FENCE IT SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY 1" WIRE STAPLES, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2" AND SHALL NOT EXTEND MORE THAN 36" ABOVE THE ORIGINAL GROUND SURFACE.
 - THE STANDARD STRENGTH FILTER FABRIC, WITHOUT A WIRE MESH SUPPORT FENCE, SHALL BE STAPLED OR WURED TO THE FENCE. AND A MINIMUM 8" OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36" ABOVE THE ORIGINAL GROUND SURFACE. DO NOT STAPLE FILTER FABRIC TO EXISTING TREES.
 - WHEN EXTRA STRENGTH FILTER FABRIC OR BURLAP AND POST SPACING IS LESS THAN THE MAXIMUM SPECIFIED SPACING OF 6', THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED.
 - BACKFILL THE TRENCH AND COMPACT THE SOIL OVER THE FILTER FABRIC.
 - REMOVE SILT FENCES WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
 - SILT FENCE SHALL NOT BE USED AS A DIVERSION AND SHALL NOT BE INSTALLED ACROSS A STREAM, CHANNEL, DITCH, SWALE, ETC.
- MAINTENANCE:**
- INSPECT AFTER EACH RAINFALL AND DAILY DURING PROLONGED RAINFALL. INSPECT AT LEAST ONCE EVERY 7 CALENDAR DAYS.
 - REPLACE OR REPAIR FABRIC IMMEDIATELY IF IT DECOMPOSES OR IS INEFFECTIVE.
 - SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY HALF THE HEIGHT OF THE BARRIER.
 - SPREAD ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED AND DRESS TO CONFORM WITH THE FINISHED GRADING.

SILT FENCE
SCALE: NONE

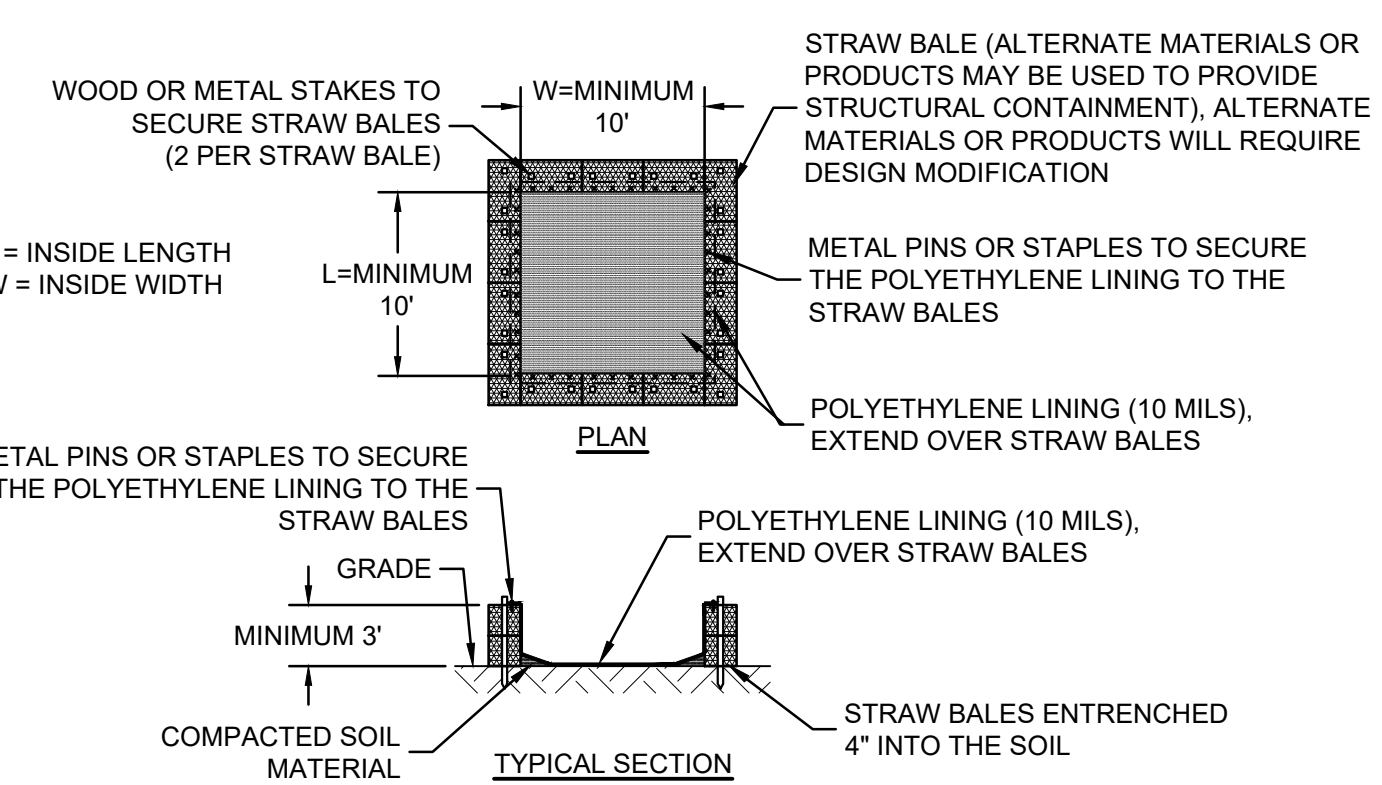


- NOTES:**
- TERMINAL POSTS SHALL BE USED AT EACH FENCE CORNER OR END. GATE POSTS SHALL BE USED AT EACH GATE OPENING. LINE POSTS SHALL BE USED AT MAXIMUM 10' SPACING WHERE TERMINAL, GATE OR PULL POSTS ARE NOT REQUIRED.
 - PULL POSTS SHALL BE SPACED AT A MAXIMUM OF 500' ON LONG STRAIGHT RUNS ALONG CONSISTENT GRADES. AT EVERY HORIZONTAL BEND GREATER THAN 10° WHERE TERMINAL POSTS ARE NOT REQUIRED, AND AT EVERY MAJOR CHANGE OF GRADE, PULL POSTS SHALL NOT BE USED AS GATE OR TERMINAL POSTS.
 - ALL CONCRETE IN POST ANCHORS SHALL CONFORM TO THE SPECIFICATIONS.
 - REFER TO SHEET Y1 FOR FENCE SCOPE AT EACH LOCATION.

CHAIN LINK FENCE INSTALLATION
SCALE: NONE



PEDESTRIAN SWING GATE
SCALE: NONE



- NOTES:**
- LOCATE WASHOUTS AT LEAST 50' FROM ANY CREEKS, WETLANDS, DITCHES, KARST FEATURES, OR STORM DRAIN/CONVEYANCES.
- WASHOUT PROCEDURES:**
- DO NOT LEAVE EXCESS MUD IN THE CHUTES OR HOPPER AFTER POURING CONCRETE. MAKE EVERY EFFORT TO EMPTY THE CHUTE AND HOPPER AT THE POUR. THE LESS MATERIAL LEFT IN THE CHUTES AND HOPPER, THE QUICKER AND EASIER THE CLEANOUT. SMALL AMOUNTS OF EXCESS CONCRETE (NOT WASHOUT WATER) MAY BE DISPOSED OF IN AREAS THAT WILL NOT FLOW TO AN AREA THAT IS TO BE PROTECTED.
 - SCRAPE AS MUCH MATERIAL FROM THE CHUTES AS POSSIBLE BEFORE WASHING THEM. USE NON-WATER CLEANING METHODS TO MINIMIZE THE CHANCE FOR WASTE TO FLOW OFF SITE.
 - STOP WASHING OUT IN AN AREA IF YOU OBSERVE WATER RUNNING OFF THE DESIGNATED AREA OR IF THE WATER IS NOT BEING CONTAINED WITHIN THE WASHOUT AREA.
 - DO NOT BACK FLUSH EQUIPMENT AT THE PROJECT SITE.
 - DO NOT USE ADDITIVES WITH WASH WATER.
 - DO NOT WASH OUT OR DRAIN WASTE MATERIALS TO STORM DRAINS, WETLANDS, STREAMS, RIVERS, CREEKS, DITCHES OR STREETS.
- MAINTENANCE:**
- MAINTENANCE REQUIREMENTS PROVIDED IN SPECIFICATIONS.

CONCRETE WASHOUT
SCALE: NONE

STABILIZATION PRACTICE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PERMANENT SEEDING												
DORMANT SEEDING												
TEMPORARY SEEDING												
SODDING												
MULCHING												

- A. = KENTUCKY BLUEGRASS 40 LB/ACRE
 B. = KENTUCKY BLUEGRASS 210 LB/ACRE
 C. = SPRING OATS 100 LB/ACRE (1" PLANTING DEPTH)
 D. = WHEAT OR RYE 150 LB/ACRE (1" - 1.5" PLANTING DEPTH)
 E. = ANNUAL RYEGRASS 40 LB/ACRE (1/4" PLANTING DEPTH)
 F. = SOD
 G. = ANCHORED STRAW/HAY (2 TONS/ACRE) OR WOOD FIBER/CELLULOSE (1 TON/ACRE)

- NOTES:**
- IRRIGATION NEEDED DURING MAY THROUGH SEPTEMBER.
 - IRRIGATION NEEDED FOR 2 TO 3 WEEKS AFTER APPLYING SOD.
 - ANCHORED MULCH IS REQUIRED FOR PERMANENT, DORMANT AND TEMPORARY SEEDING.
 - OPTIMUM SEEDING DATES PROVIDED. DATES MAY BE EXTENDED OR SHORTENED BASED ON PROJECT LOCATION.
 - SEED MIXTURES PROVIDED FOR LAWNS AND HIGH MAINTENANCE AREAS.
- MAINTENANCE:**
- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY 7 CALENDAR DAYS.
 - CHECK FOR EROSION AND MOVEMENT OF MULCH AND REPAIR IMMEDIATELY.
 - MONITOR FOR EROSION DAMAGE AND ADEQUATE COVER (70% DENSITY).
 - RESEED, FERTILIZE OR APPLY MULCH WHERE NECESSARY.

SEASONAL SOIL PROTECTION CHART

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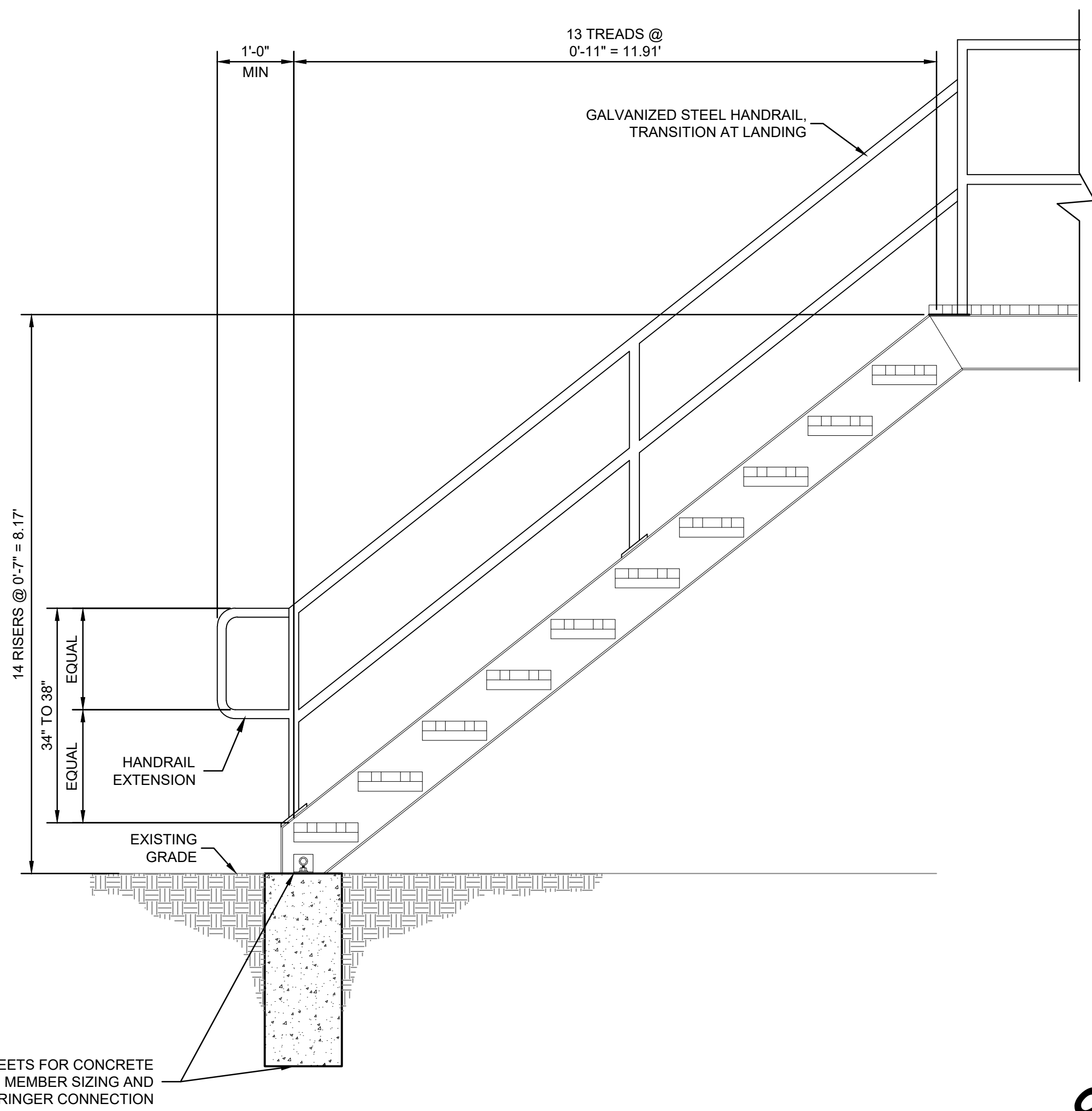
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	APPROVED BY	DLL				
	ISSUE DATE	MAY 2018				
	PROJECT NUMBER	194717-04-006				

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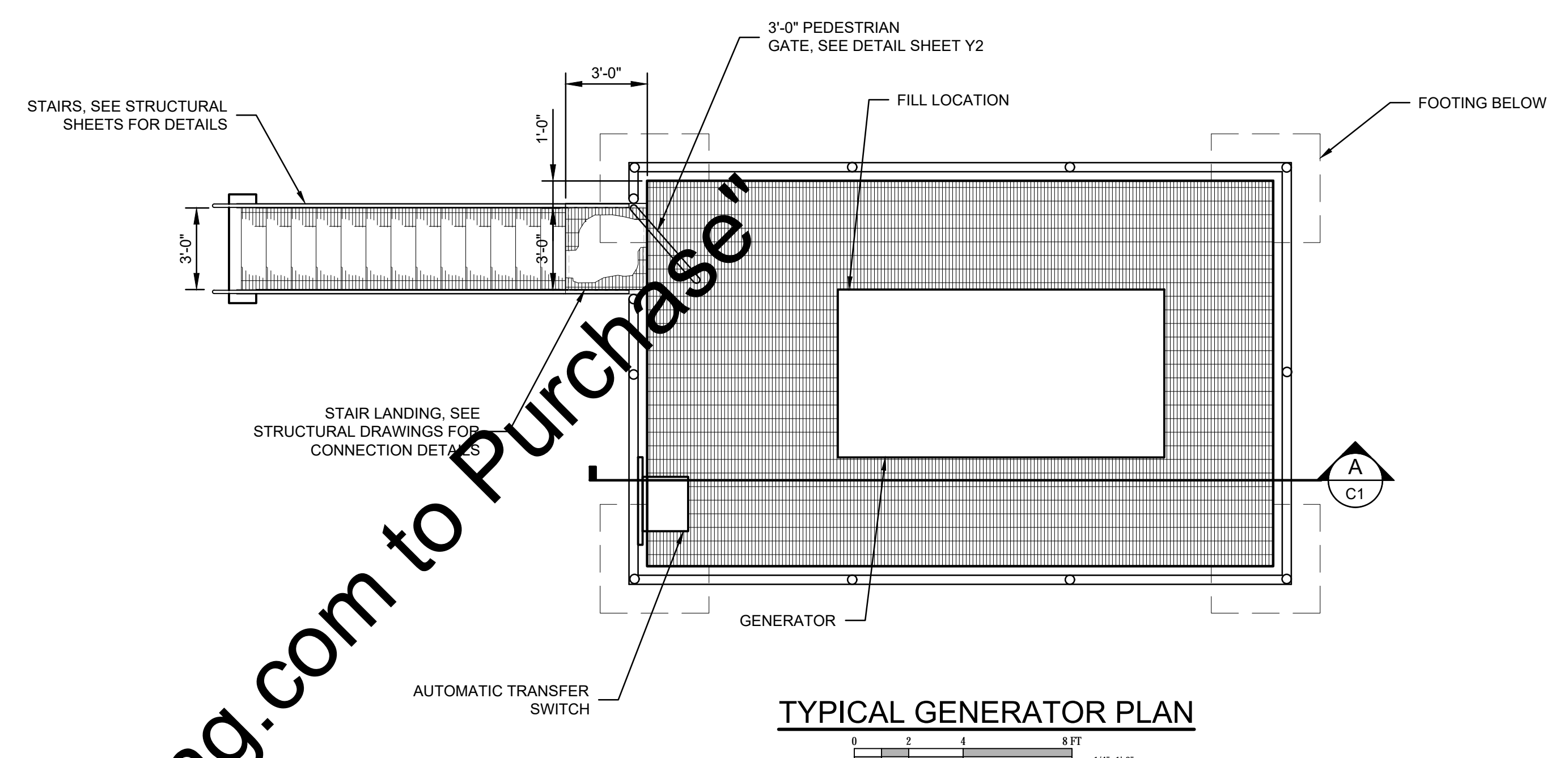
WELL FIELD IMPROVEMENTS
CITY OF LAWRENCE UTILITIES
LAWRENCE, INDIANA

MISCELLANEOUS AND EROSION CONTROL DETAILS

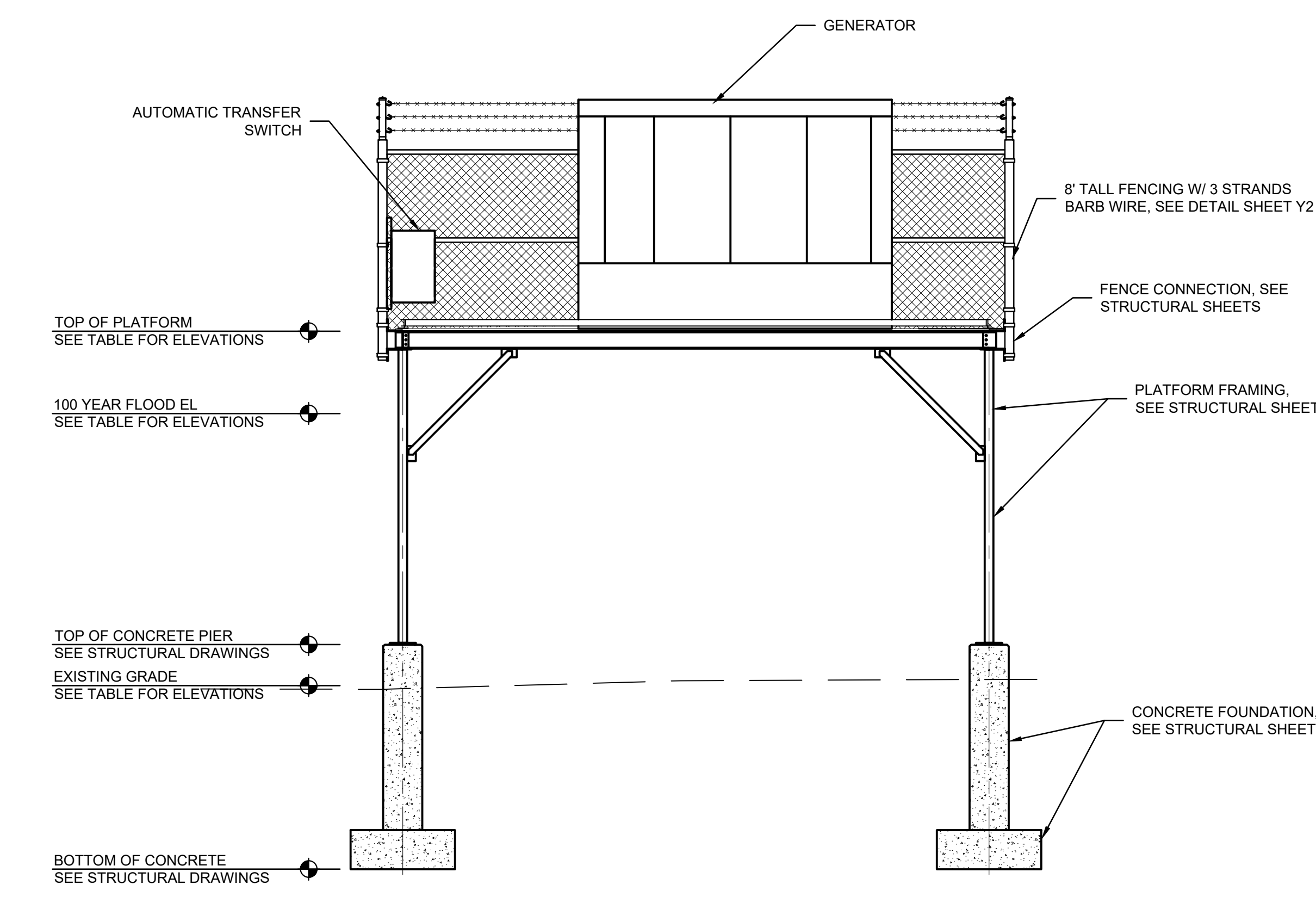


TYPICAL STAIR SECTION
SCALE: NONE

SEE STRUCTURAL SHEETS FOR CONCRETE FOOTING AND MEMBER SIZING AND STRINGER CONNECTION



TYPICAL GENERATOR PLAN



TYPICAL SECTION

- NOTES
- SEE STRUCTURAL DRAWINGS FOR PLATFORM DIMENSIONS.
 - REFER TO SHEET Y1 FOR INDIVIDUAL PLATFORM/STAIR LAYOUT AND ORIENTATION.

GENERATOR PLATFORM SCHEDULE			
LOCATION	TOP OF PLATFORM	100 YEAR FLOOD ELEVATION	EXISTING GRADE
WELL NO. 8	762.5	759.0	754.3
WELL NO. 10	764.3	760.2	756.1
WELL NO. 15R	765.5	761.8	757.3

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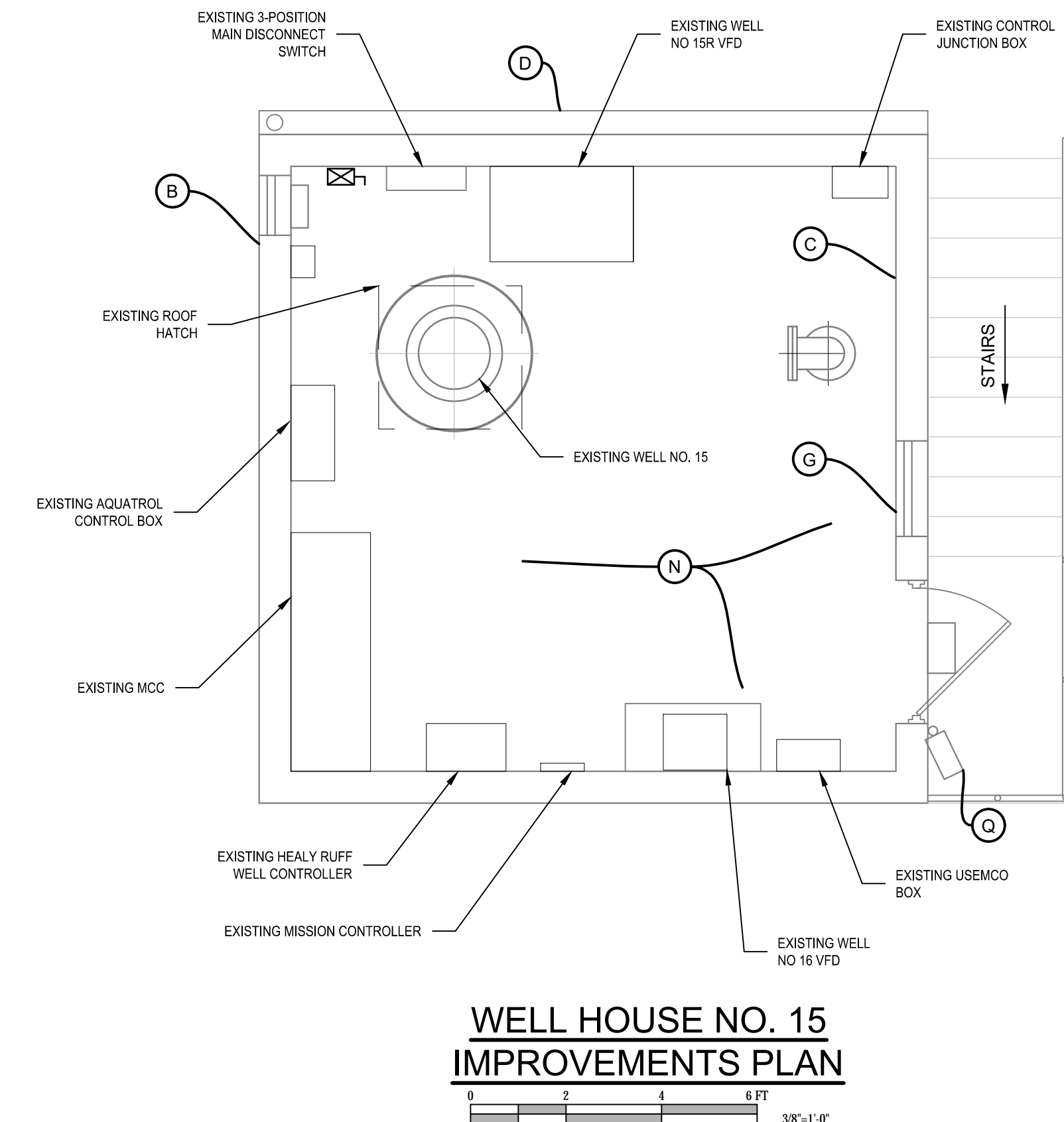
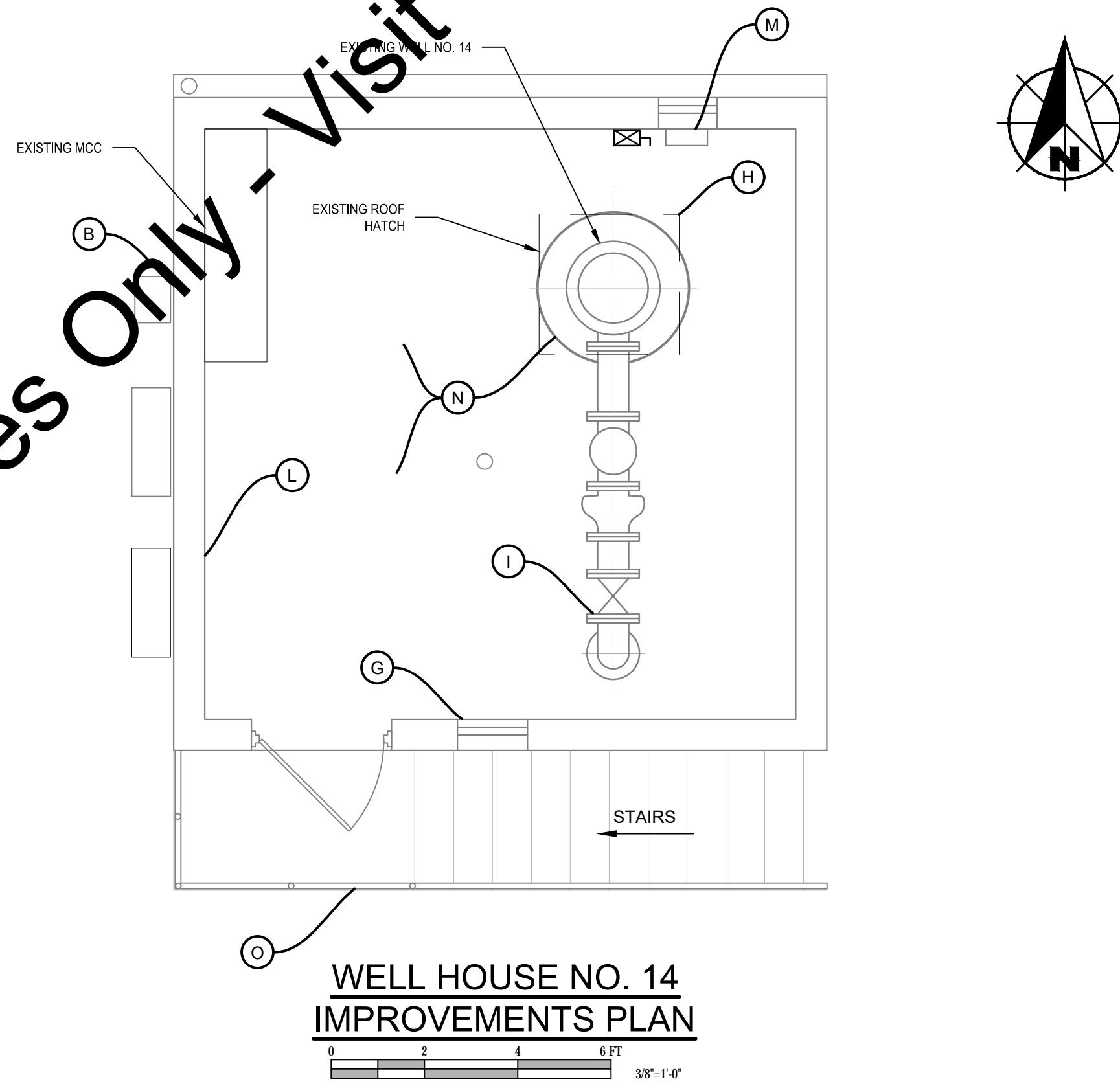
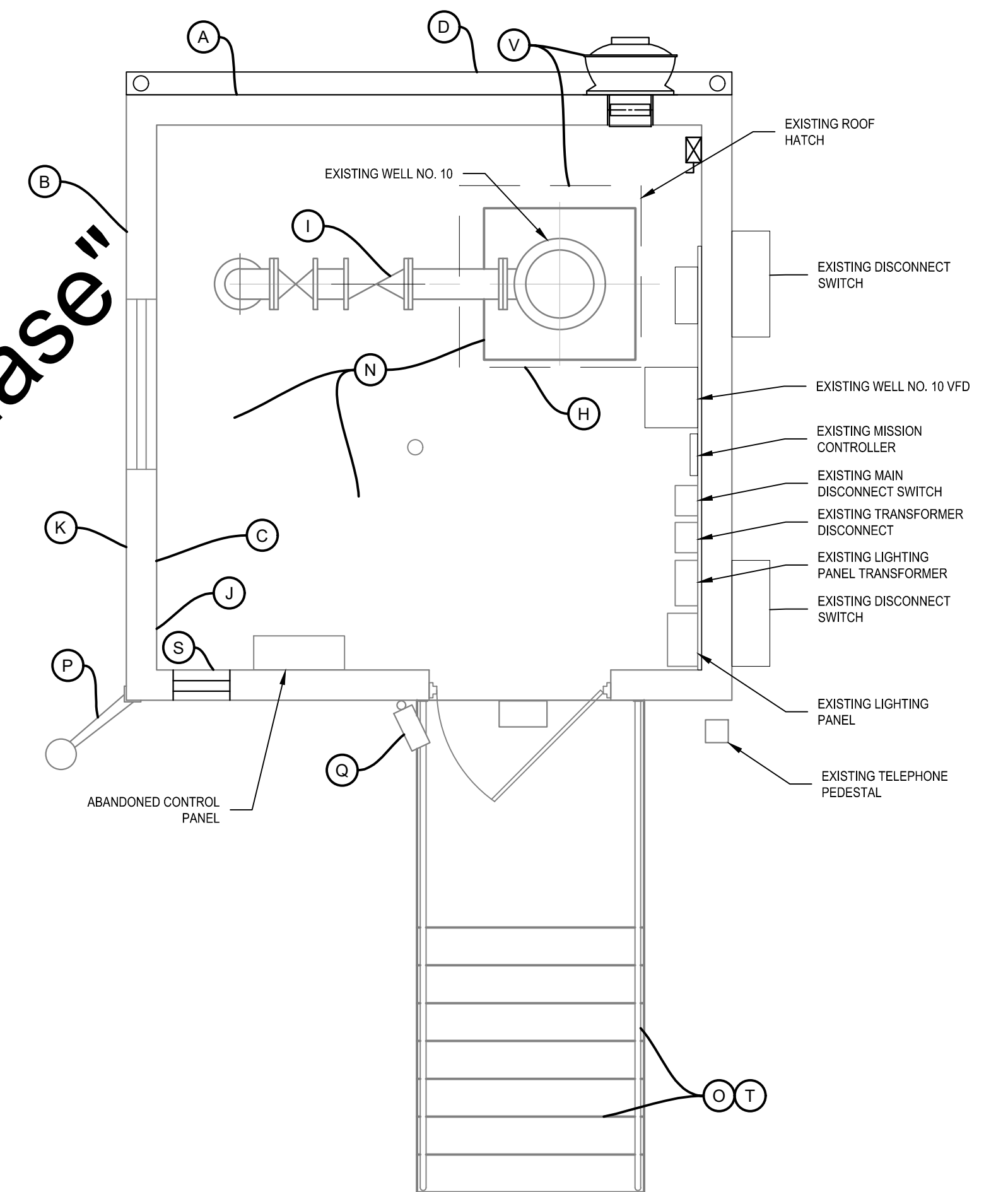
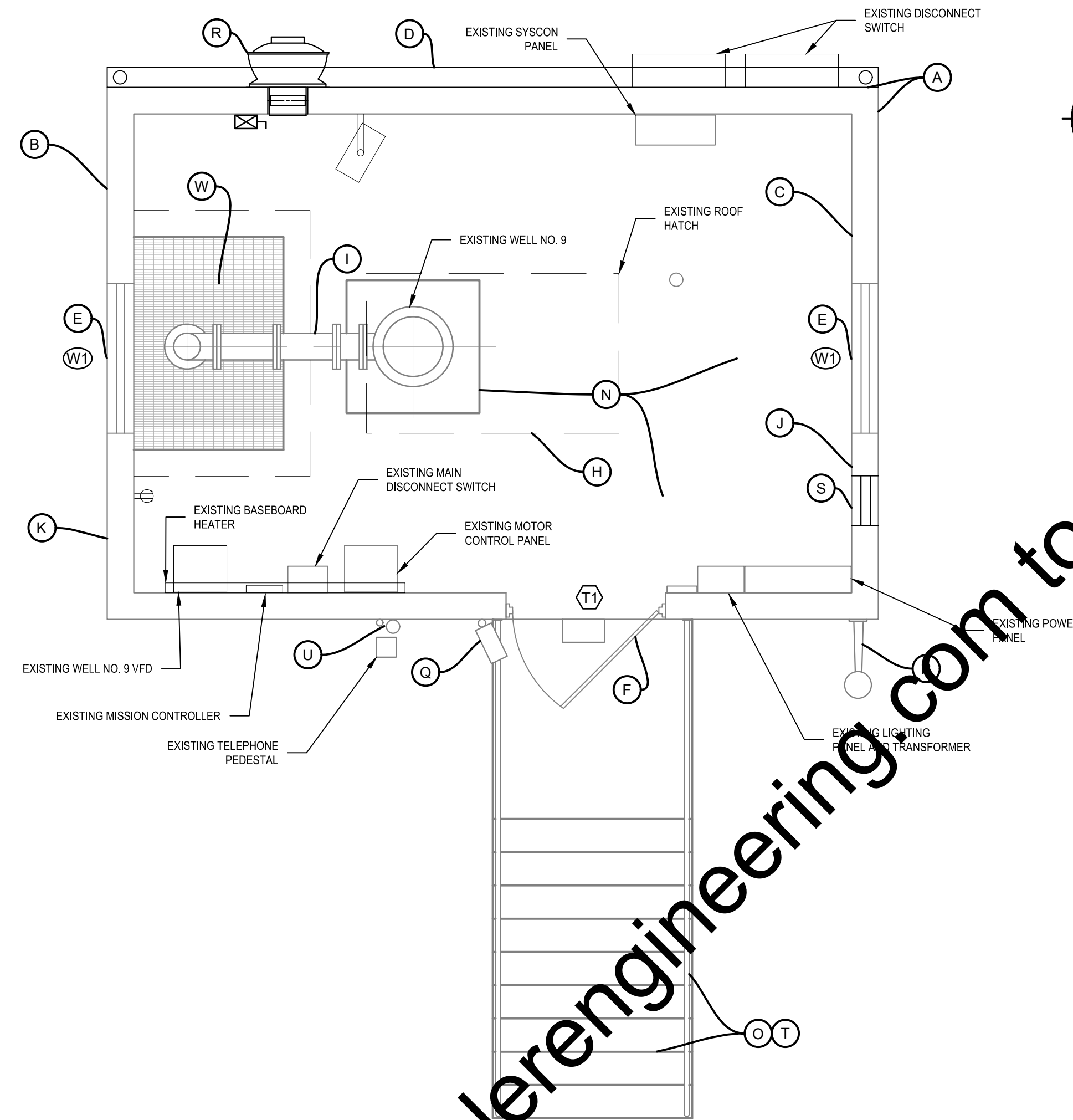
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	CHECKED BY	RBS						
	APPROVED BY	DLL						
	ISSUE DATE	MAY 2018						
	PROJECT NUMBER	194717-04-006						
GENERATOR PLATFORM PLAN, SECTION AND DETAILS							PAGE NO. 06	

KEYED NOTES

- A MASONRY/FOUNDATION REPAIR (SEE STRUCTURAL SHEETS)
- B COAT EXTERIOR OF WELL HOUSE
- C COAT INTERIOR OF WELL HOUSE
- D INSTALL NEW GUTTER AND DOWNSPOUTS
- E REPLACE WINDOW
- F REPLACE DOOR
- G REPLACE INTAKE LOUVER
- H REPLACE ROOF HATCH, SEE DETAIL SHEET C3
- I COAT RAW WATER PIPING
- J SEAL EXISTING WALL PENETRATIONS
- K REMOVE EXISTING WELL HOUSE ROOF COATING AND INSTALL NEW MEMBRANE ROOF SYSTEM. SEE DETAILS SHEET C3
- L CLEAN INTERIOR BLOCK
- M REPLACE EXHAUST FAN MOTOR, FASCO 1/2 HP, 1100 RPM, 115V, 60HZ, SINGLE PHASE MOTOR OR EQUAL
- N COAT WELL HOUSE FLOOR AND PUMP BASE
- O REPLACE STAIR RAILINGS WITH NEW ALUMINUM RAILINGS
- P DEMO EXISTING LIGHT
- Q DEMO EXISTING SECURITY CAMERAS
- R NEW EXHAUST FAN
- S NEW LOUVER
- T PATCH/ REPAIR EXISTING CONCRETE STEPS, SEE STRUCTURAL SHEETS
- U DEMO CONDUITS AND CAP AT GRADE
- V DEMO EXISTING EXHAUST FAN, INSTALL NEW EXHAUST FAN
- W COAT PIPE SUPPORTS AND PIT INTERIOR

- NOTES**
1. REFER TO ELECTRICAL SHEETS FOR DEMOLITION AND IMPROVEMENTS OF ELECTRICAL COMPONENTS.
 2. COORDINATE WITH OWNER AND ENGINEER FOR WELL OPERATIONS DURING CONSTRUCTION.

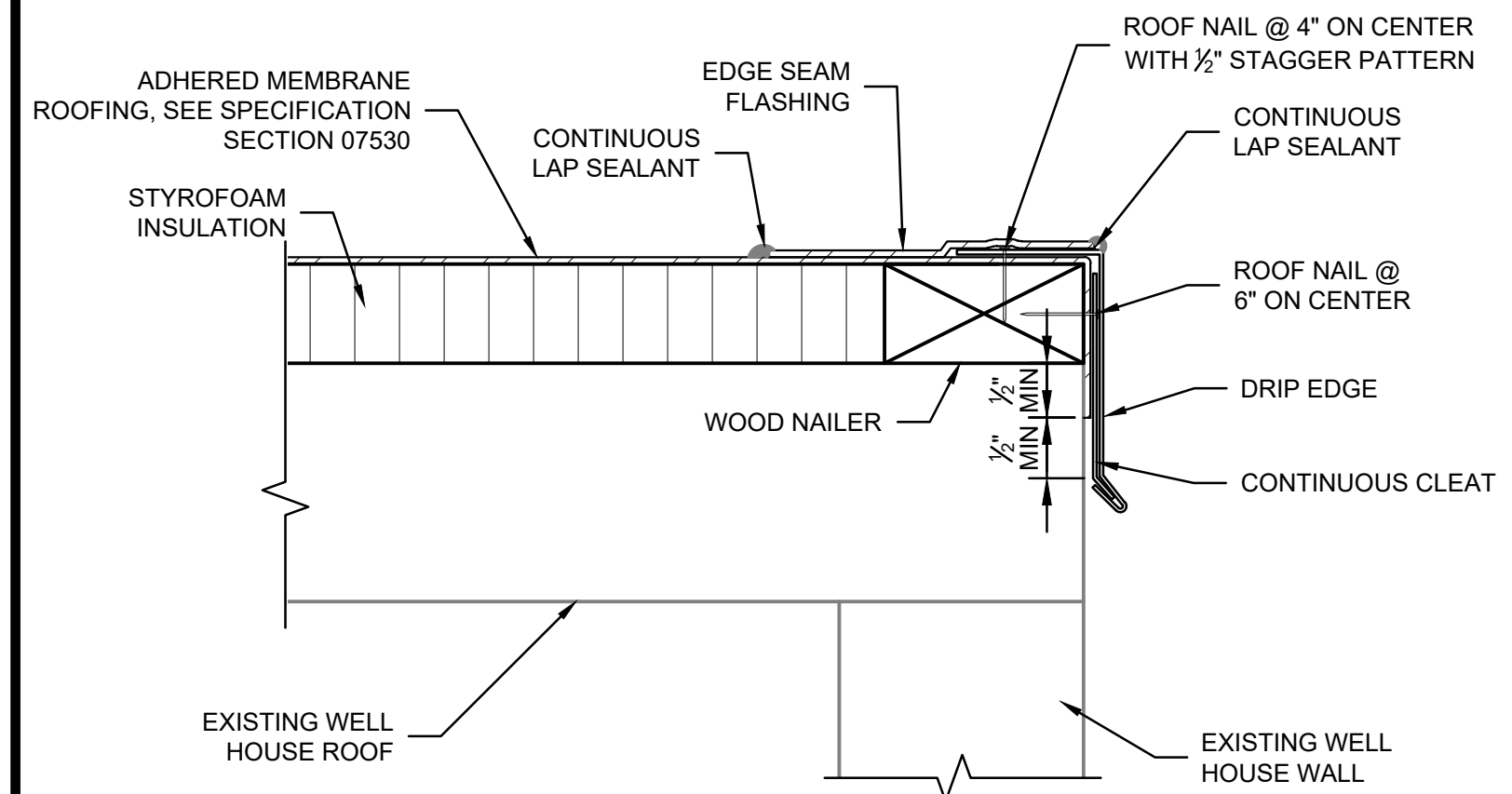


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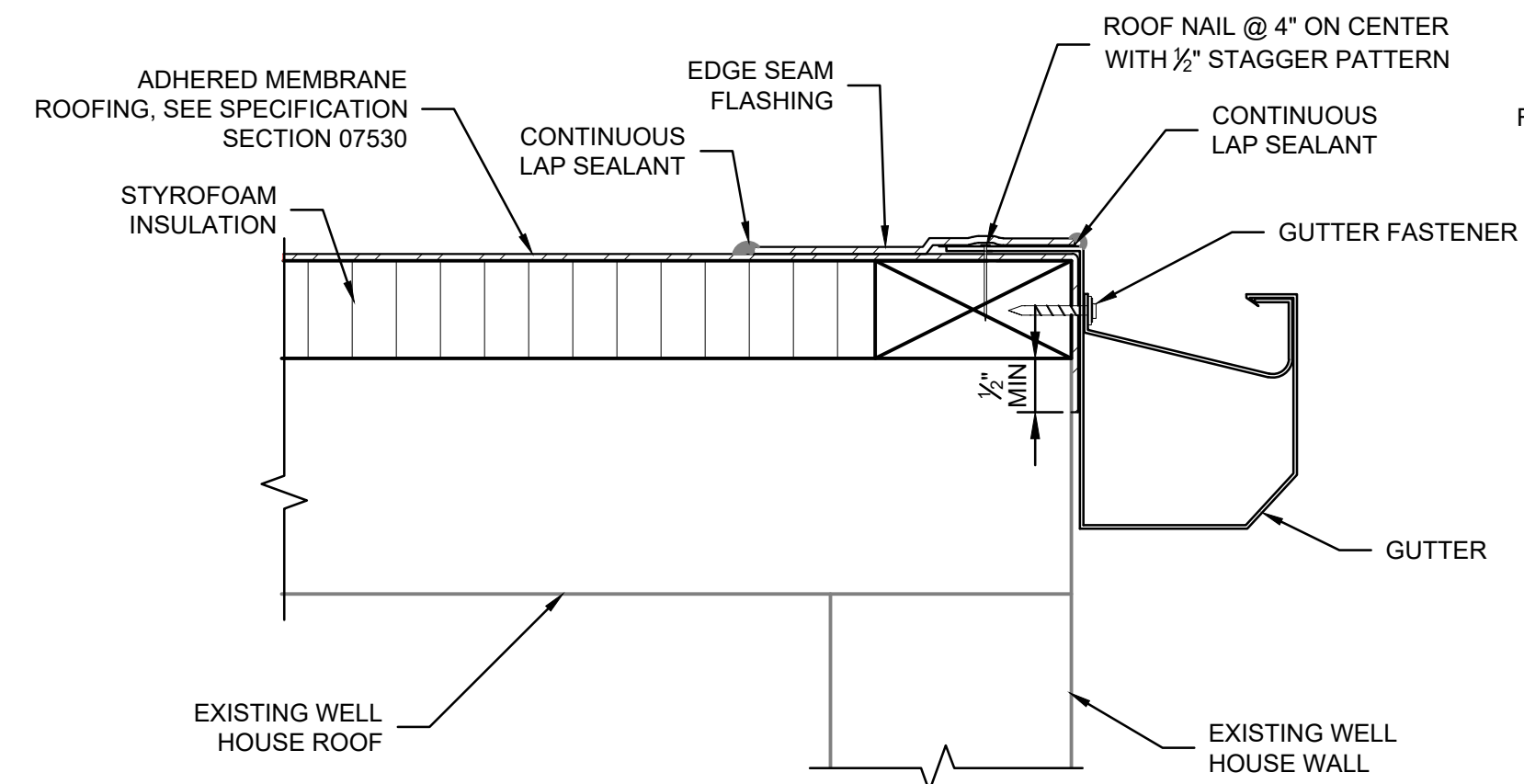
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	CHECKED BY	RBS							C2
	APPROVED BY	DLL							PAGE NO.
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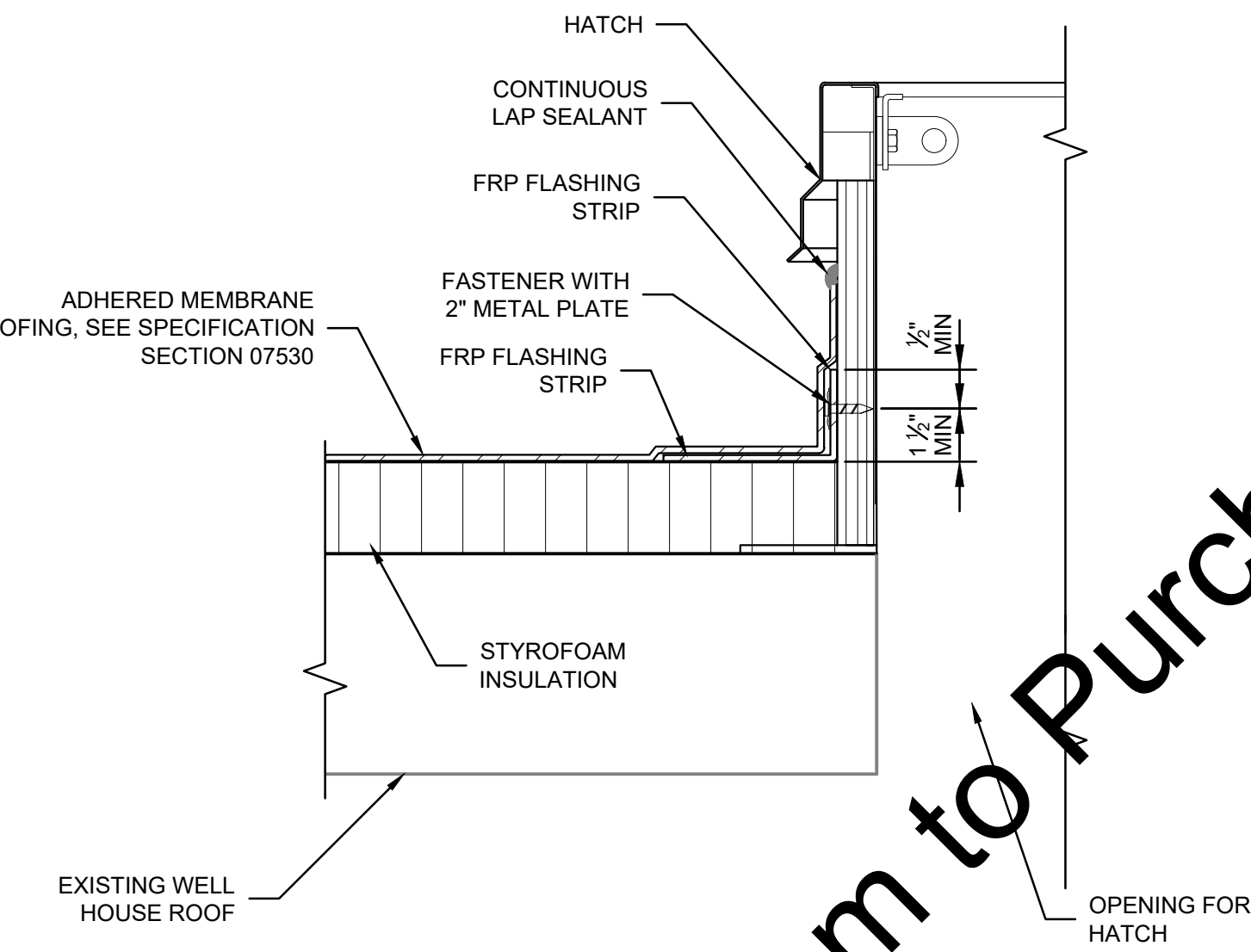
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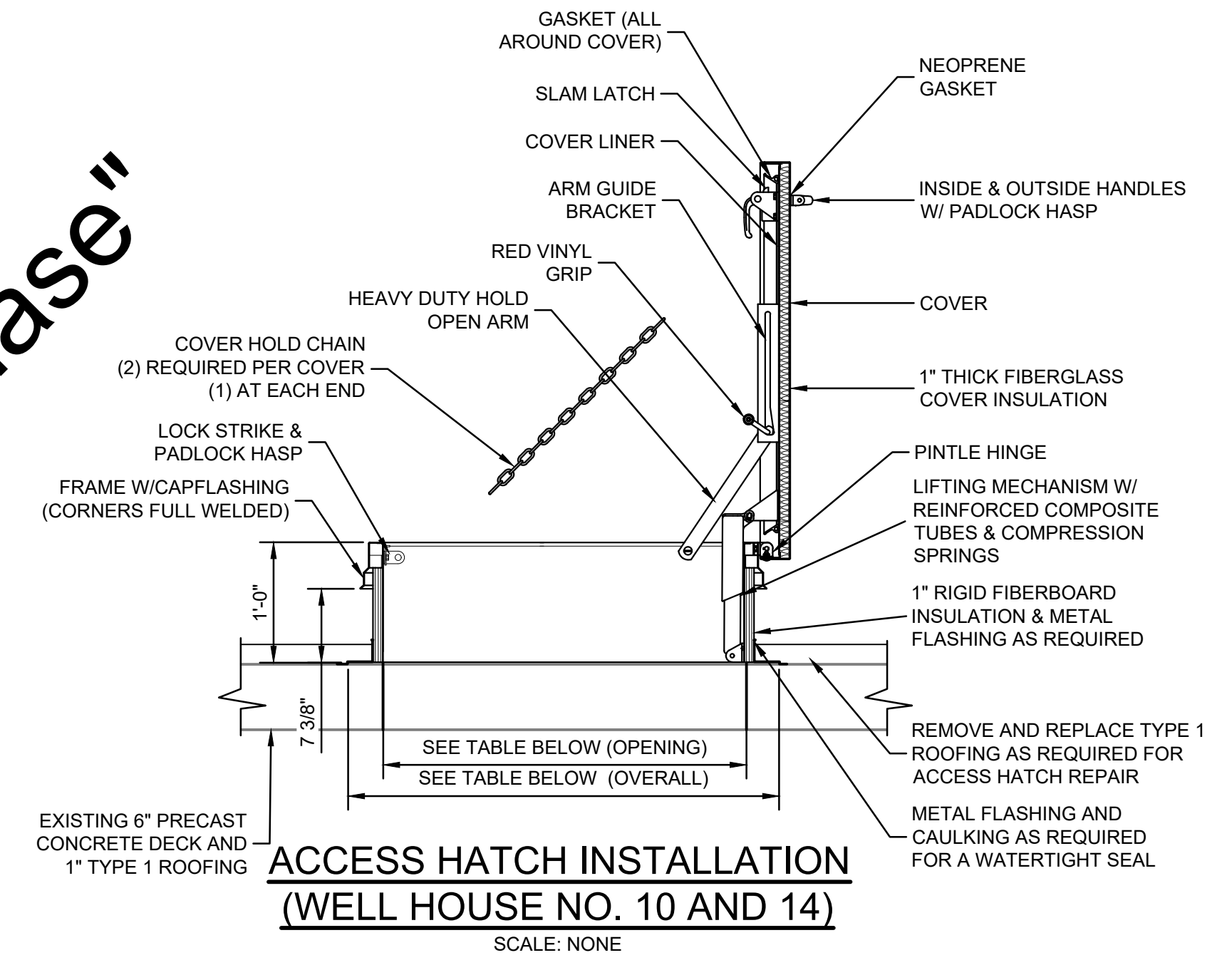
WELL HOUSE ROOF WITH FASCIA
SCALE: NONE



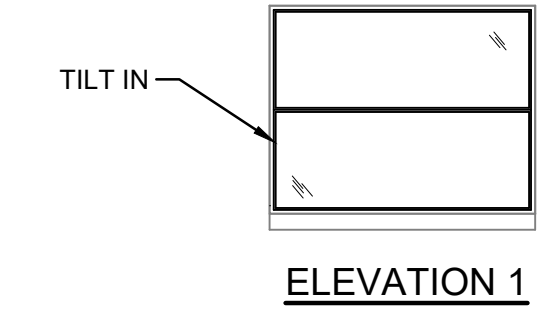
WELL HOUSE ROOF WITH GUTTER
SCALE: NONE



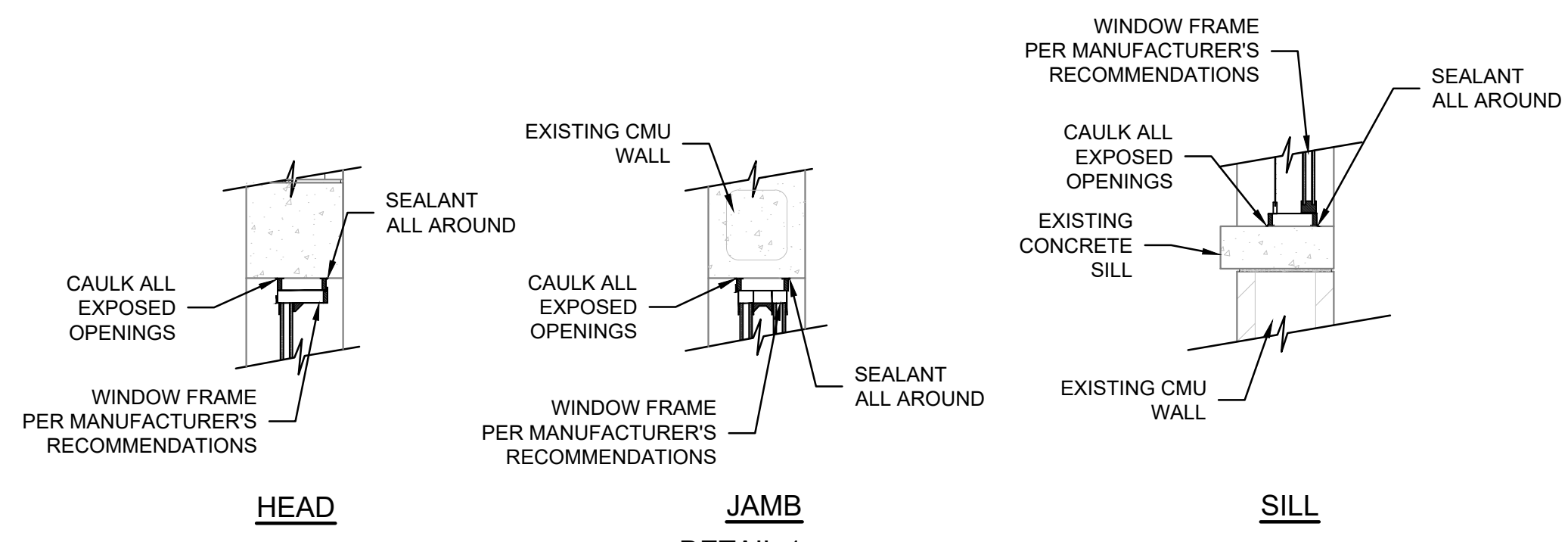
WELL HOUSE ROOF AT HATCH
SCALE: NONE



ACCESS HATCH INSTALLATION (WELL HOUSE NO. 10 AND 14)
SCALE: NONE



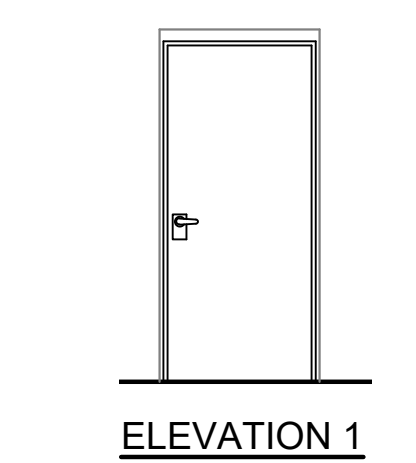
WINDOW ELEVATIONS
SCALE: NONE



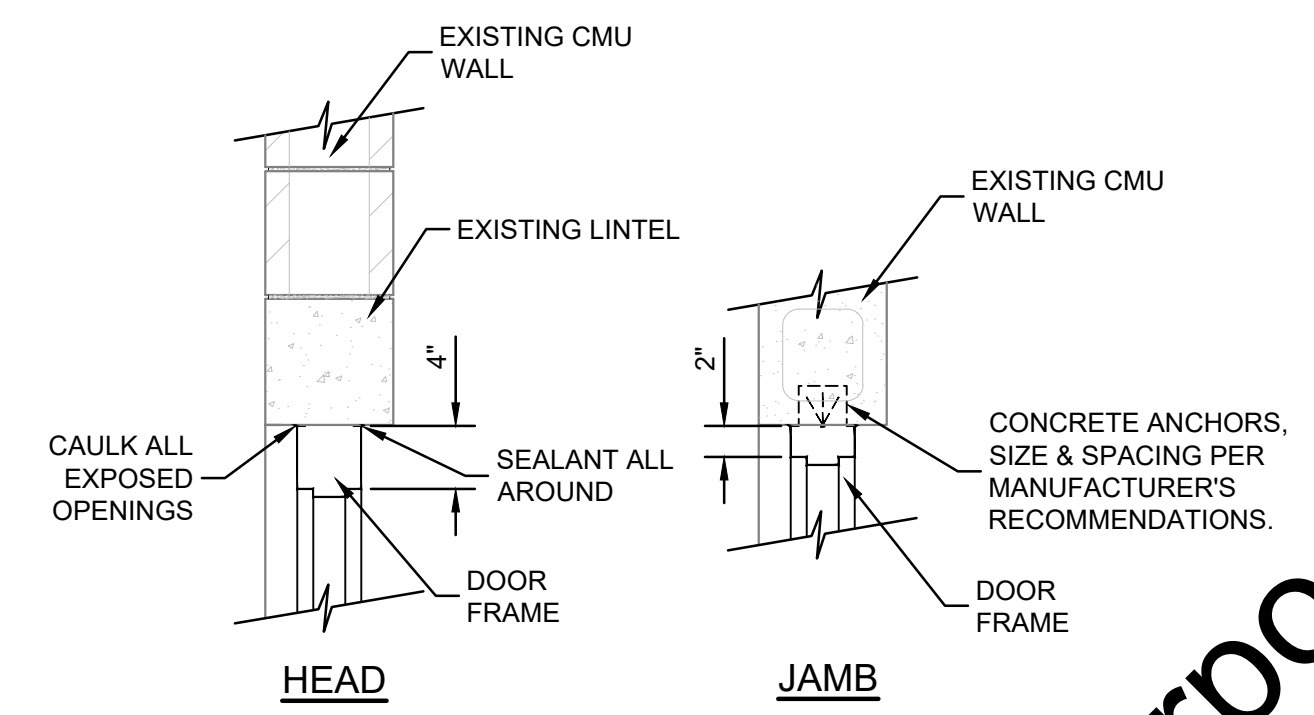
WINDOW DETAILS
SCALE: NONE

MARK	R.O. SIZE	FRAME MATERIAL	FRAME COLOR	QUANTITY	LOCATION	STYLE	WINDOW ELEVATION	WINDOW DETAIL	NOTES
(W1)	2'-10" x 3'-10"	ALUM	BY OWNER	2	WELL HOUSE NO. 9	DOUBLE HUNG TILT	1	1	EXTERIOR WINDOW

WINDOW SCHEDULE



DOOR ELEVATIONS
SCALE: NONE

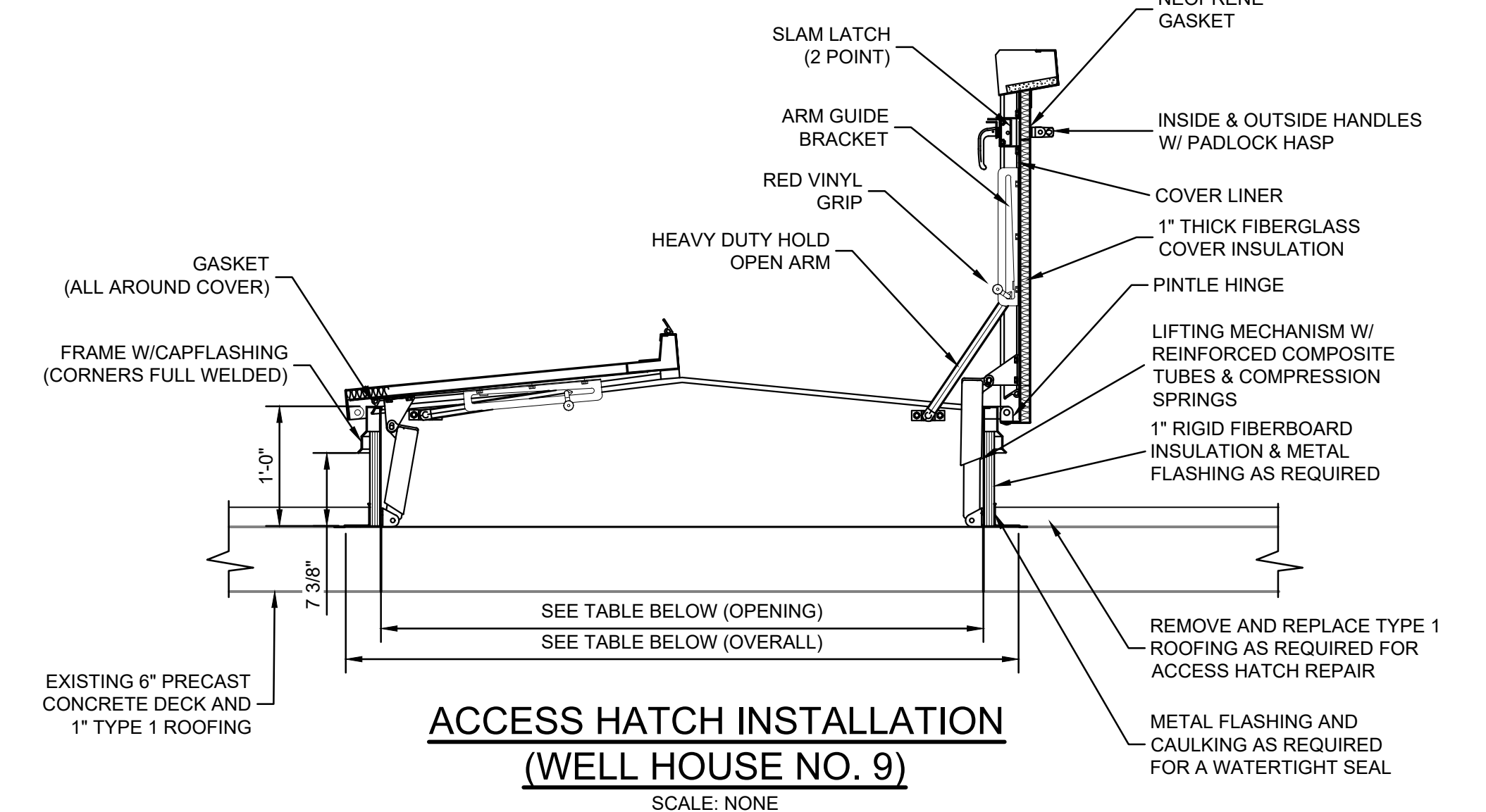


DOOR DETAILS
SCALE: NONE

MARK	SIZE	DOOR MATERIAL	FRAME MATERIAL	QUANTITY	DOOR ELEVATION	DOOR DETAIL	GLAZING	COLOR	HARDWARE	NOTES
(D1)	3'-0" x 7'-2"	ALUM	ALUM	1	1	1	NONE	BY OWNER	1,2,3,5,6,8,9,10,11,14	EXTERIOR DOOR - WELL HOUSE NO. 9

DOOR SCHEDULE

- FINISH HARDWARE REFERENCE NUMBERS**
- | | | |
|-------------------------------|---------------------|---------------------------|
| 1 (3) MORTISE HINGES PER DOOR | 6 SEAM BOTTOM SWEEP | 10 WEATHERSTRIPPING |
| 2 ALUM. KICKPLATE(S) | 7 MORTISE LOCK SET | 11 DOOR STOP |
| 3 1 CLOSER | 8 WIP LEVER HANDLE | 12 CYLINDER LOCK |
| 4 OPERATING LEVER | 9 KICK DOWN FOOT | 13 LATCH BOLT |
| 5 PANIC DEVICE/LEVER | 10 FLUSH BOLTS | 14 THRESHOLD/DOOR SEAL |
| | | 15 ASTRAGAL |
| | | 16 PUSH PLATE/PULL HANDLE |
| | | 17 GASKETED |



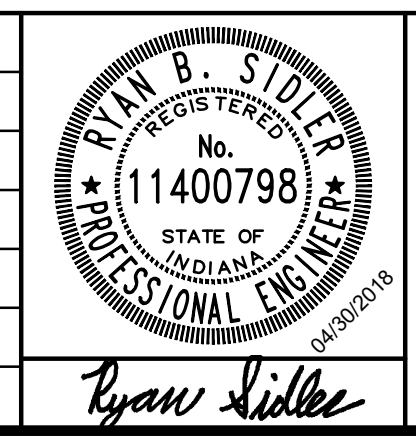
ACCESS HATCH INSTALLATION (WELL HOUSE NO. 9)
SCALE: NONE

LOCATION	DIMENSION (OPENING WIDTH)	DIMENSION (OVERALL WIDTH)	DIMENSION (OPENING DEPTH)	DIMENSION (OVERALL DEPTH)
WELL HOUSE NO. 9	4'-0"	4'-7"	6'-4"	6'-11"
WELL HOUSE NO. 10	3'-0"	3'-7"	3'-0"	3'-7"
WELL HOUSE NO. 14	4'-0"	4'-7"	4'-0"	4'-7"

WELL HOUSE HATCH SCHEDULE

NOTES
1. VERIFY EXISTING WELL HOUSE HATCH OPENINGS PRIOR TO CONSTRUCTION.

SCALE VERIFICATION	DRAWN BY	CLG	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	RBS				
	APPROVED BY	DLL				
	ISSUE DATE	MAY 2018				
	PROJECT NUMBER	194717-04-006				



WELL FIELD IMPROVEMENTS
CITY OF LAWRENCE UTILITIES
LAWRENCE, INDIANA

WELL HOUSE DETAILS AND SCHEDULES

GENERAL STRUCTURAL NOTES

All notes hereafter are typically applicable unless otherwise noted on plans, sections or details.

GENERAL

The structure has been designed for the in-service loads only. The methods, procedures, and sequences of construction are the responsibility of the Contractor. Supporting formwork for the concrete construction shall not be removed before the concrete has gained sufficient strength to safely support the dead and superimposed loads which will be subsequently applied. The Contractor shall take all necessary precautions to maintain and ensure the integrity of the structure at all stages of construction.

Refer to the civil drawings for additional information.

All work shall be performed in accordance with the Indiana Building Code, 2014 Edition (2012 International Building Code, first printing, with Indiana Amendments).

Where new work is to be fitted to old work, the Contractor shall check all dimensions and conditions in the field, and report any errors or discrepancies to the Structural Engineer prior to the fabrication and erection of any new members. The Contractor shall be responsible for the correctness and fit of the new parts to the old parts.

Do not determine dimensions by "scaling" off the plans. The Contractor shall accept all risk associated with "scaling" and shall be responsible for all inadequate work resulting therefrom. Questions regarding missing or conflicting dimensions shall be directed, in writing, to the Structural Engineer.

Existing materials to be removed and reinstalled as part of this contract, but become damaged, shall be replaced with approved new material of equivalent quality and appearance at the Contractor's expense.

All work shall be performed without damage to adjacent retained work. Adequate protection of areas nearby work against dust, dirt and debris accumulation shall be maintained at all times.

Principal openings in the structure are indicated on the structural drawings. Refer to the architectural, mechanical, electrical, and plumbing drawings for sleeves, curbs, inserts, etc. not herein indicated. Openings in slabs with a maximum side dimension or diameter of 10 inches or less shall not require additional framing or reinforcement, unless noted otherwise. The location of sleeves or openings not shown in structural members shall be approved by the Structural Engineer.

The location of sleeves or openings not shown in structural members shall be approved by the Structural Engineer.

The Contractor shall relocate all mechanical piping, ducts, equipment, electrical conduits, wiring and plumbing that interfere with the proposed construction. Service shall be maintained to all equipment that is served by mechanical, electrical or plumbing conduit being relocated.

The shoring and/or re-shoring design is the responsibility of the Contractor. Temporary shoring for slabs, beams, and girders shall be adequate to carry the total weight of the slab-beam-girder system and any temporary construction loads to be imposed on the structural system. Shoring for a level shall not be removed until the concrete at that level has attained the specified 28 day compressive strength (f_c). Removal of shoring and/or reshoring shall not cause overstress in any structural element.

Opening dimensions shown on the plans and elevation views are nominal rough openings. It shall be the Contractor's responsibility to coordinate the specific clear opening dimension with the selected door manufacturer and door installer. Clear opening dimension shall account for any shimming and construction tolerances needed by the Contractor to complete their work. Refer to the Architectural plans for door locations and sizes.

FOUNDATIONS

Exterior footings shall bear 3'-0" minimum below finish grade and shall bear on undisturbed soil.

Foundation excavation and all other soils related work shall be performed in accordance with the geotechnical engineering report prepared by Earth Exploration, Inc. dated December 1, 2017 and all associated supplements.

Foundation and soils related work shall be performed under the direct supervision of a qualified testing agency.

Foundation excavations shall be made to plan elevations. The Contractor shall have a qualified testing agency verify that the allowable soil bearing pressure meets or exceeds that assumed for the foundation design. If the underlying soils are found to be unacceptable, one of the following procedures shall be followed:

Remove the unacceptable soil and backfill with an engineered structural fill as approved by the Engineer.

Lower the footing to an acceptable soil. Contact the Engineer for potential modifications to the foundation system.

Subgrade structural elements subjected to differential lateral soil pressure shall be adequately braced until the structural elements which provide lateral restraint have been placed and allowed to cure for a minimum of 7 days, or until the concrete has achieved 75% of its specified compressive strength, whichever is more unless noted otherwise.

Excavations for spread footings, combined footings, continuous footings and/or mat foundations shall be cleaned and hand tamped to a uniform surface. Foundation excavations shall be adequately protected against detrimental change in condition from disturbance, rain, freezing, etc. Subgrade shall not be allowed to enter the excavation.

Foundation conditions noted during construction, which differ from those described in the geotechnical report shall be reported to the Engineer before further construction is attempted.

Center all column and wall footings under the column or wall above unless otherwise indicated.

CONCRETE

Reinforced concrete has been designed in accordance with the latest edition[s] of the Building Code Requirements for Reinforced Concrete (ACI 318) and Engineering Concrete Structures (ACI 350R) by the American Concrete Institute (ACI).

Slabs-on-grade shall be constructed in accordance with the latest edition of the Guide for Concrete Floor and Slab Construction (ACI 302.1R).

Mixing, transporting, and placing of concrete shall conform to the latest edition of the Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete (ACI 211.1) and the Standard Specifications for Structural Concrete (ACI 301). Concrete curing shall conform to the latest editions of the Standard Practice for Concrete Curing (ACI 308) and the Standard Specification for Curing Concrete (ACI 308.1). In case of a discrepancy, the plans and specifications shall govern.

Unless noted otherwise, concrete shall have natural sand fine aggregate and normal weight coarse aggregates conforming to ASTM C33, and Type I or III Portland Cement conforming to ASTM C150. The Contractor shall submit a mix design for each proposed class of concrete. Mix designs shall indicate proportions by weight, water-cement ratio, slump, air content, synthetic fiber size and quantity, sieve analyses of fine and coarse aggregates, standard deviation analysis, and required average strength and documentation of average strength verifying compliance with ACI 318. The Contractor shall not vary from the mix design without approval from the Structural Engineer.

Unless noted otherwise, fly ash may be used as a pozzolan to replace a portion of the Portland Cement in a concrete mix. Fly ash, when used, shall conform to ASTM C618, Type C. Concrete mixes using fly ash shall be proportioned to account for the properties of the specific fly ash used and to account for the specific properties of the fly ash concrete thus resulting. The ratio of the amount of the fly ash to the total amount of fly ash plus cement in the mix shall not exceed 25 percent.

Water-reducing admixtures conforming to ASTM C494 may be used in the concrete mix design. Maximum slump shall be 4 inches for mixes not containing water-reducing admixtures, 5 inches for mixes containing water-reducing admixtures, and 5 to 8 inches for mixes containing high range water-reducing admixtures.

Concrete compressive strength tests shall be performed in accordance with ASTM C39. The tests shall be performed by an independent testing company at the Contractor's expense. Copies of the test results shall be forwarded to the Structural Engineer. One set of specimens shall be taken for each day's pour of appreciable size and for each 50 cubic yards in accordance with the latest edition of ASTM C31. Each set shall include one specimen tested at 7 days, 2 specimens tested at 28 days and one specimen retained in reserve. These test cylinders shall be laboratory cured.

When the ambient temperature is expected to fall below 40 degrees during the course of a concrete pour or subsequent curing period, it shall be placed and cured in accordance with the latest edition of Cold Weather Concreting (ACI 306R) and an additional set of concrete test cylinders shall be made. These cylinders shall be stored immediately adjacent to, and cured under the same conditions as the building concrete. Special curing boxes are not permitted for these test cylinders.

Concrete mixed, transported, placed, and cured under conditions of high ambient temperature, low humidity, solar radiation, or high winds shall conform to the latest edition of Hot Weather Concreting (ACI 305R) and an additional set of concrete test cylinders shall be made. These cylinders shall be stored immediately adjacent to, and cured under the same conditions as the building concrete. Special curing boxes are not permitted for these test cylinders.

Slump tests shall be made following the addition of plasticizers. Where concrete is placed by pumping methods, concrete for test cylinders and slump tests shall be taken at the point of final placement.

Water shall not be added to the concrete at the job site. The Contractor is responsible for coordinating a pumpable and workable mix without the addition of water at the job site. The use of plasticizers, retardants and other additives shall be at the option of the Contractor subject to the approval of the Structural Engineer. Follow the recommendations of the manufacturer for the proper use of additives. Use of calcium chloride or other chloride bearing salts is prohibited.

Place concrete in a manner so as to prevent segregation of the mix. Delay floating and troweling operations until the concrete has lost surface water sheen or all free water. Do not sprinkle free cement on the slab surface. Finishing of slab surfaces shall conform to the latest editions of ACI 302.1R and ACI 304R (Guide for Measuring, Mixing, Transporting and Placing Concrete).

Where an epoxy adhesive is specified for bonding plastic concrete to hardened concrete, it shall conform to the latest edition of the Standard Specification for Bonding Plastic Concrete to Hardened Concrete with a Multi-Component Epoxy Adhesive (ACI 503.2).

Maintain concrete in a moist condition for at least 5 days at ambient temperatures above 70 degrees, and at least 7 days at ambient temperatures above 50 degrees. Curing compounds or moisture retention covers shall be used for all non-formed surfaces. Formed surfaces shall be cured by leaving forms in place. During hot, dry weather, keep forms moist by sprinkling. When forms are removed prior to the end of the curing period, apply curing compound to the exposed surfaces. It shall be the Contractor's responsibility to provide a curing compound that complies with other project requirements.

All interior slabs shall receive a hard "troweled finish". Exterior slabs, sidewalks, and stoops shall receive a "broom (or other type of slip resistant) finish". Formed surfaces not exposed to public view shall receive a "rough form finish", exposed surfaces shall receive a "smooth form finish". Concrete finishes shall be as defined in ACI 301.

Protect finished concrete surfaces from damage, rain, hail, running water, other injurious effects.

Protect the concrete surface between finishing operations on hot, dry days or any time plastic shrinkage cracks could develop by using wet burlap, plastic membranes or fogging.

Construction joints at localions shall be submitted to the Structural Engineer for approval.

Construction joints shall be prepared by roughening the contact surface in an approved manner to a full amplitude of approximately 1/4 inch leaving the contact surface clean and free of laitance.

Control joints shall be made in concrete slabs-on-grade at major column centerlines, at points of discontinuity at reentrant corners, and at other locations shown on the plans.

Provide 3/4 inch chamfers on all exposed corners of concrete except those abutting masonry.

The Contractor shall verify the location of sleeves, openings, embedded items, etc. and shall ensure that they are in place prior to the placement of the concrete.

Earth cuts shall not be used as forms ("bank forming") for vertical or sloping surfaces unless otherwise approved by the Structural Engineer. Where bank forming is permitted, the concrete element shall be increased at least 3 inches on all sides exposed to earth to account for possible soil contamination during concrete placement.

CONCRETE SCHEDULE

CLASS	28 DAY COMPRESSIVE STRENGTH	AIR CONTENT	CONCRETE LOCATION	REMARKS
B	4,000 psi	optional	Foundation and Pedestals	
F	4,500 psi	6% ± 1%	Exterior Slabs on Grade, Stoops, & Sidewalks	Synthetic Fibers (1.5 lbs/cyds)

Minimum cement content shall be 517 lb/cys (5.5 sacks/cys) and maximum water-cement ratio shall be 0.48 for Class B concrete.

Minimum cement content shall be 611 lb/cys (6.5 sacks/cys) and maximum water-cement ratio shall be 0.40 for Class F concrete.

REINFORCING STEEL

Reinforcing bar detailing, fabricating, and placing shall conform to the latest edition of the following standards: Specifications for Structural Concrete for Buildings (ACI 301), ACI Detailing Manual (SP66). The latest editions of Concrete Reinforcing Steel Institute's Reinforcing Bar Detailing and Placing Reinforcing Bars may also be used.

Provide standard bar chairs, slab bolsters, spacers, etc. as required to maintain concrete protection specified. Reinforcing steel shall be tied to prevent displacement during concrete placement. Tying up of welded wire fabric in slabs-on-grade and on metal deck is not permitted.

Reinforcement bars shall not be tack welded, welded, heated or cut unless otherwise indicated or approved by the Structural Engineer.

Welding of reinforcement bars, when approved by the Structural Engineer, shall conform to the latest edition of American Welding Society Standard D1.4. Electrodes for shop and field welding of reinforcement bars shall conform to ASTM A233, Class E90XX.

Concrete cover over reinforcement, unless otherwise noted, shall be as specified in the latest edition[s] of ACI 318 and ACI 350 with the most stringent requirements governing.

Welded wire fabric in slabs-on-grade shall be placed on top of the slab unless otherwise noted. Welded wire fabric in slabs on metal deck shall be placed anywhere from 3/4" to 1 1/4" down from the top of the slab unless otherwise noted.

Unless noted otherwise, splicing of reinforcing bars shall conform to the latest edition of ACI 318. Where the length of lap is not indicated, provide a Class "B" lap at tension splices or 30 bar diameter compression laps at compression splices.

Horizontal bars in walls, masonry piers, beams, and continuous wall footings shall be bent at corners and intersections in such a way that continuity is provided through the joint. Separate corner bars of the same size and spacing as the horizontal reinforcing may be substituted for the bent portion of the continuous bars.

Unless noted otherwise, provide 2-#5 bars (one each face) around unframed openings and diagonally at reentrant corners of vertical height offsets in concrete walls. Place bars parallel to the sides of the opening and extend 24 inches beyond corners.

The Contractor shall prepare detailed working or shop drawings to enable him to fabricate, erect and construct all parts of the work in accordance with the drawings and specifications and shall submit one reproducible copy and one blue line copy to the Structural Engineer for review prior to fabrication. Shop drawings will be reviewed for design concepts only. The Contractor shall be responsible for all dimensions, accuracy, and fit of work.

CONCRETE REINFORCING STEEL LAP SPLICE SCHEDULE			
BAR SIZE	TENSION SPLICE		COMPRESSION SPLICE
	TOP BAR	OTHER	
#3	21"	16"	12"
#4	28"	24"	15"
#5	35"	30"	19"
#6	42"	36"	23"
#7	49"	42"	26"
#8	56"	48"	30"
#9	63"	57"	34"
#10	76"	66"	38"
#11	93"	72"	42"

STRUCTURAL STEEL

Structural steel detailing, fabrication and erection shall conform to the latest editions of the AISC Specification for Structural Steel Buildings, Allowable Stress Design and Plastic Design and the AISC Code of Standard Practice for Steel Buildings and Bridges.

Structural steel shall be shop-painted with a rust inhibiting primer. Steel which will be exposed to weather shall receive one additional finish coat.

Structural steel primer and finish coat must meet INDOT Standard Specification for painting.

Design connections not shown in accordance with the latest AISC Specification and Manual of Steel Construction. Design simple span non-composite beam connections not shown to support one-half the beam load capacity as given in the AISC Uniform Load Constants for Beams Laterally Supported tables. Connection angles shall be double web angles, 5/16" minimum thickness.

Unless otherwise noted, bolted connections for structural steel members shall be bearing-type using 1/2" diameter ASTM A325 high strength bolts with standard 13/16" diameter holes tightened to the snug tight condition.

Welding procedures shall conform to the latest edition of the American Welding Society's (AWS) Structural Welding Codes for: Steel ANSI/AWS D1.1 and Sheet Steel ANSI/AWS D1.3.

Welded connections using ASTM A572 and A992 steel as a base metal shall be made with E70XX Low Hydrogen electrodes. Unless otherwise noted, other welded connections shall be made with regular E70XX electrodes. Welding shall be performed only where shown and to the extent indicated.

Field drilled holes shall be reamed, cleaned and deburred prior to assembly of the connection.

Thermal cutting shall preferably be done by machine. Hand thermally cut edges which will be subjected to substantial stress, or which are to have weld metal deposited on them, shall be reasonably free from notches or gouges. Notches or gouges greater than 3/16" that remain from cutting shall be removed by grinding. Re-entrant corners shall be shaped notch-free to a radius of at least 1/2".

Paint on surfaces adjacent to joints to be field welded shall be wire brushed to reduce the paint film to a minimum.

Surfaces within 2" of any field weld shall be free of materials that would prevent proper welding or produce toxic fumes while welding is being done. These areas shall be repainted with rust-inhibiting primer and finish coat after welding is completed.

Splicing of structural steel members where not detailed is prohibited without the prior approval of the Structural Engineer as to location, type of splice and connection to be made.

Beams with specified camber shall be cambered upward. Beams without specified camber shall be fabricated so that after erection any minor camber due to rolling or shop assembly is upward.

The Contractor shall prepare detailed working or shop drawings to enable him to fabricate, erect and construct all parts of the work in accordance with the drawings and specifications and shall submit one reproducible copy and one blue line copy to the Structural Engineer for review prior to fabrication. These shop drawings will be reviewed for design concepts only. The Contractor shall be responsible for all dimensions, accuracy, and fit of work.

COORDINATION WITH OTHER TRADES

The Contractor shall coordinate and check all dimensions relating to architectural finishes, structural framing, mechanical openings, equipment, etc. The Structural Engineer shall be notified of any discrepancies before proceeding with work in an area under question.

DESIGN

Building Code:
Indiana Building Code, 2014 Edition (2012 International Building Code, with Indiana Amendments)

Soil information:
Allowable net bearing pressure (Well House Nos. 8 and 10): 2000 psf
Allowable net bearing pressure (Well House No. 15R): 3000 psf
Unit weight of soil: 125 pcf
Effective Fluid Pressure: 90 pcf
Coefficient of friction between soil and concrete footing: 0.30 (assumed)
Subgrade Modulus: 175 pci

Concrete:
28 day compressive strength (f_c): see schedule

Reinforcing steel (deformed bars of new billet steel):
Stirrup and tie: ASTM A615, Grade 60

Structural steel:
Steel Grade: ASTM A36
Threaded Rod: ASTM A36
Connection Bolts: ASTM A325

Non-shrink grout:
28 day compressive strength: 5,000 psi

Live loads:
Generator grating: 100 psf
Bridge: HS20-44 (AASHTO)

Wind loads:
Basic wind speed (3-second gust): 120 mph
Occupancy Risk Category: III
Exposure: C

Seismic loads:
Occupancy Risk Category: III
MCE Seismic Spectral Response Acceleration at Short Periods, S_s: 14.8% g
MCE Seismic Spectral Response Acceleration at 1 Second, S₁: 8.2% g
Importance factor, I_E: 1.25
Site Class: D
Seismic Design Category: B

Drawing: S:\project files\17-159\Fort Harrison Well Field - Bridge Evaluation, Lawrence, IN\Drawings\Structural\GEN NOTES.dwg | Layout: S1 GENERAL NOTES | Plotter: 04/25/18 @ 08:39:54 | LastSavedBy: mahant



CE Solutions
structural engineers
10 Shoshone Drive Carmel, IN 46032 | 317.818.1912 cesolutionsinc.com

SCALE VERIFICATION	DRAWN BY	KJR	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	CEB				
	APPROVED BY	JDT				
	ISSUE DATE					
	MAY 2018					
	PROJECT NUMBER					
		194717-04-006				




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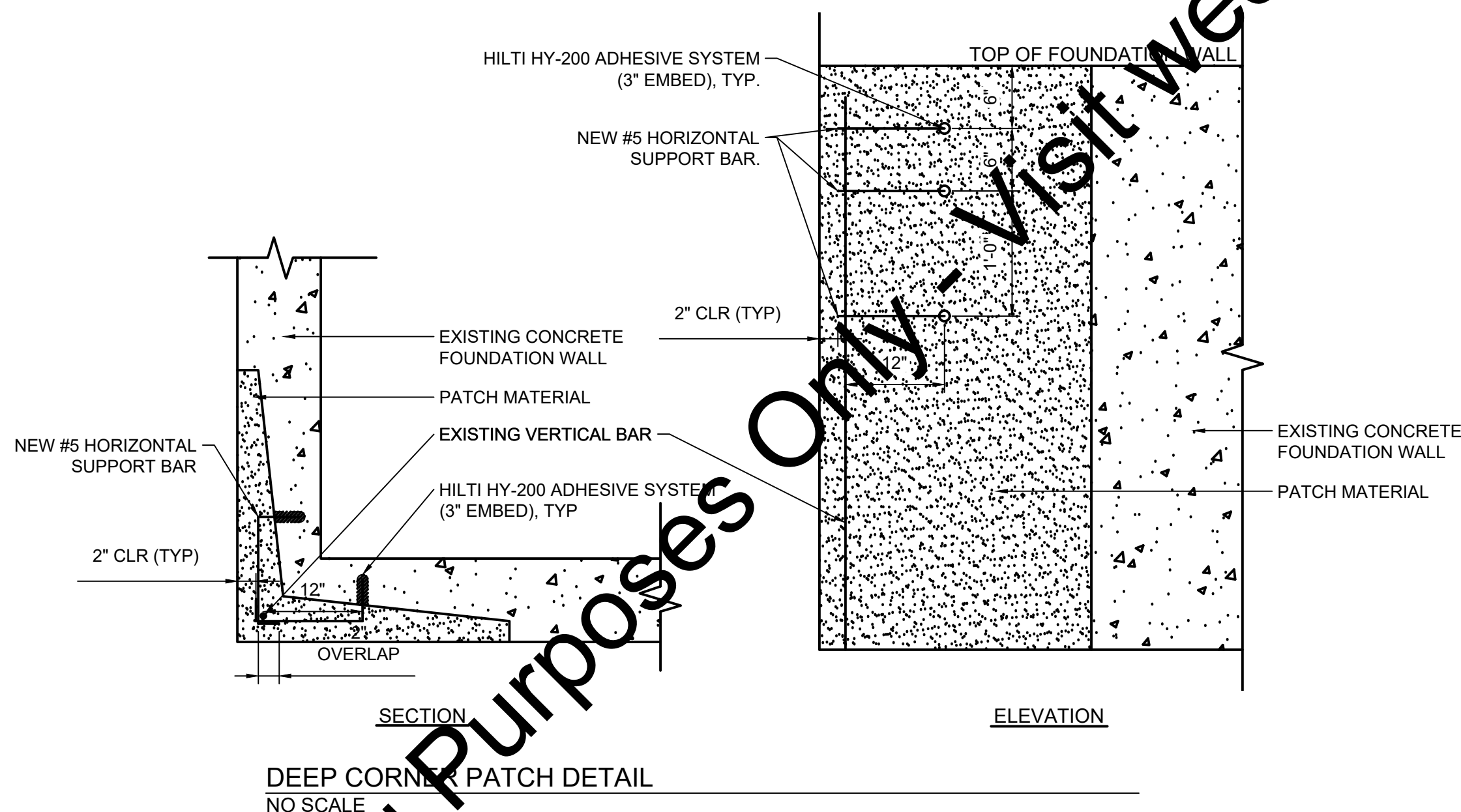
GENERAL NOTES

SHEET NO.
S1
PAGE NO.
09

Deep Corner Patch Procedure (DC):

Use this procedure for locations identified for partial depth concrete patching in the drawings. Repairs shall be in accordance with product manufacturer's written instructions and shall include, but not limited to, the following sequential steps:

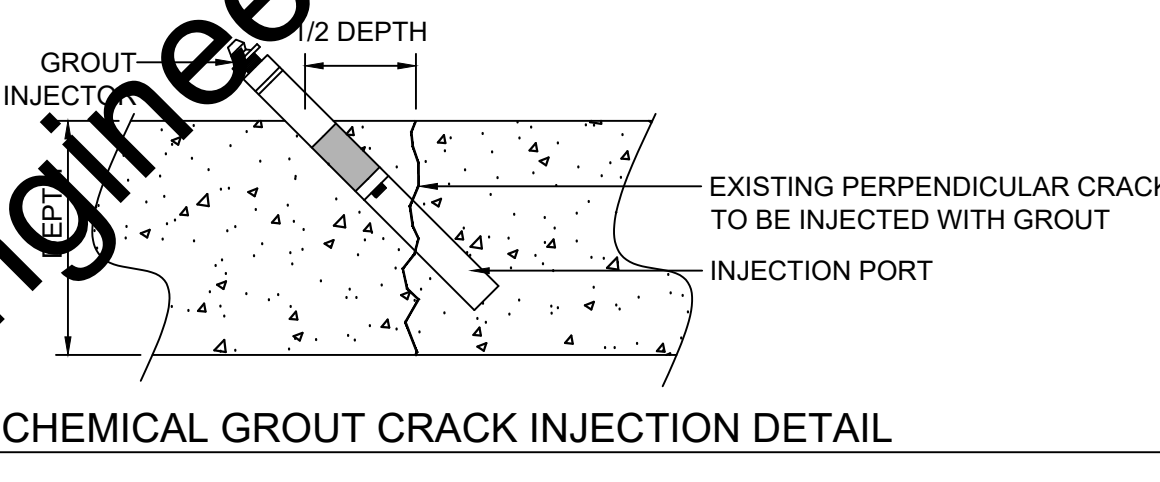
1. Adequately protect surrounding areas from damage.
2. Determine exact extents of deteriorated concrete by hammer or chain drag sounding. Mark areas for removal by simplifying and squaring off boundaries of spalled and delaminated areas. Unless otherwise noted, patches are assumed to be 3" deep. Should it be determined that deeper patch is required, contact the Structural Engineer for evaluation before proceeding.
3. Sawcut (1" or depth of reinforcement cover, whichever is less) the perimeter of the area to be patched. Do not cut steel reinforcement.
4. Remove all deteriorated concrete by sandblasting or by hand-held pneumatic hammers, 10 pounds maximum weight. Removal shall continue until sound concrete is exposed. Removal shall be of adequate depth and of appropriate surface profile to meet patching material manufacturer's recommended minimum application thickness. Remove limited portions of sound concrete around reinforcing steel, enough to provide adequate anchorage of new concrete. Note: Electric hammers are acceptable as long as removal is performed with extreme care to avoid over excavation of deteriorated concrete.
5. Remove any corrosion which may be present on any exposed reinforcing steel by wire brush or shotblasting. Where section loss of a single mild/non-prestressed reinforcing bar is more than 25 percent, or 20 percent in 2 or more adjacent bars, provide supplemental reinforcement. Supplemental reinforcing steel may be required where exposed, corroded reinforcement is noted in the repair schedules or visible in the photographs. Replacement bars shall match original size and spacing. Remove additional concrete as necessary to provide at least a 3/4-inch clearance at existing and replacement bars. Splice replacement bars to existing bars according to ACI 318, by lapping, or using mechanical couplings.
6. Thoroughly clean all concrete removal areas by lightly shotblasting and blowing clean with oil free compressed air.
7. Brush apply anticorrosion agent to exposed reinforcing steel only and allow to dry per manufacturer's recommendations. Do not apply anticorrosion inhibitor to concrete surfaces. Follow manufacturer's recommendations for maximum open time between application of anticorrosion agent and patching mortar or concrete.
8. Bend exposed vertical corner bar back into place by hand.
9. Embed #5 bar 6" to each side of vertical bar using HILTY HY-200 system or equivalent (3" embedment depth). Bend bar to run horizontally along wall and bend again to wrap around existing vertical bar while ensuring 2" minimum cover. See details below for locations.
10. Thoroughly water soak all concrete removal areas prior to placing patching material. Surface should be in saturated, surface dry (SSD) condition (no standing water).
11. Apply a scrub coat of cement slurry to patch surfaces.
12. Form as required to match original corner.
13. Mix and apply self-consolidating concrete patching material per manufacturer's recommendations. For large patches, fill edges first and then work toward center, always troweling toward edges of patch. At fully exposed reinforcing bars, force patching mortar to fill space behind bars by compacting with trowel from sides of bars.
14. If multiple lifts are required, follow manufacturer's recommendations for lift thickness and surface preparation required. Allow each lift to reach final set before placing subsequent lifts.
15. Follow manufacturer's recommendations for curing requirements.
16. See Specifications and Structural General Notes on sheet S1 for additional information.



Chemical Grout Injection Procedure (CG):

Repairs shall be in accordance with product manufacturer's written instructions and shall include, but not limited to, the following sequential steps:

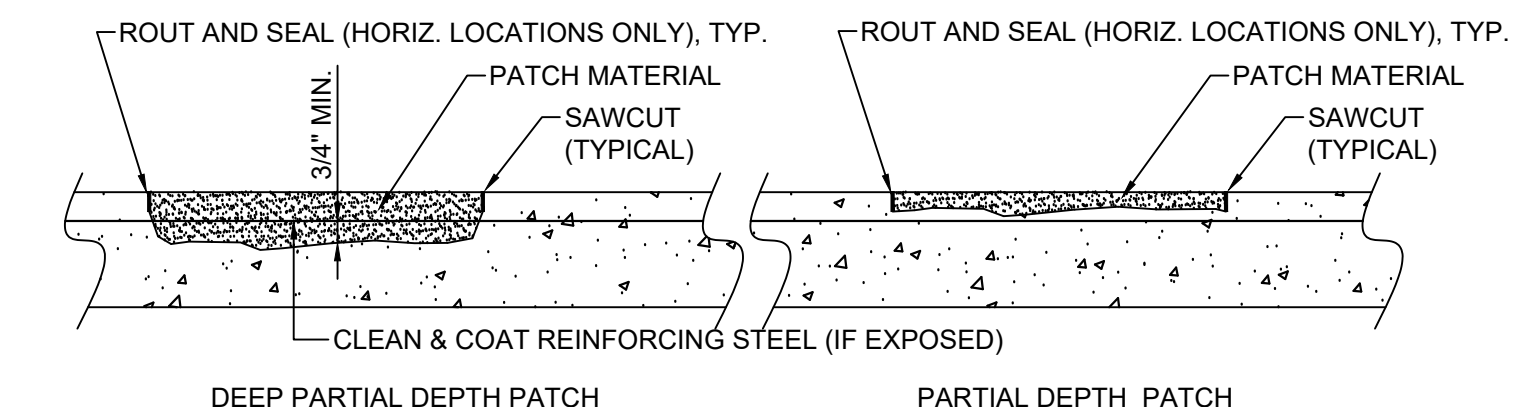
1. Clean all areas to be grouted. Remove all debris, mineral deposits, and existing sealant materials so that cracks and joints can be seen clearly enough to layout the drilling pattern for the injectors. Use one or more of the following techniques: hammer and chisel, wire brush, grinding wheel.
2. Drill 5/8" diameter standard holes for injectors approximately at a 45 degree angle to the surface to intersect the cracks or joints near the center of the slab or wall. If the concrete thickness is 6" or less, drill holes directly into the cracks or joints to prevent damage to the concrete. Use test holes to determine proper spacing of holes for the injectors. (Spacing of the holes normally varies from 6" up to 24" apart, depending upon the width of the cracks or joints.) Stagger the holes from one side of the crack to the other to ensure that at least 50% of the holes will intersect a non-perpendicular crack. See below for correct injector installation.
3. Install injectors into the drilled holes. Recess each injector to secure seating of the injector. Tighten the injector to prevent leakage of the chemical grout.
4. Using the installed injectors, flush the crack with water to remove debris and drilling dust. Remove the penetration of the chemical grout. Start flushing at the lowest point on a vertical crack or on the narrowest end of a horizontal crack.
5. After flushing, start chemical grout injection. Hold the pressure constant. If flow does not occur, raise the pressure slowly. When flow starts, decrease the pressure while maintaining the same flow rate. Monitor the crack for grout escaping, the hose line for pulsations indicating grout flow, and the pressure gage for actual pump pressure being introduced into the crack. If grout areas are dry, or contain insufficient moisture to activate the grout, inject the crack with a small amount of water prior to injecting grout. (Equal injection may be used). If too much grout escapes, cover crack with quick-set hydraulic cement, allow it to set, and pump again. Always return to previously injected ports and re-inject.
6. Re-inject any areas of the crack which are still damp after 24 hours.
7. Remove injector ports and clean access material from surfaces (interior and exterior).
8. If a crack/joint is wide enough to require a backer rod, follow these additional steps: soak foam backer rods in grout primer, prime joint faces before placing backer rod, saturate backer rods to full depth or to waterstop.
9. See Specification Sections and General Structural Notes on sheet S1 for additional information.



Partial Depth Concrete Patch Procedure (P):

Use this procedure for locations identified for partial depth concrete patching in the drawings. Repairs shall be in accordance with product manufacturer's written instructions and shall include, but not limited to, the following sequential steps:

1. Adequately protect surrounding areas from damage.
2. Determine exact extents of deteriorated concrete by hammer or chain drag sounding. Mark areas for removal by simplifying and squaring off boundaries of spalled and delaminated areas. Unless otherwise noted, patches are assumed to be 2" deep. Should it be determined that deeper patch is required, contact the Structural Engineer for evaluation before proceeding.
3. Sawcut (1" or depth of reinforcement cover, whichever is less) the perimeter of the area to be patched. Do not cut steel reinforcement.
4. Remove all deteriorated concrete by sandblasting or by hand-held pneumatic hammers, 10 pounds maximum weight. Removal shall continue until sound concrete is exposed. Removal shall be of adequate depth and of appropriate surface profile to meet patching material manufacturer's recommended minimum application thickness. Remove limited portions of sound concrete around reinforcing steel, enough to provide adequate anchorage of new concrete. Note: Electric hammers are acceptable as long as removal is performed with extreme care to avoid over excavation of deteriorated concrete.
5. Remove any corrosion which may be present on any exposed reinforcing steel by wire brush or shotblasting. Where section loss of a single mild/non-prestressed reinforcing bar is more than 25 percent, or 20 percent in 2 or more adjacent bars, provide supplemental reinforcement. Supplemental reinforcing steel may be required where exposed, corroded reinforcement is noted in the repair schedules or visible in the photographs. Replacement bars shall match original size and spacing. Remove additional concrete as necessary to provide at least a 3/4-inch clearance at existing and replacement bars. Splice replacement bars to existing bars according to ACI 318, by lapping, or using mechanical couplings.
6. Thoroughly clean all concrete removal areas by lightly shotblasting and blowing clean with oil free compressed air.
7. Brush apply anticorrosion agent to exposed reinforcing steel only and allow to dry per manufacturer's recommendations. Do not apply anticorrosion inhibitor to concrete surfaces. Follow manufacturer's recommendations for maximum open time between application of anticorrosion agent and patching mortar or concrete.
8. Thoroughly water soak all concrete removal areas prior to placing patching material. Surface should be in saturated, surface dry (SSD) condition (no standing water).
9. Apply a scrub coat of cement slurry to patch surfaces.
10. Form as required when patching vertical or overhead repairs.
11. Mix and apply patching material per manufacturer's recommendations. In general, place patching mortar by troweling toward edges of patch to force intimate contact with edge surfaces. For large patches, fill edges first and then work toward center, always troweling toward edges of patch. At fully exposed reinforcing bars, force patching mortar to fill space behind bars by compacting with trowel from sides of bars.
12. If multiple lifts are required, follow manufacturer's recommendations for lift thickness and surface preparation required. Allow each lift to reach final set before placing subsequent lifts.
13. Follow manufacturer's recommendations for curing requirements.
14. See Specification Sections and General Structural Notes on sheet S1 for additional information.



TYPICAL PATCH DETAIL
NO SCALE

Repointing Procedure (RP):

Repairs shall be in accordance with product manufacturer's written instructions and shall include, but not limited to, the following sequential steps:

1. Clean all areas to be repointed. Remove all debris, mineral deposits, and existing sealant materials so that cracks and joints can be seen clearly. Use one or more of the following techniques: hammer and chisel, wire brush, grinding wheel, shotblast, power washing.
2. Cut out mortar joints to an approximate depth of 1". Use a plugging or joint chisel to prevent joint binding and chipping of the brick edge.
3. Rake out excess mortar or grit and brush out the joints to remove loose mortar and sand. Flush out remaining particles by spraying with water.
4. Use a jointer tool to press mortar into the joints. Pack the mortar firmly into the joints. Repoint the head joints first and the bed joints second. Fill joints until they are flush with the wall and then depress the joints to match existing if necessary. Make sure that all joints are dampened before repointing.
5. To decrease the possibility of cracking or sagging in deep joints, fill in roughly half of the joint depth, wait until the mortar is thumbprint hard, and then repoint the remainder of the joint.
6. In hot or windy conditions, dampen the repointed joints to prevent the mortar from drying too quickly. Spray the finished job with a fine water mist to aid in the curing process.
7. See Specifications and General Structural Notes on sheet S1 for additional information.

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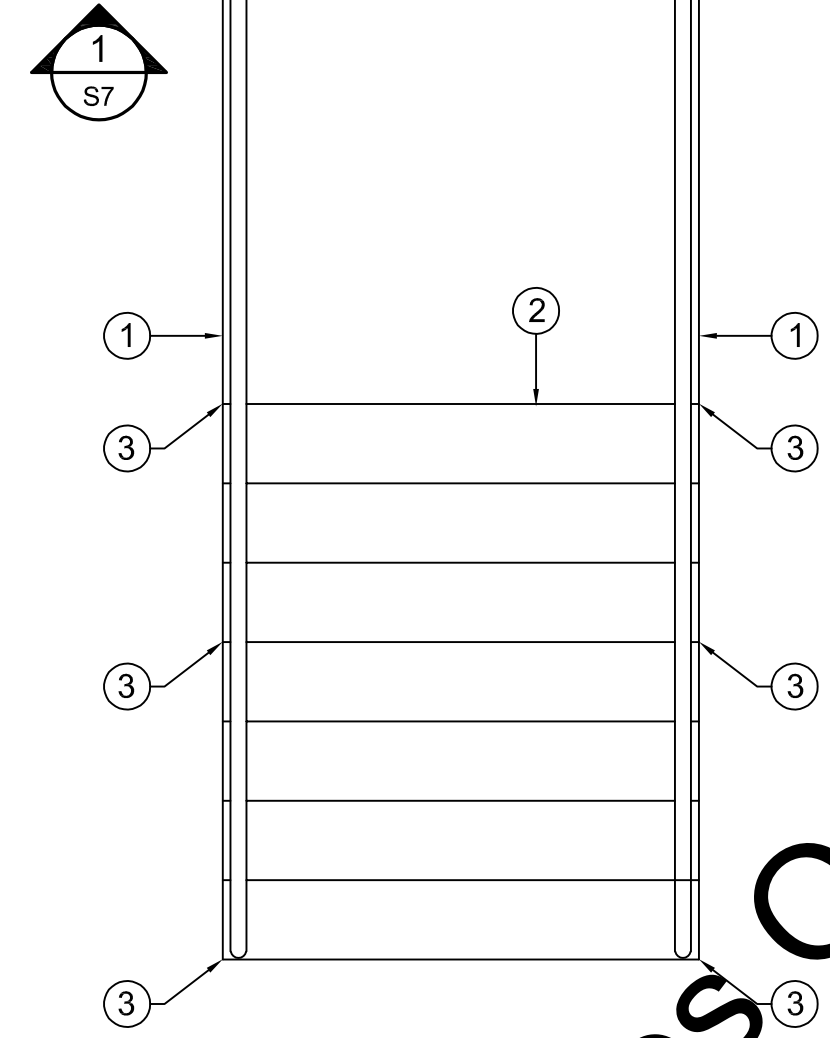
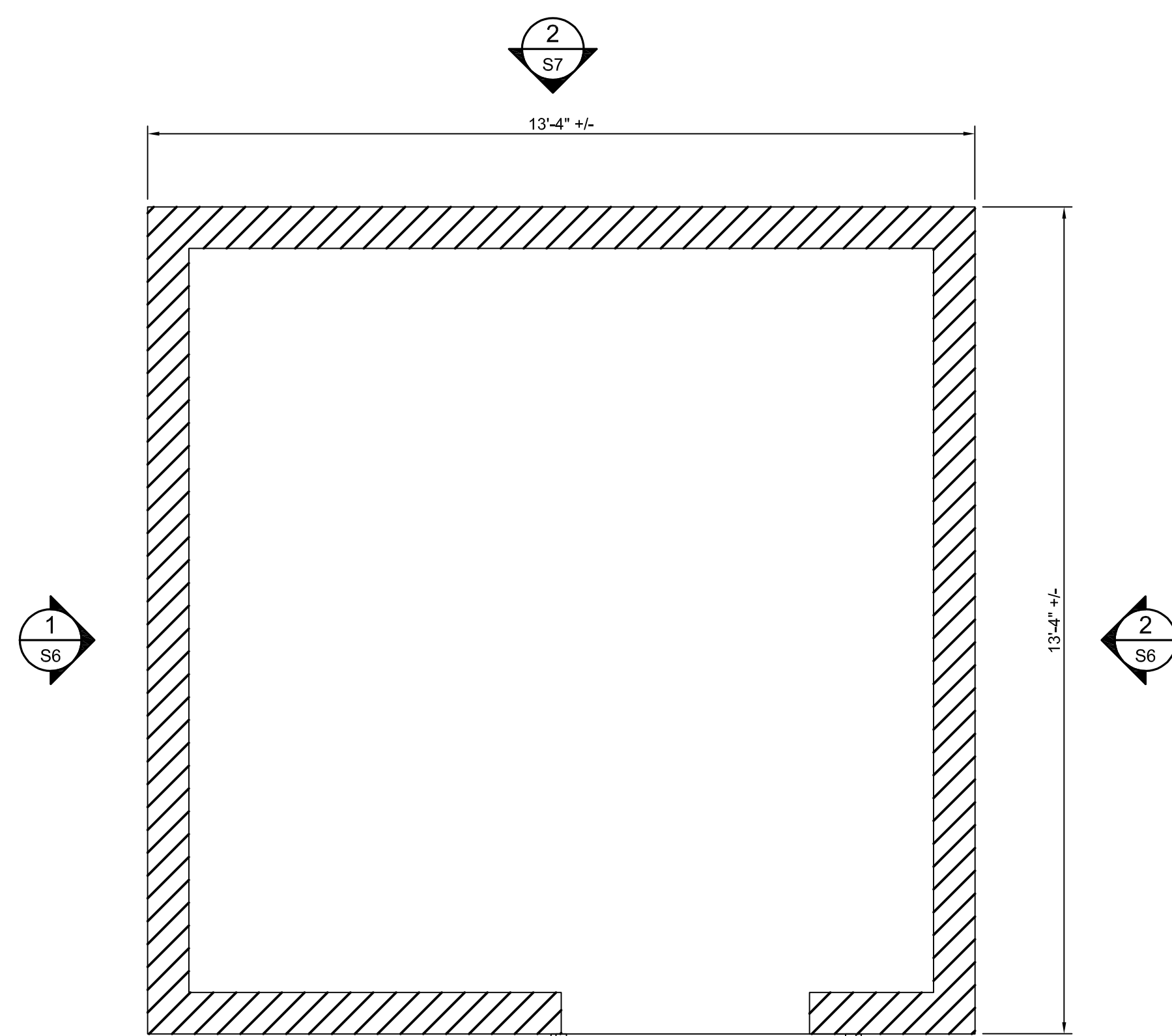
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TYPICAL REPAIR PROCEDURES

SHEET NO.
S2

PAGE NO.
10



WELL HOUSE 10 REPAIR SCHEDULE					
LOCATION	REPAIR TYPE	ID	QUANTITY	PHOTOS	NOTES
F	HR	1	22 LF		REMOVE & REPLACE
F	P	2	2 SF		
F	DC	3	12 SF		

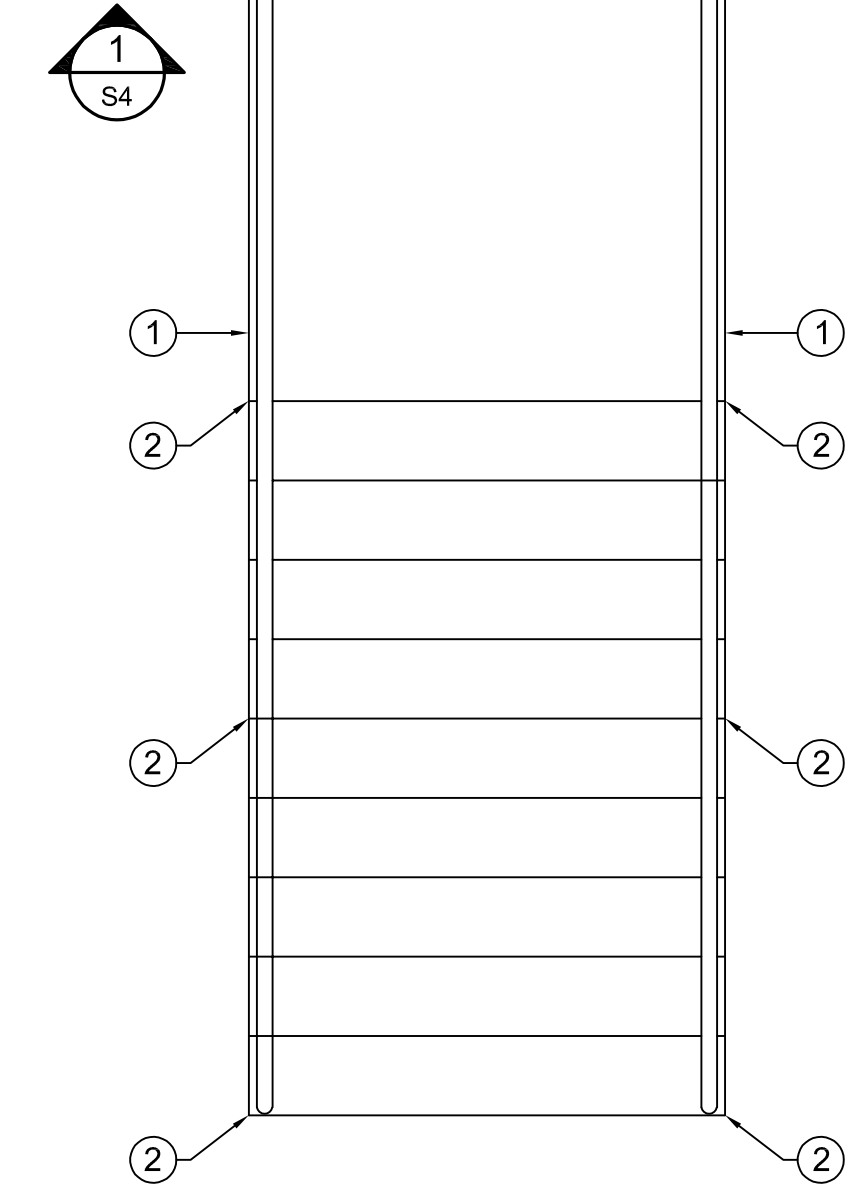
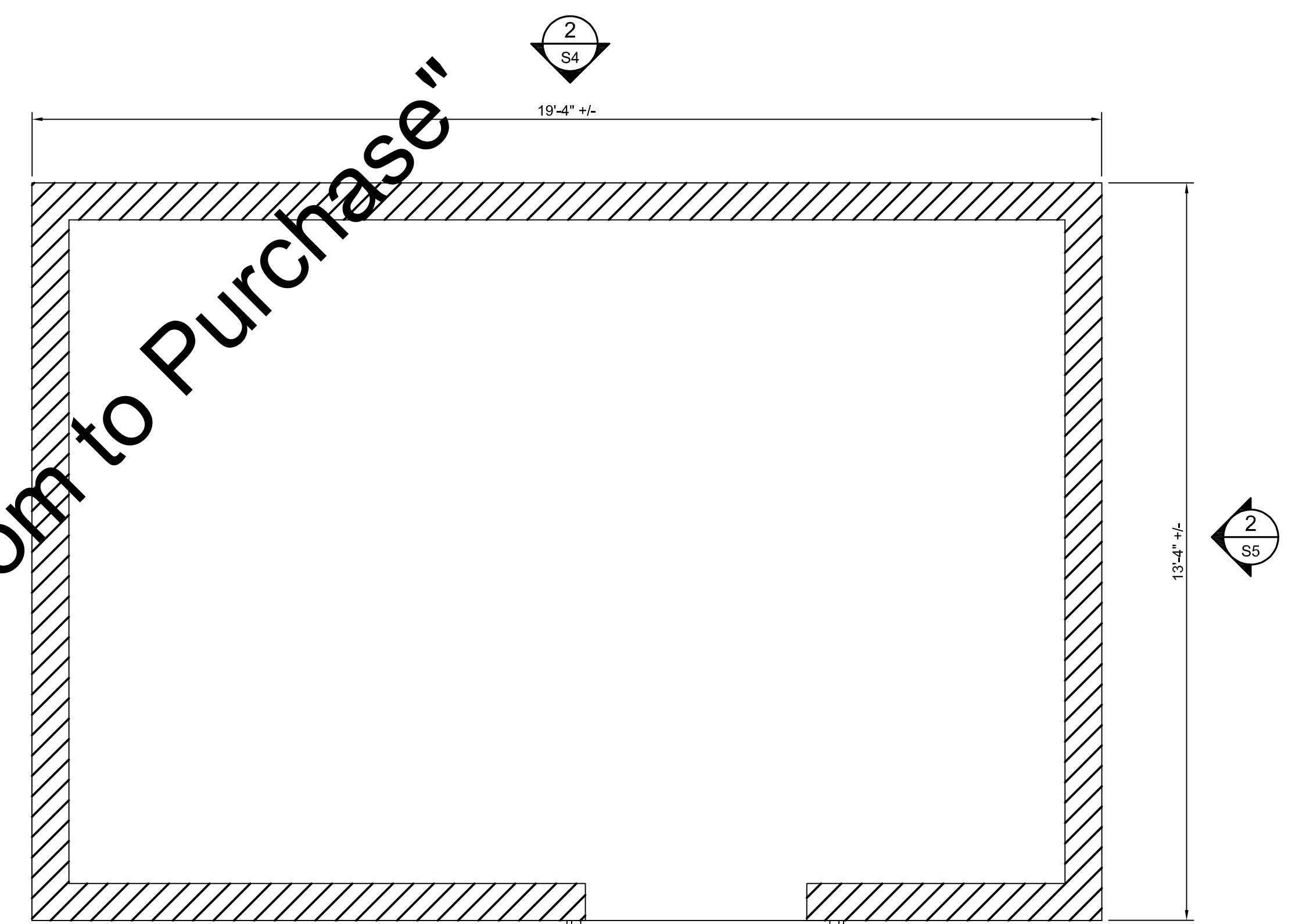
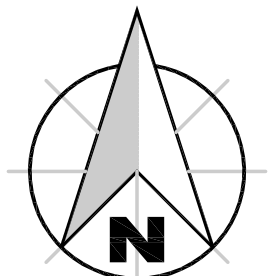
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P PATCH - SEE PARTIAL DEPTH CONCRETE PATCH PROCEDURE (P)
 CG CHEMICAL GROUT - SEE CHEMICAL GROUT PROCEDURE (CG)
 DC DEEP CORNER PATCH - SEE DEEP CORNER PATCH PROCEDURE (DC)
 RP REPOINTING - SEE REPOINTING PROCEDURE (RP)
 HR HAND RAIL (REMOVE AND REPLACE)

LF LINEAR FEET
 SF SQUARE FEET

MW MASONRY WALL
 F FOUNDATION

WELL HOUSE NO. 10 PLAN
 SCALE: 1/2"=1'-0"



WELL HOUSE 9 REPAIR SCHEDULE					
LOCATION	REPAIR TYPE	ID	QUANTITY	PHOTOS	NOTES
F	HR	1	25 LF		REMOVE & REPLACE
F	DC	2	12 SF		

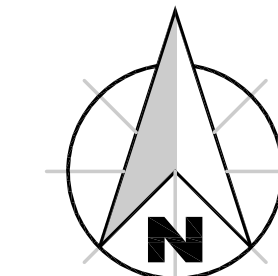
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 DC DEEP CORNER PATCH - SEE DEEP CORNER PATCH PROCEDURE (DC)
 RP REPOINTING - SEE REPOINTING PROCEDURE (RP)
 HR HAND RAIL (REMOVE AND REPLACE)

LF LINEAR FEET
 SF SQUARE FEET

MW MASONRY WALL
 F FOUNDATION

WELL HOUSE NO. 9 PLAN
 SCALE: 1/2"=1'-0"



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	PROJECT NUMBER	194717-04-006				

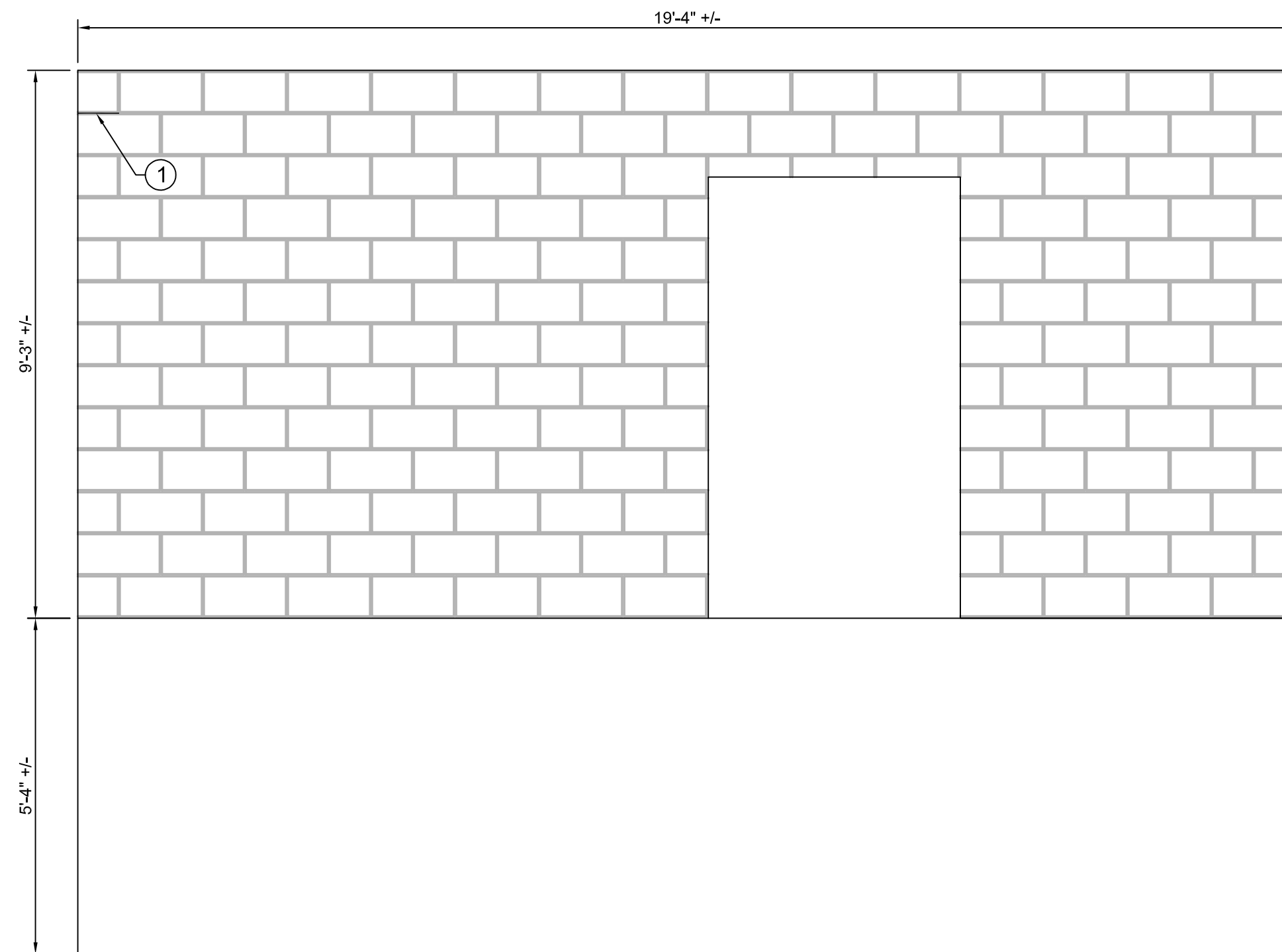
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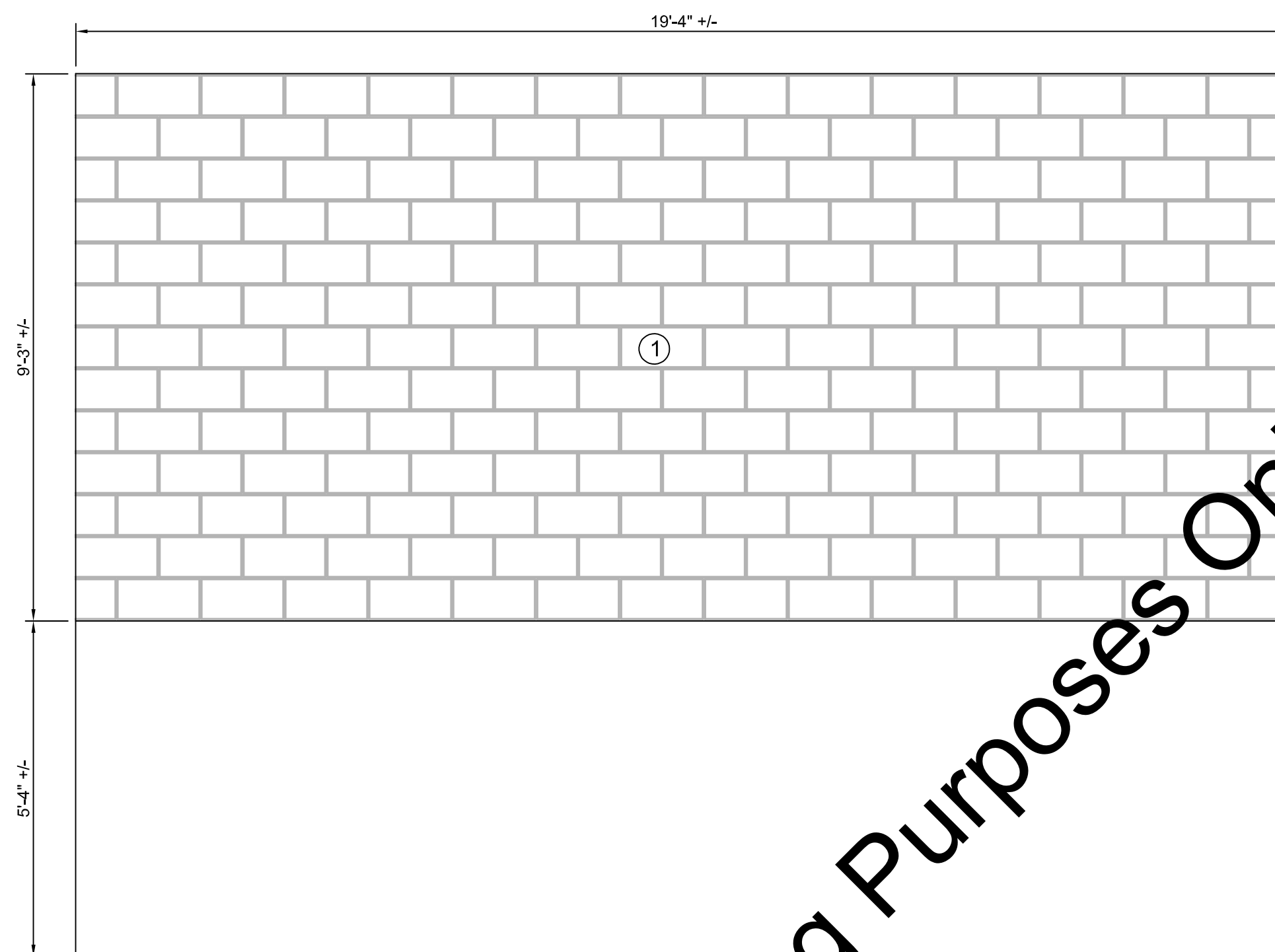
WELL HOUSE PLANS

SHEET NO.
S3

PAGE NO.
11



WELL HOUSE 9 SOUTH WALL ELEVATION
SCALE: 1/2"=1'-0"



WELL HOUSE 9 NORTH WALL ELEVATION
SCALE: 1/2"=1'-0"

WELL HOUSE 9 SOUTH WALL REPAIR SCHEDULE					
LOCATION	REPAIR TYPE	ID	QUANTITY	PHOTOS	NOTES
MW	RP	1	1 LF		

REPAIR SCHEDULE LEGEND:

- P PATCH - SEE PARTIAL DEPTH CONCRETE PATCH PROCEDURE (P)
- CG CHEMICAL GROUT - SEE CHEMICAL GROUT PROCEDURE (CG)
- DC DEEP CORNER PATCH - SEE DEEP CORNER PATCH PROCEDURE (DC)
- RP REPOINTING - SEE REPOINTING PROCEDURE (RP)
- LF LINEAR FEET
- SF SQUARE FEET
- MW MASONRY WALL
- F FOUNDATION

WELL HOUSE 9 NORTH WALL REPAIR SCHEDULE					
LOCATION	REPAIR TYPE	ID	QUANTITY	PHOTOS	NOTES
MW	RP	1	40 LF		ESTIMATED QUANTITY, SEE NOTE BELOW

REPAIR SCHEDULE LEGEND:

- P PATCH - SEE PARTIAL DEPTH CONCRETE PATCH PROCEDURE (P)
- CG CHEMICAL GROUT - SEE CHEMICAL GROUT PROCEDURE (CG)
- DC DEEP CORNER PATCH - SEE DEEP CORNER PATCH PROCEDURE (DC)
- RP REPOINTING - SEE REPOINTING PROCEDURE (RP)
- LF LINEAR FEET
- SF SQUARE FEET
- MW MASONRY WALL
- F FOUNDATION

NOTES:

1. REPAIR LOCATIONS SHOWN ARE APPROXIMATE. SEE GENERAL STRUCTURAL NOTES. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS, REPAIR LOCATIONS, AND REPAIR QUANTITIES.
2. (XX) INDICATES REPAIR DETERIORATION ID, SEE REPAIR SCHEDULE ON THIS SHEET.

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	PROJECT NUMBER	194717-04-006				

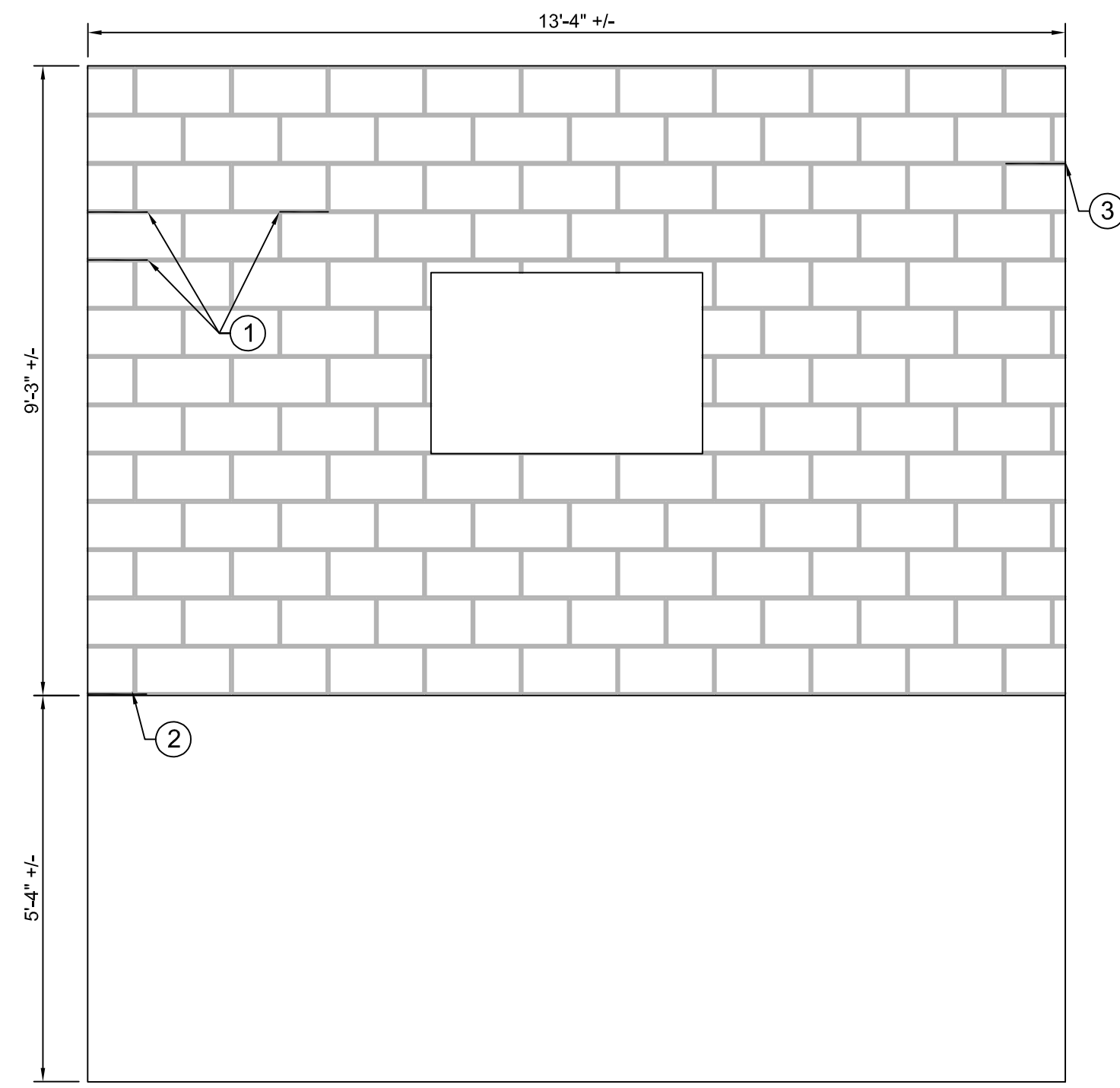
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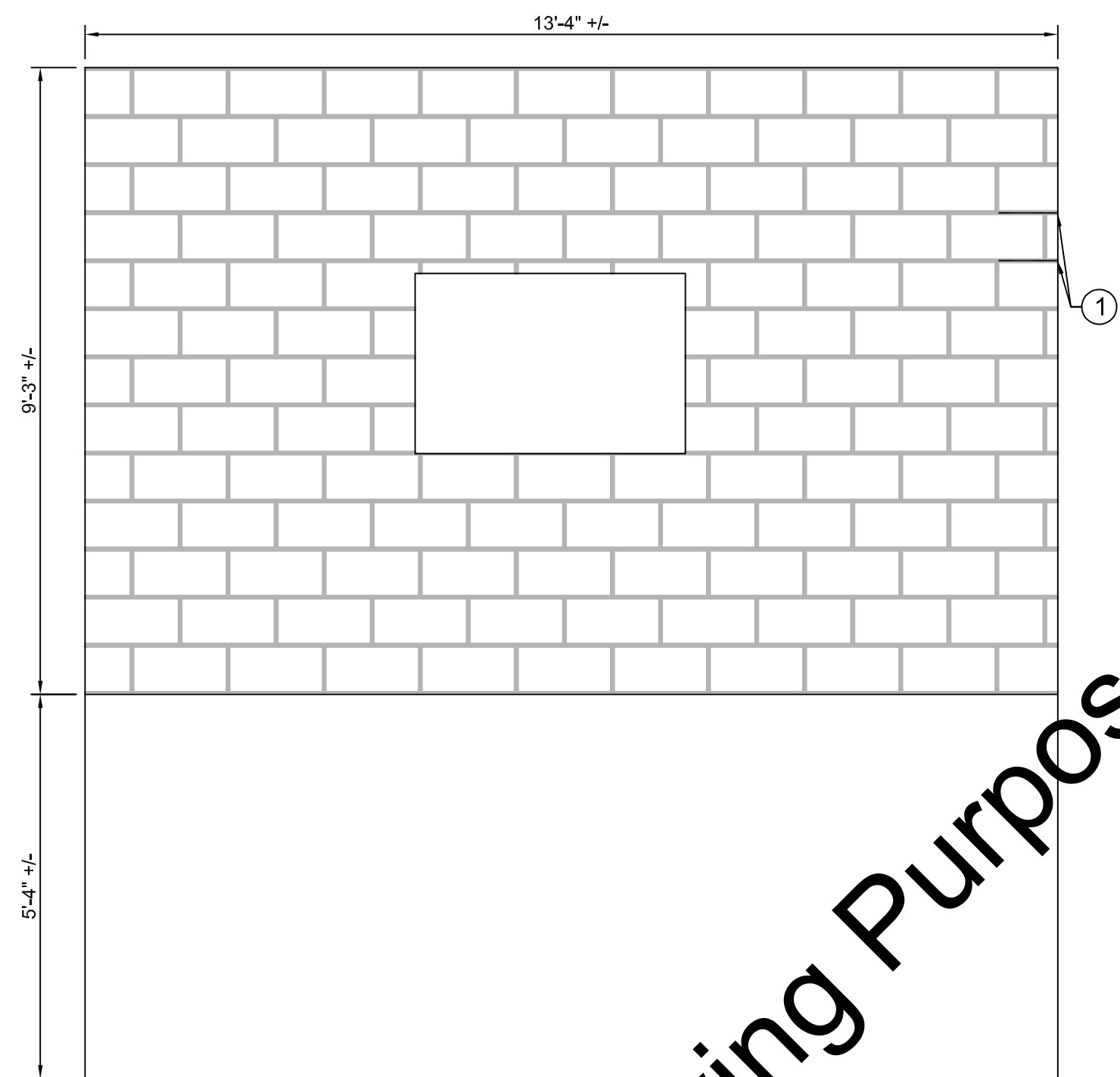
WELL HOUSE 9 ELEVATIONS - 01

SHEET NO.
S4

PAGE NO.
12



WELL HOUSE 9 WEST WALL ELEVATION
SCALE: 1/2"=1'-0"



WELL HOUSE 9 EAST WALL ELEVATION
SCALE: 1/2"=1'-0"

WELL HOUSE 9 WEST WALL REPAIR SCHEDULE					
LOCATION	REPAIR TYPE	ID	QUANTITY	PHOTOS	NOTES
MW	RP	1	3 LF		
MW	RP	2	1 LF		
MW	RP	3	1 LF		

REPAIR SCHEDULE LEGEND:

- P PATCH - SEE PARTIAL DEPTH CONCRETE PATCH PROCEDURE (P)
- CG CHEMICAL GROUT - SEE CHEMICAL GROUT PROCEDURE (CG)
- DC DEEP CORNER PATCH - SEE DEEP CORNER PATCH PROCEDURE (DC)
- RP REPOINTING - SEE REPOINTING PROCEDURE (RP)
- LF LINEAR FEET
- SF SQUARE FEET
- MW MASONRY WALL
- F FOUNDATION

WELL HOUSE 9 EAST WALL REPAIR SCHEDULE					
LOCATION	REPAIR TYPE	ID	QUANTITY	PHOTOS	NOTES
MW	RP	1	2 LF		

REPAIR SCHEDULE LEGEND:

- P PATCH - SEE PARTIAL DEPTH CONCRETE PATCH PROCEDURE (P)
- CG CHEMICAL GROUT - SEE CHEMICAL GROUT PROCEDURE (CG)
- DC DEEP CORNER PATCH - SEE DEEP CORNER PATCH PROCEDURE (DC)
- RP REPOINTING - SEE REPOINTING PROCEDURE (RP)
- LF LINEAR FEET
- SF SQUARE FEET
- MW MASONRY WALL
- F FOUNDATION

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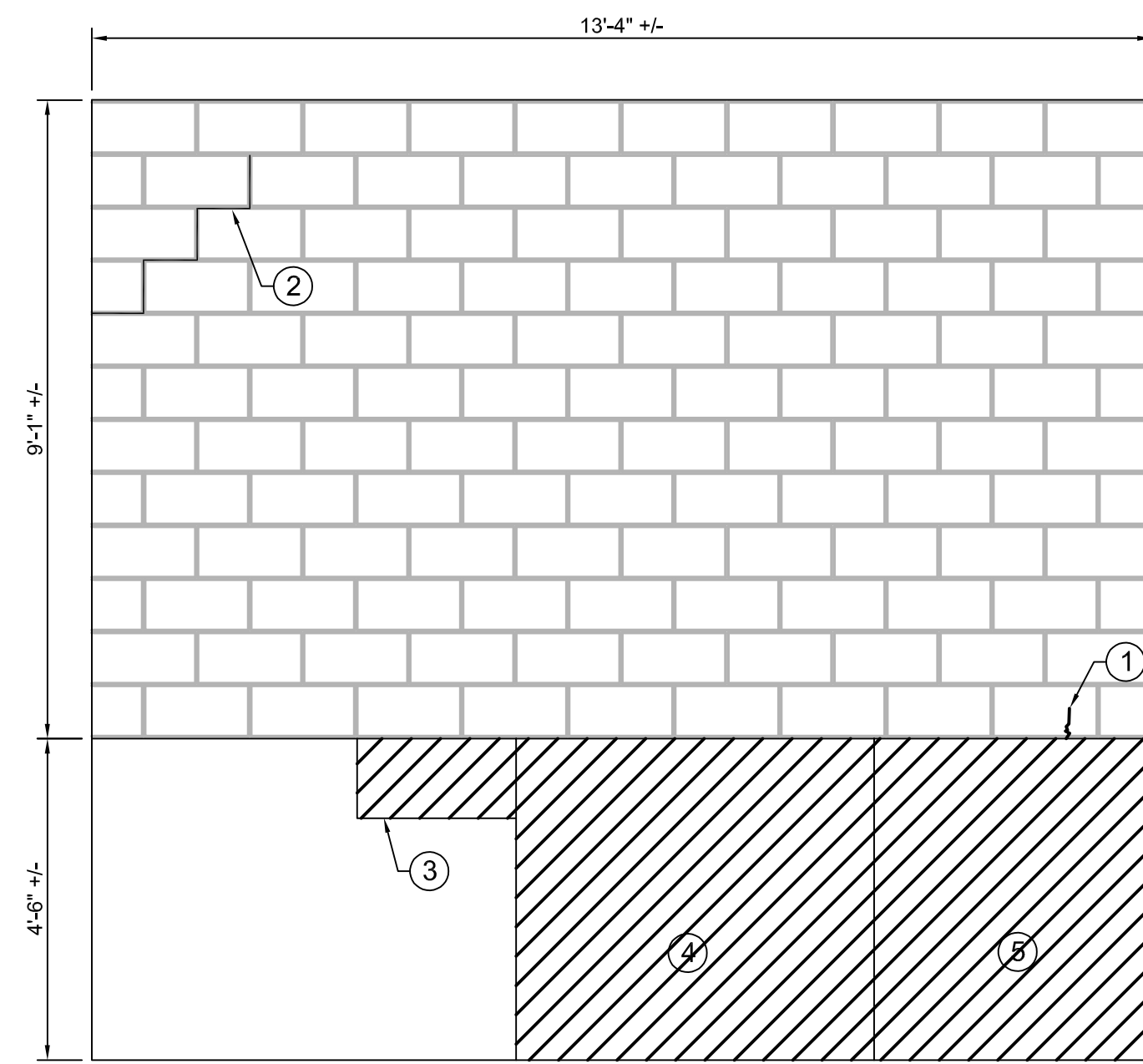
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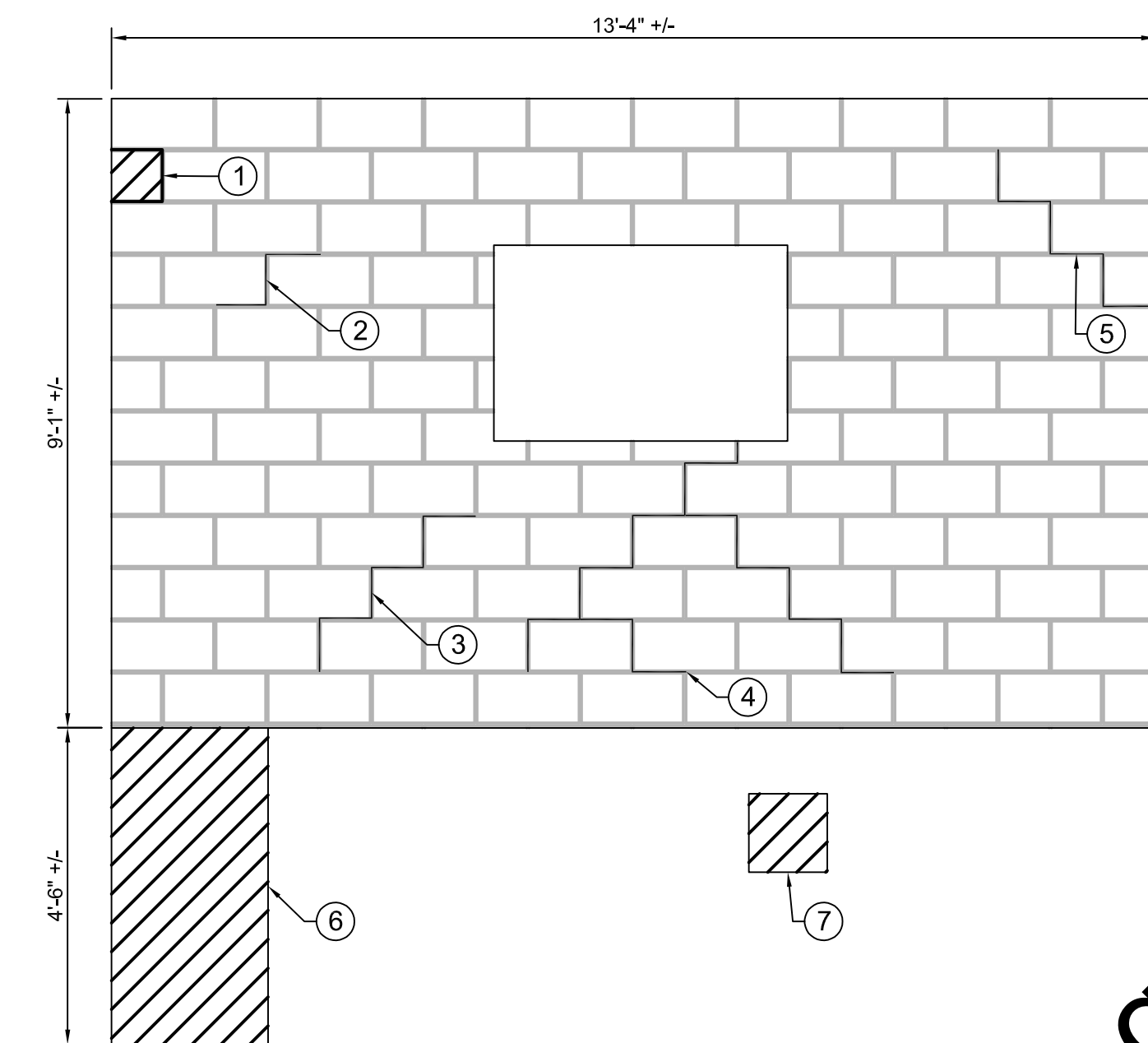
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WELL HOUSE 9 ELEVATIONS - 02



WELL HOUSE 10 EAST WALL ELEVATION
SCALE: 1/2"=1'-0"



WELL HOUSE 10 WEST WALL ELEVATION
SCALE: 1/2"=1'-0"

LOCATION	REPAIR TYPE	ID	QUANTITY	PHOTOS	NOTES
MW	CG	1	1 LF		
MW	RP	2	4 LF		
F	P	3	4 SF		
F	P	4	8 SF		
F	DC	5	14 SF		DEEP W/ EXPOSED REBAR

REPAIR SCHEDULE LEGEND:

- P PATCH - SEE PARTIAL DEPTH CONCRETE PATCH PROCEDURE (P)
- CG CHEMICAL GROUT - SEE CHEMICAL GROUT PROCEDURE (CG)
- DC DEEP CORNER PATCH - SEE DEEP CORNER PATCH PROCEDURE (DC)
- RP REPOINTING - SEE REPOINTING PROCEDURE (RP)
- LF LINEAR FEET
- SF SQUARE FEET
- MW MASONRY WALL
- F FOUNDATION

LOCATION	REPAIR TYPE	ID	QUANTITY	PHOTOS	NOTES
MW	P	1	1 SF		
MW	RP	2	2 LF		
MW	RP	3	4 LF		
MW	RP	4	12 LF		
MW	RP	5	4 LF		
F	P	6	9 SF		
F	P	7	1 SF		

REPAIR SCHEDULE LEGEND:

- P PATCH - SEE PARTIAL DEPTH CONCRETE PATCH PROCEDURE (P)
- CG CHEMICAL GROUT - SEE CHEMICAL GROUT PROCEDURE (CG)
- DC DEEP CORNER PATCH - SEE DEEP CORNER PATCH PROCEDURE (DC)
- RP REPOINTING - SEE REPOINTING PROCEDURE (RP)
- LF LINEAR FEET
- SF SQUARE FEET
- MW MASONRY WALL
- F FOUNDATION

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2. (XX) INDICATES REPAIR DETERIORATION ID, SEE REPAIR SCHEDULE ON THIS SHEET.

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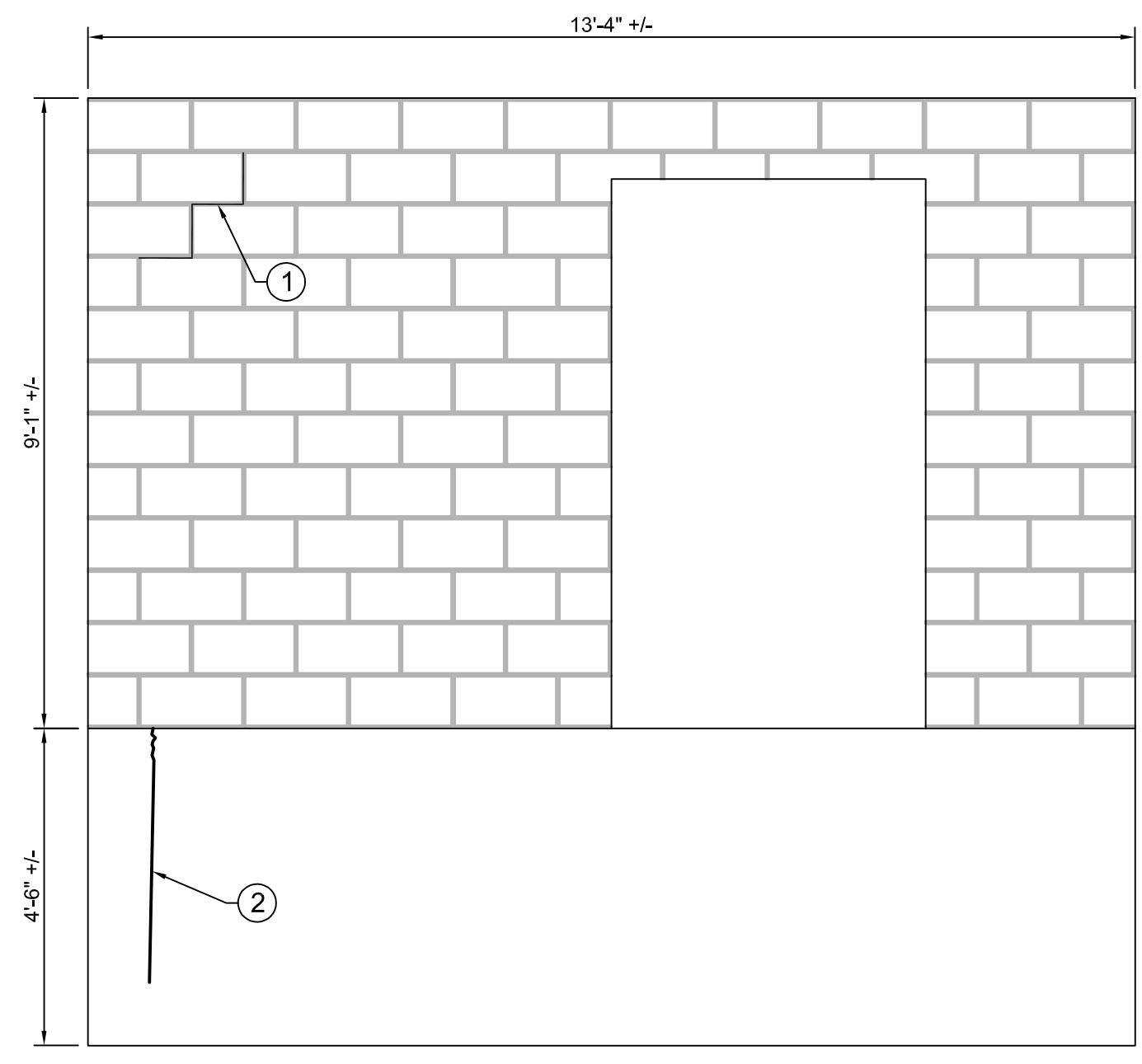
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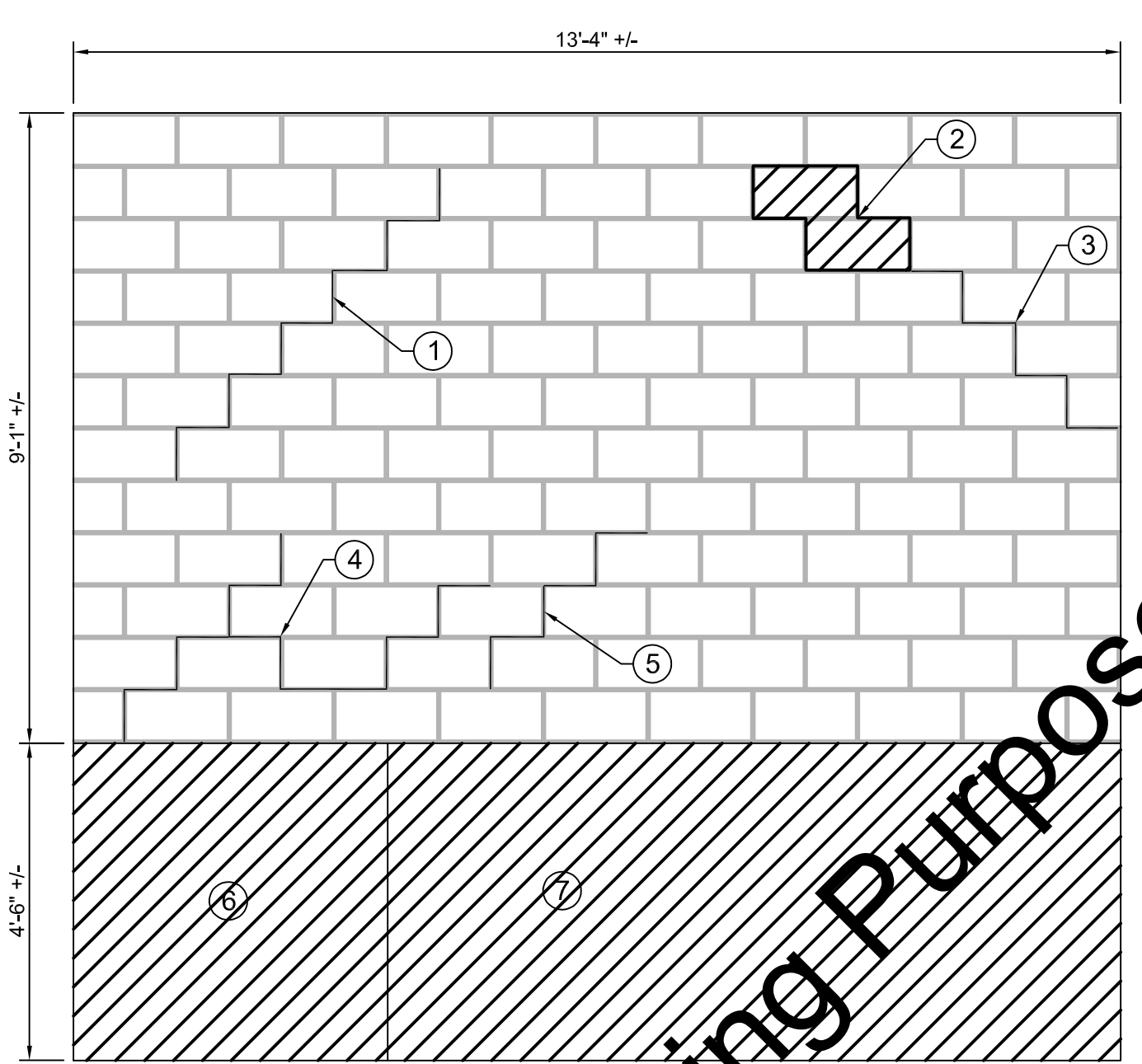
WELL HOUSE 10 ELEVATIONS - 01

SHEET NO.
S6
PAGE NO.
14

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WELL HOUSE 10 SOUTH WALL ELEVATION
SCALE: 1/2"=1'-0"



WELL HOUSE 10 NORTH WALL ELEVATION
SCALE: 1/2"=1'-0"

WELL HOUSE 10 SOUTH WALL REPAIR SCHEDULE					
LOCATION	REPAIR TYPE	ID	QUANTITY	PHOTOS	NOTES
MW	RP	1	3 LF		
F	CG	2	4		

REPAIR SCHEDULE LEGEND:
 P PATCH - SEE PARTIAL DEPTH CONCRETE PATCH PROCEDURE (P)
 CG CHEMICAL GROUT - SEE CHEMICAL GROUT PROCEDURE (CG)
 DC DEEP CORNER PATCH - SEE DEEP CORNER PATCH PROCEDURE (DC)
 RP REPOINTING - SEE REPOINTING PROCEDURE (RP)
 LF LINEAR FEET
 SF SQUARE FEET
 MW MASONRY WALL
 F FOUNDATION

WELL HOUSE 10 NORTH WALL REPAIR SCHEDULE					
LOCATION	REPAIR TYPE	ID	QUANTITY	PHOTOS	NOTES
MW	RP	1	8 LF		
MW	CG	2	2 SF		
MW	RP	3	5 LF		
MW	RP	4	10 LF		
MW	RP	5	4 LF		
F	DC	6	18 SF		DEEP W/ EXPOSED REBAR
F	P	7	43 SF		

REPAIR SCHEDULE LEGEND:
 P PATCH - SEE PARTIAL DEPTH CONCRETE PATCH PROCEDURE (P)
 CG CHEMICAL GROUT - SEE CHEMICAL GROUT PROCEDURE (CG)
 DC DEEP CORNER PATCH - SEE DEEP CORNER PATCH PROCEDURE (DC)
 RP REPOINTING - SEE REPOINTING PROCEDURE (RP)
 LF LINEAR FEET
 SF SQUARE FEET
 MW MASONRY WALL
 F FOUNDATION

NOTES:
 1. REPAIR LOCATIONS SHOWN ARE APPROXIMATE. SEE GENERAL STRUCTURAL NOTES. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS, REPAIR LOCATIONS, AND REPAIR QUANTITIES.
 2. (XX) INDICATES REPAIR DETERIORATION ID, SEE REPAIR SCHEDULE ON THIS SHEET.

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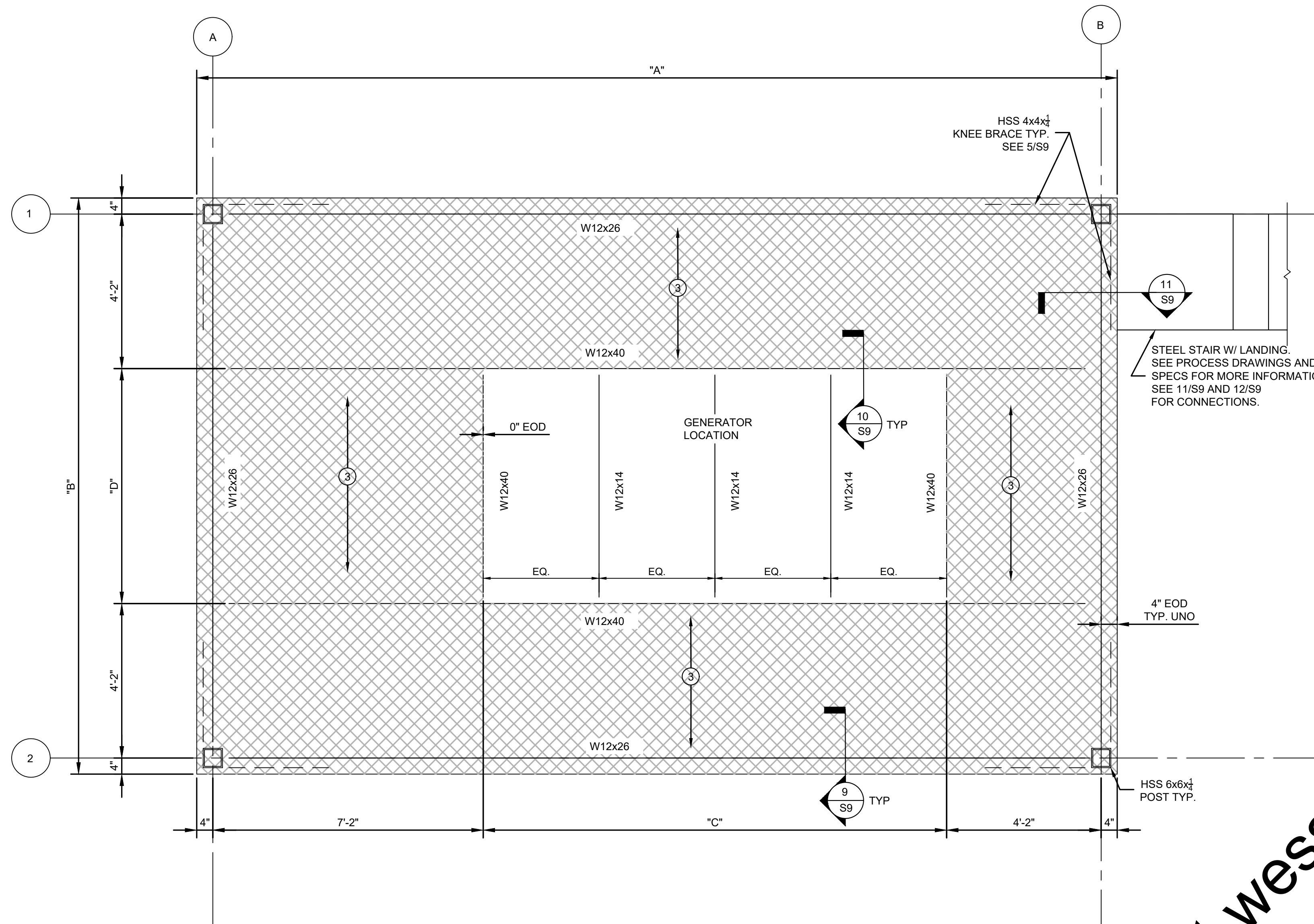
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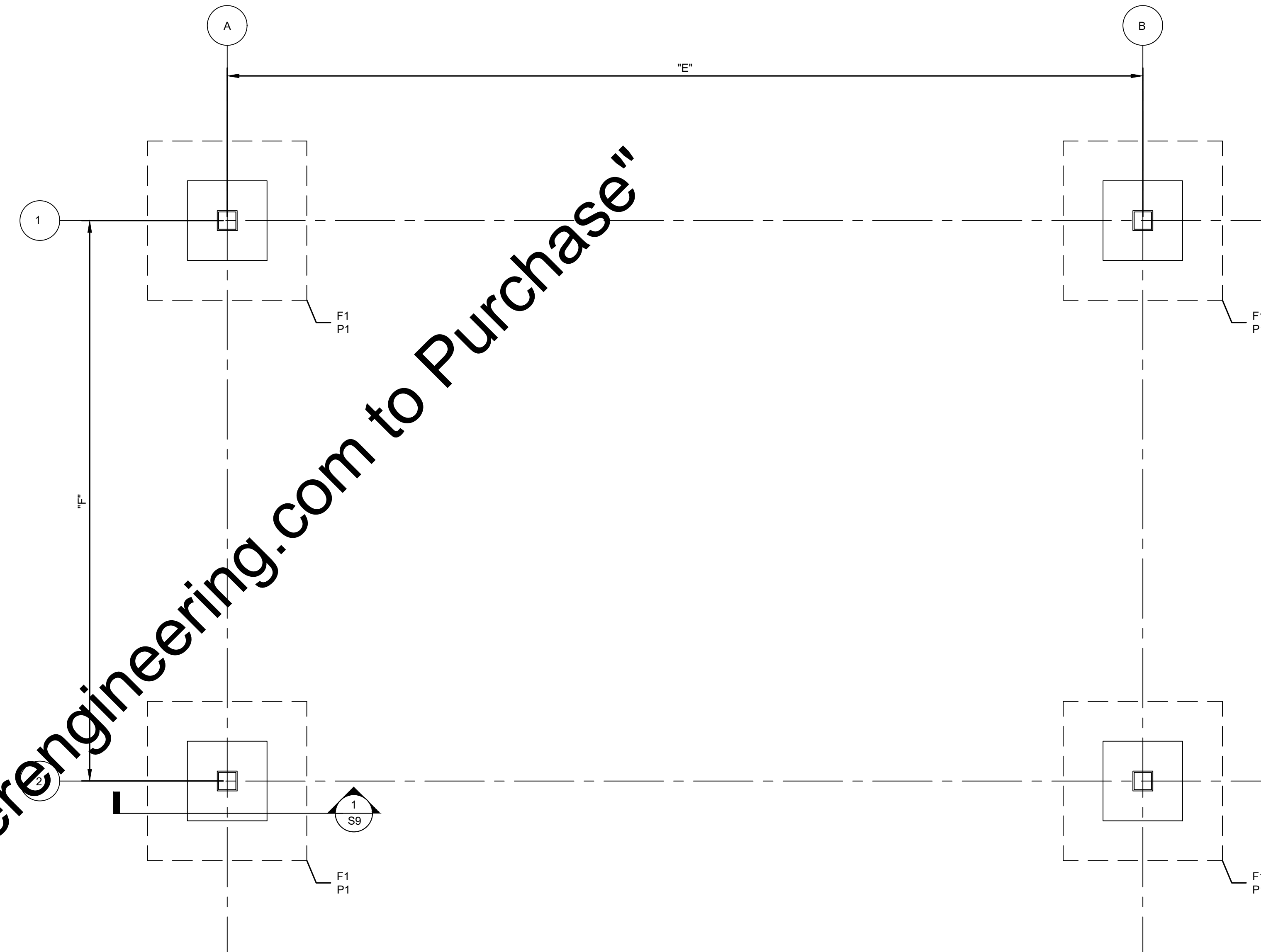
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WELL HOUSE 10 ELEVATIONS - 02



GENERATOR PLATFORM FRAMING PLAN
SCALE: 1/2"=1'-0"



GENERATOR PLATFORM FOUNDATION PLAN
SCALE: 1/2"=1'-0"

FRAMING PLAN NOTES:

- INDICATES NOTE REFERENCED IN PLAN
- 1. SEE SHEETS S1 AND S9 FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
- 2. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION, OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
- 3. 1 1/2 x 1/8 STEEL FLOOR GRATING. FASTEN TO STEEL SUPPORTS WITH STANDARD MANUFACTURED SADDLE CLIPS.
- 4. ALL STRUCTURAL STEEL TO BE HOT-DIPPED GALVANIZED, G90 FINISH.
- 5. CONTRACTOR SHALL COORDINATE THE GRATING OPENING WITH THE GENERATOR SIZE.

FRAMING PLAN DIMENSION SCHEDULE

LOCATION	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D	T/GRATING ELEVATION	T/STEEL ELEVATION
WELL NO. 8	19'-6"	11'-9"	7'-6"	2'-9"	762.50'	762.35'
WELL NO. 10	19'-6"	11'-9"	7'-6"	2'-9"	764.30'	764.15'
WELL NO. 15R	23'-0"	14'-1"	11'-0"	5'-1"	765.50'	765.35'

FOUNDATION PLAN NOTES:

- INDICATES NOTE REFERENCED IN PLAN
- 1. SEE SHEETS S1 AND S9 FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
- 2. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION, OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
- 3. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
- 4. SEE SPECIFICATION 02200 FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS.

FOUNDATION PLAN DIMENSION SCHEDULE

LOCATION	DIMENSION E	DIMENSION F	EXISTING GRADE ELEVATION	T/FOOTING ELEVATION	T/PEDESTAL ELEVATION
WELL NO. 8	18'-10"	11'-1"	754.30'	751.30'	754.80'
WELL NO. 10	18'-10"	11'-1"	756.10'	753.10'	756.60'
WELL NO. 15R	22'-4"	13'-5"	757.30'	754.30'	757.80'

FOUNDATION SCHEDULE

MARK	LENGTH	WIDTH	THICKNESS	REINFORCEMENT
F1	4'-0"	4'-0"	1'-0"	(5) #3 BARS EACH WAY, TOP AND BOTTOM

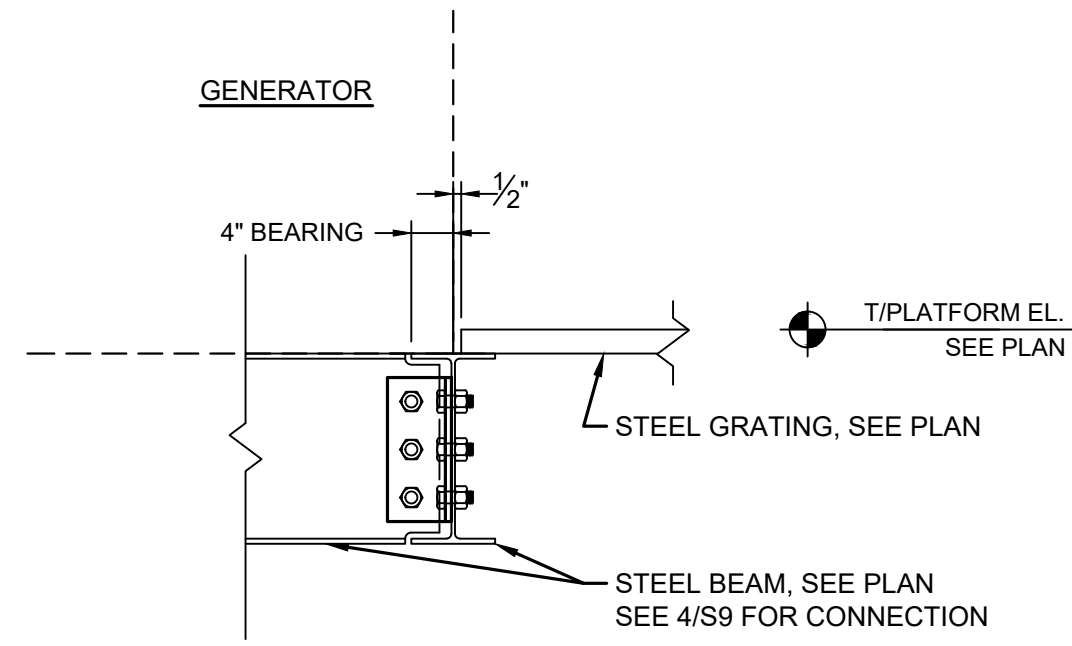
PEDESTAL SCHEDULE

MARK	LENGTH	WIDTH	VERT. REINF.	TIES
P1	1'-3"	1'-3"	(4) - #8	3 x #3 AT 3" O.C TOP, #3 AT 12" O.C. REMAINDER

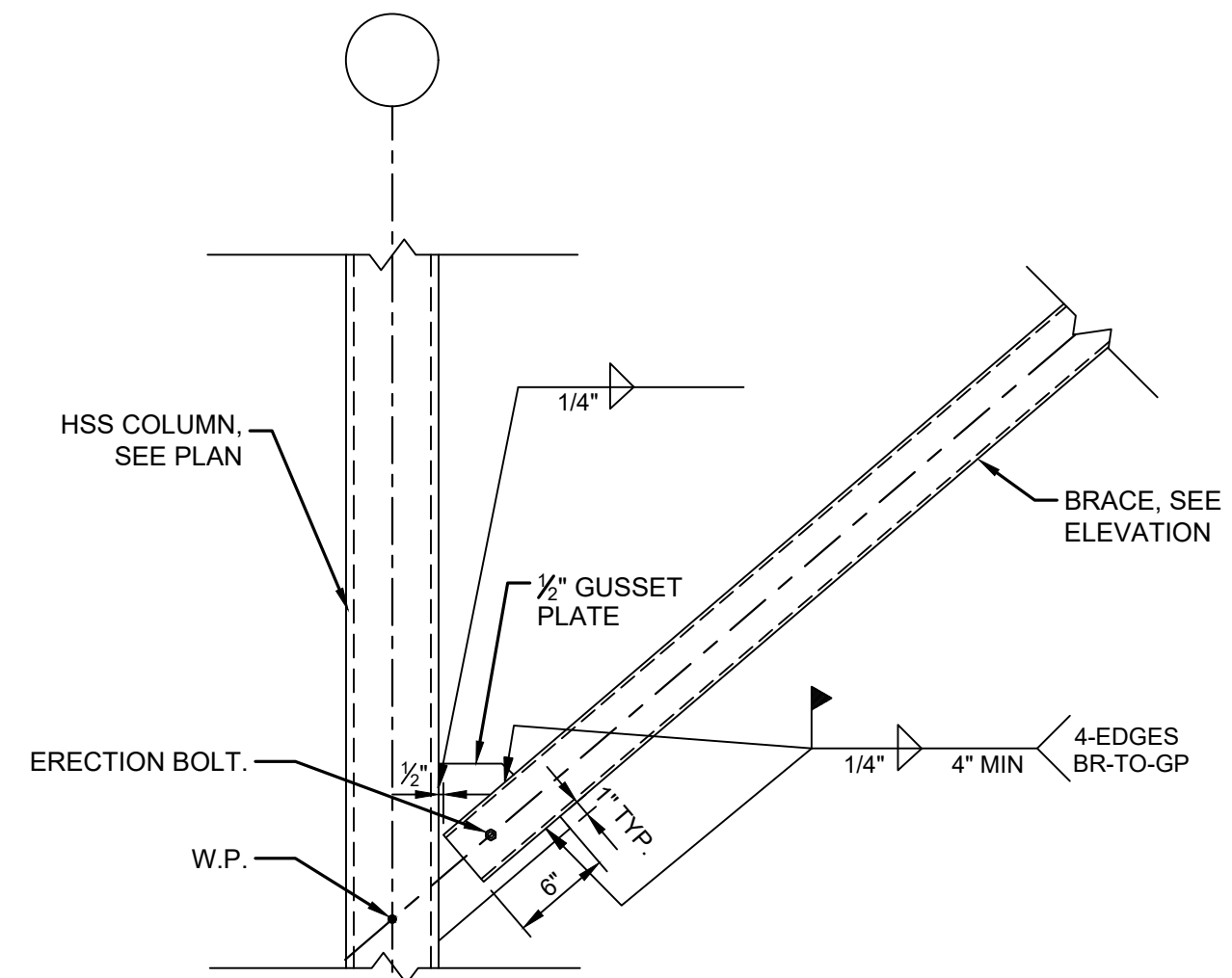
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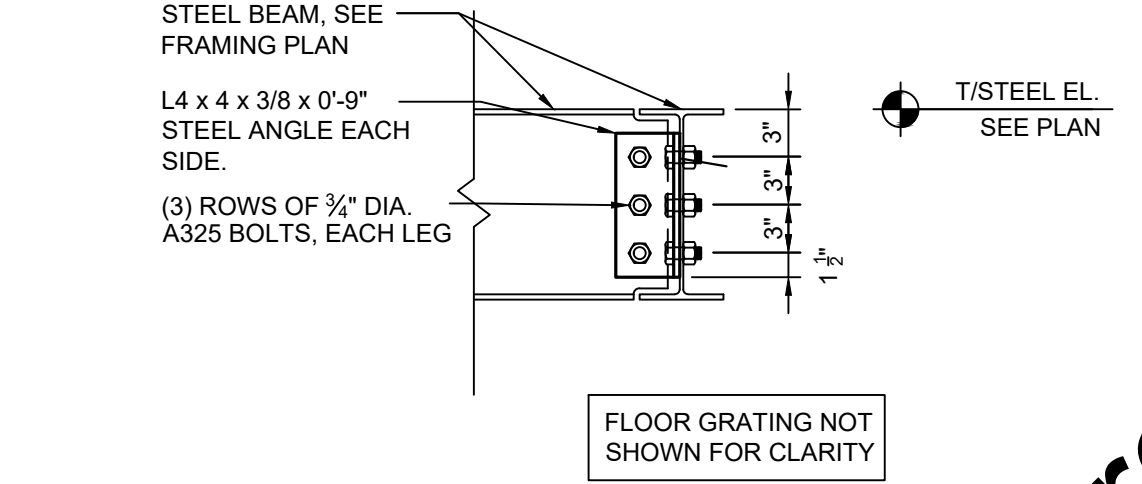
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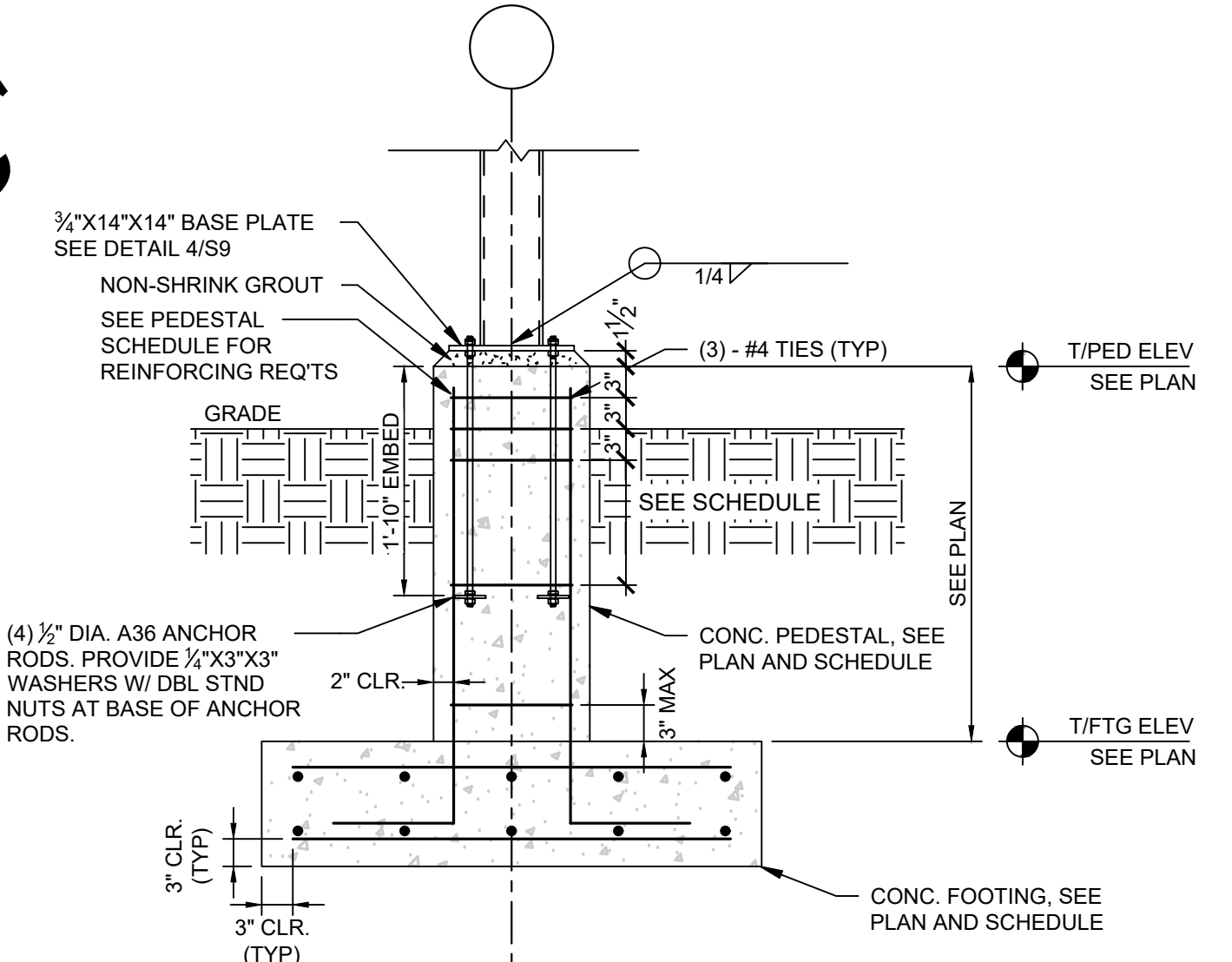
GENERATOR SUPPORT BEAM DETAIL
SCALE: 1 1/2" = 1'-0" 10
S9



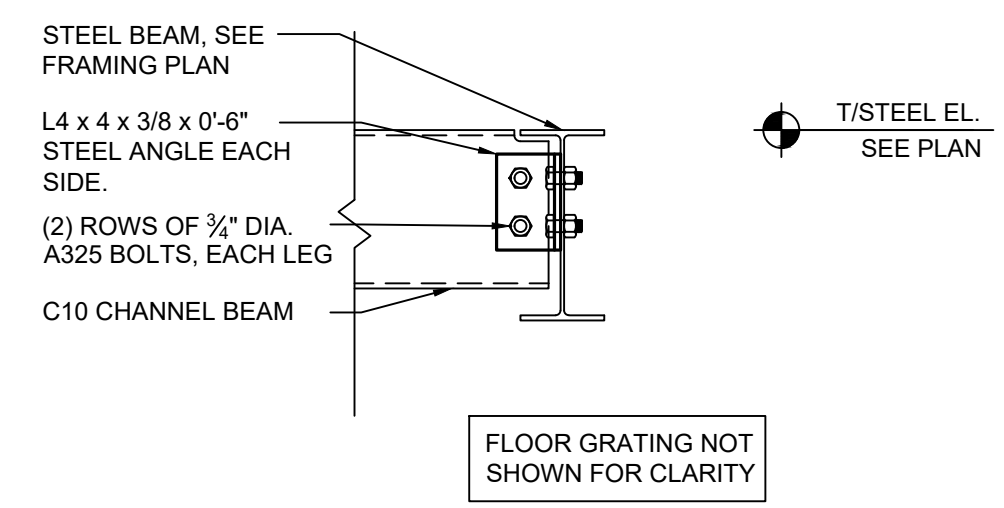
TYPICAL KNEE BRACE DETAIL
SCALE: 1" = 1'-0" 7
S9



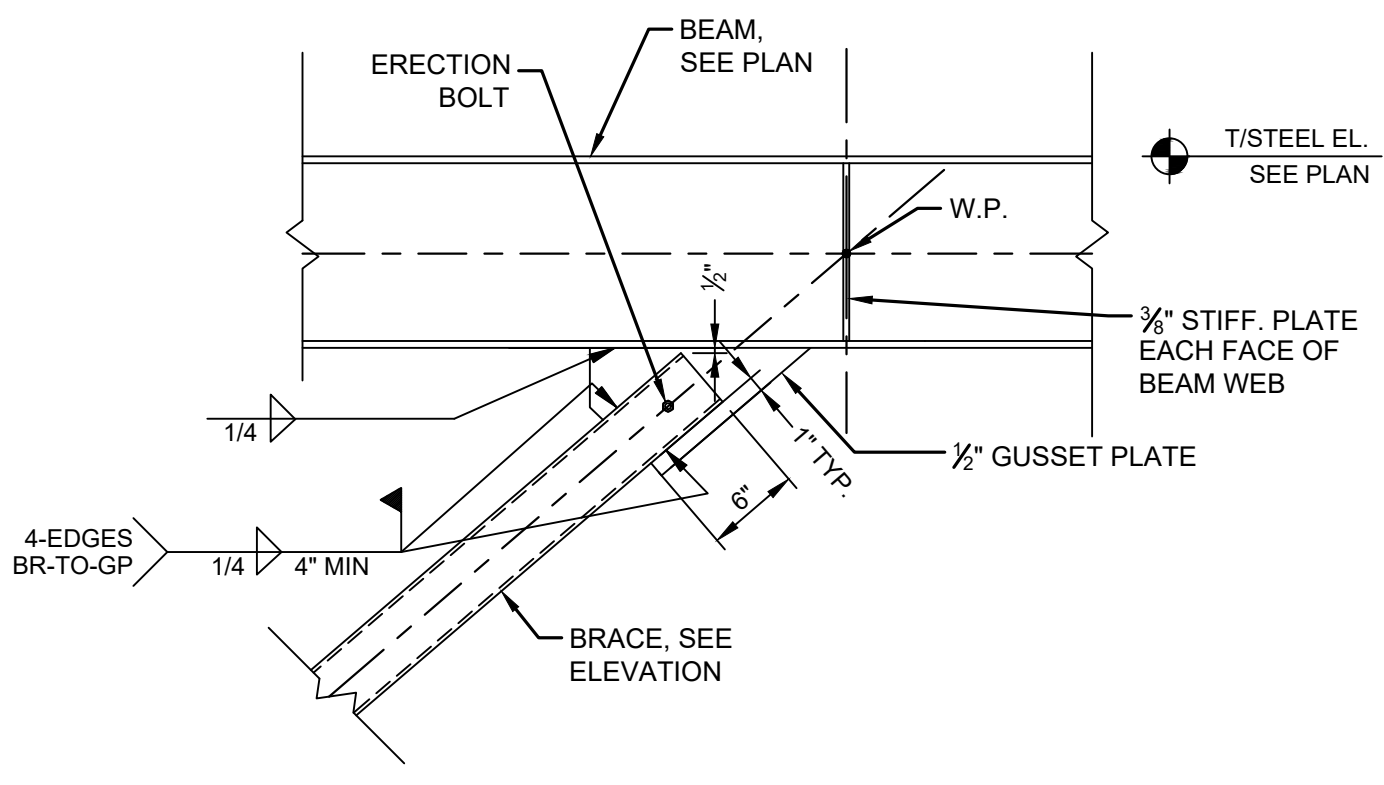
TYPICAL BEAM TO BEAM CONNECTION
SCALE: 1" = 1'-0" 4
S9



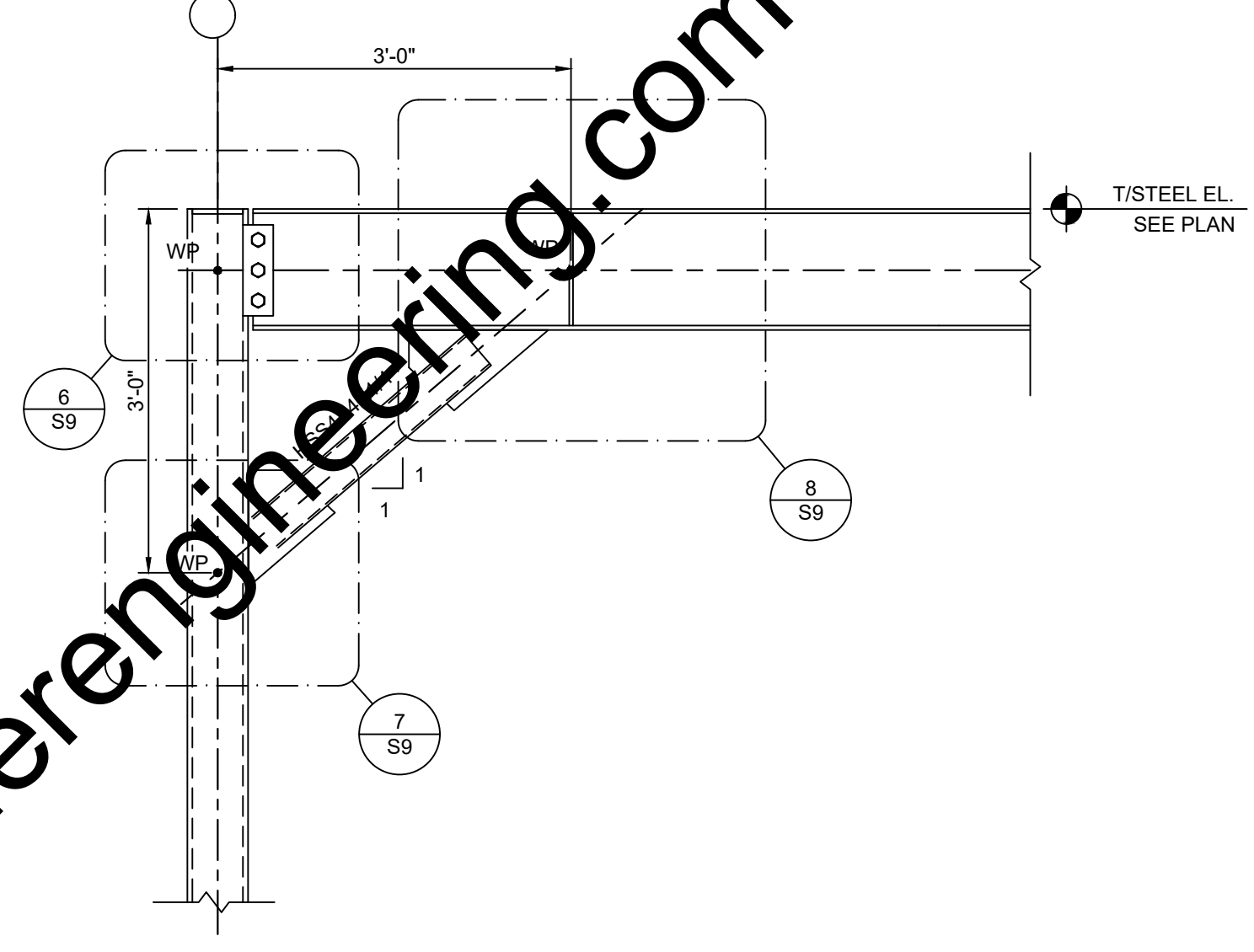
FOUNDATION AND PEDESTAL DETAIL
SCALE: 3/4" = 1'-0" 1
S9



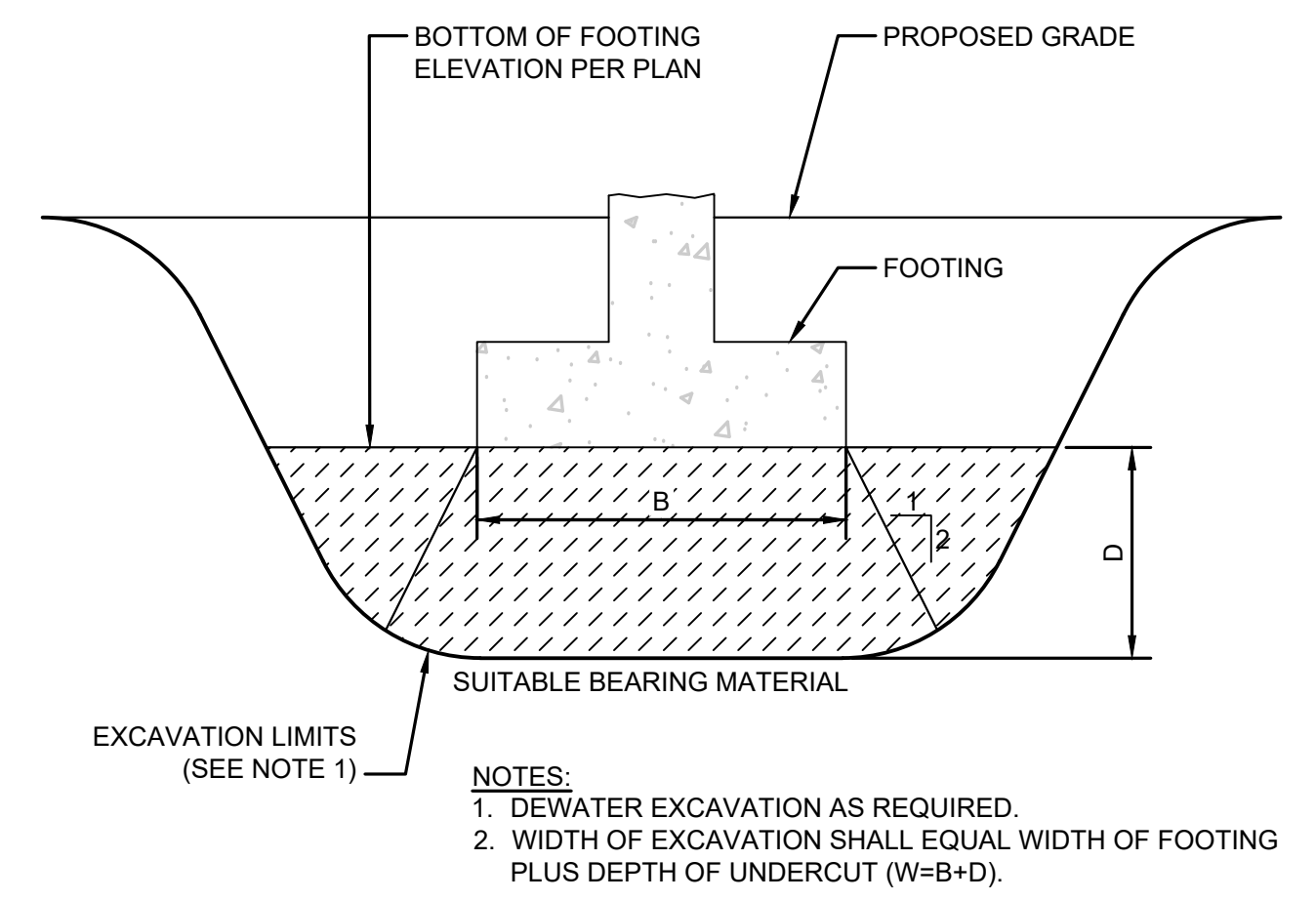
TYPICAL STAIR CONNECTION DETAIL
SCALE: 1" = 1'-0" 11
S9



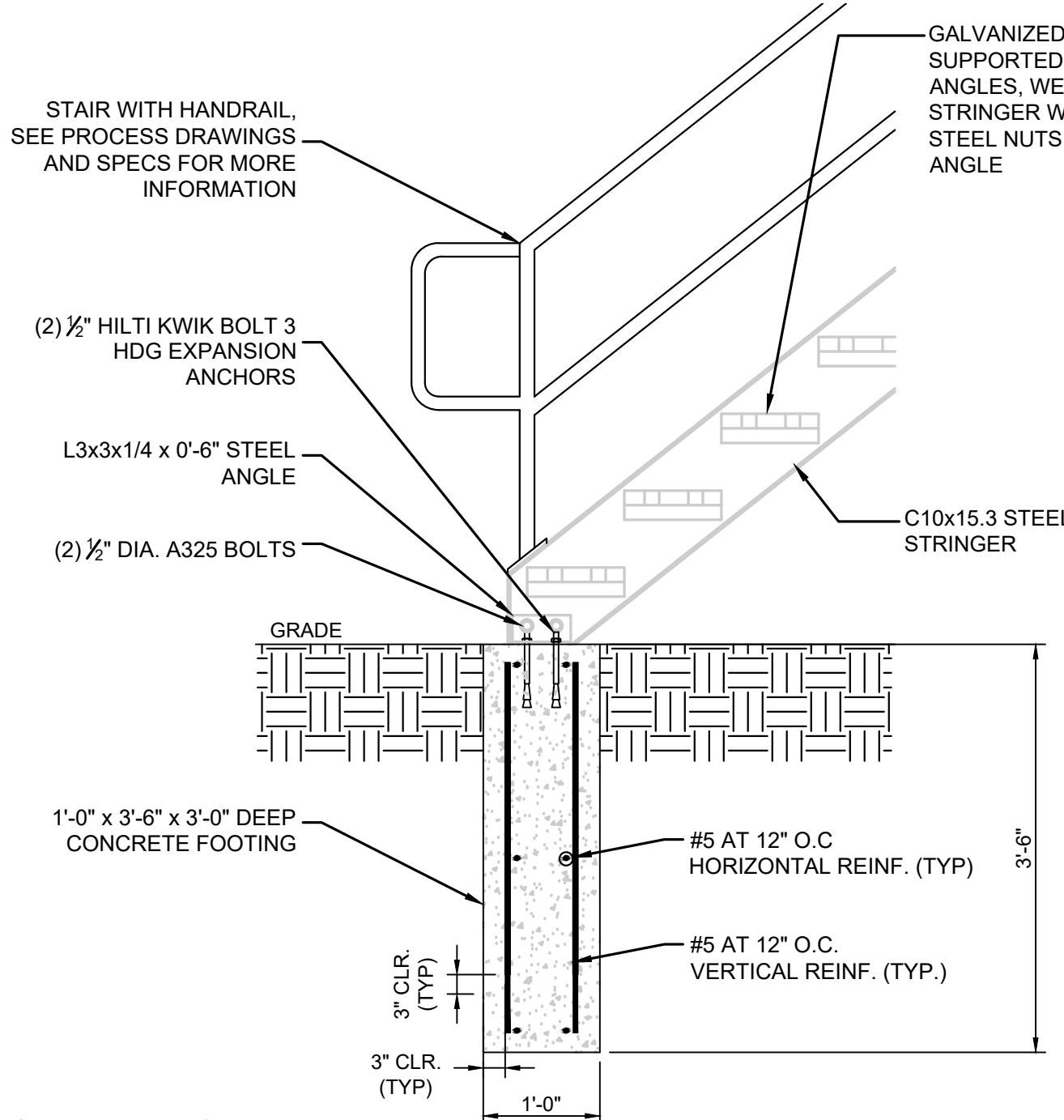
TYPICAL KNEE BRACE DETAIL
SCALE: 1" = 1'-0" 8
S9



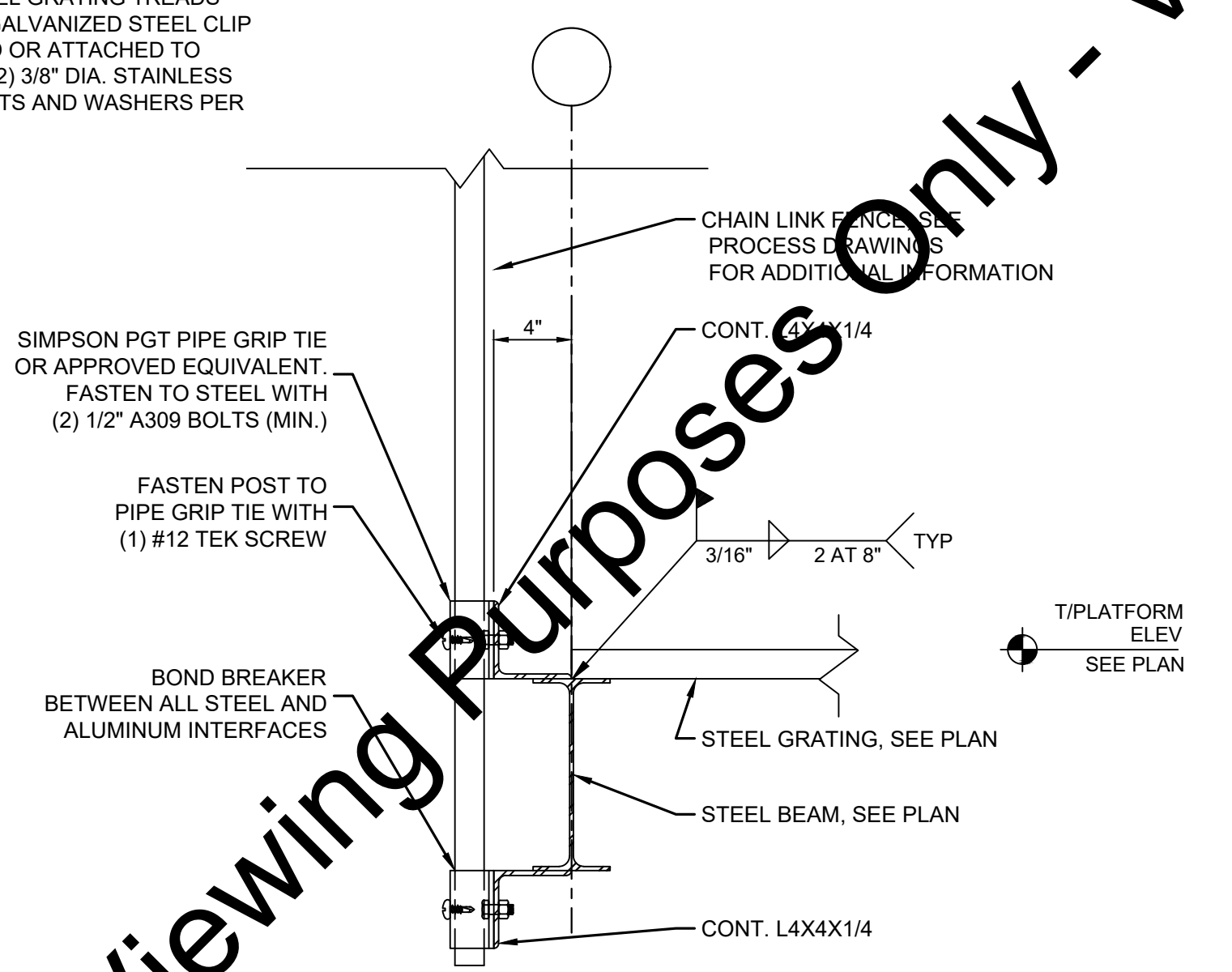
TYPICAL KNEE BRACE ELEVATION
SCALE: 3/4" = 1'-0" 5
S9



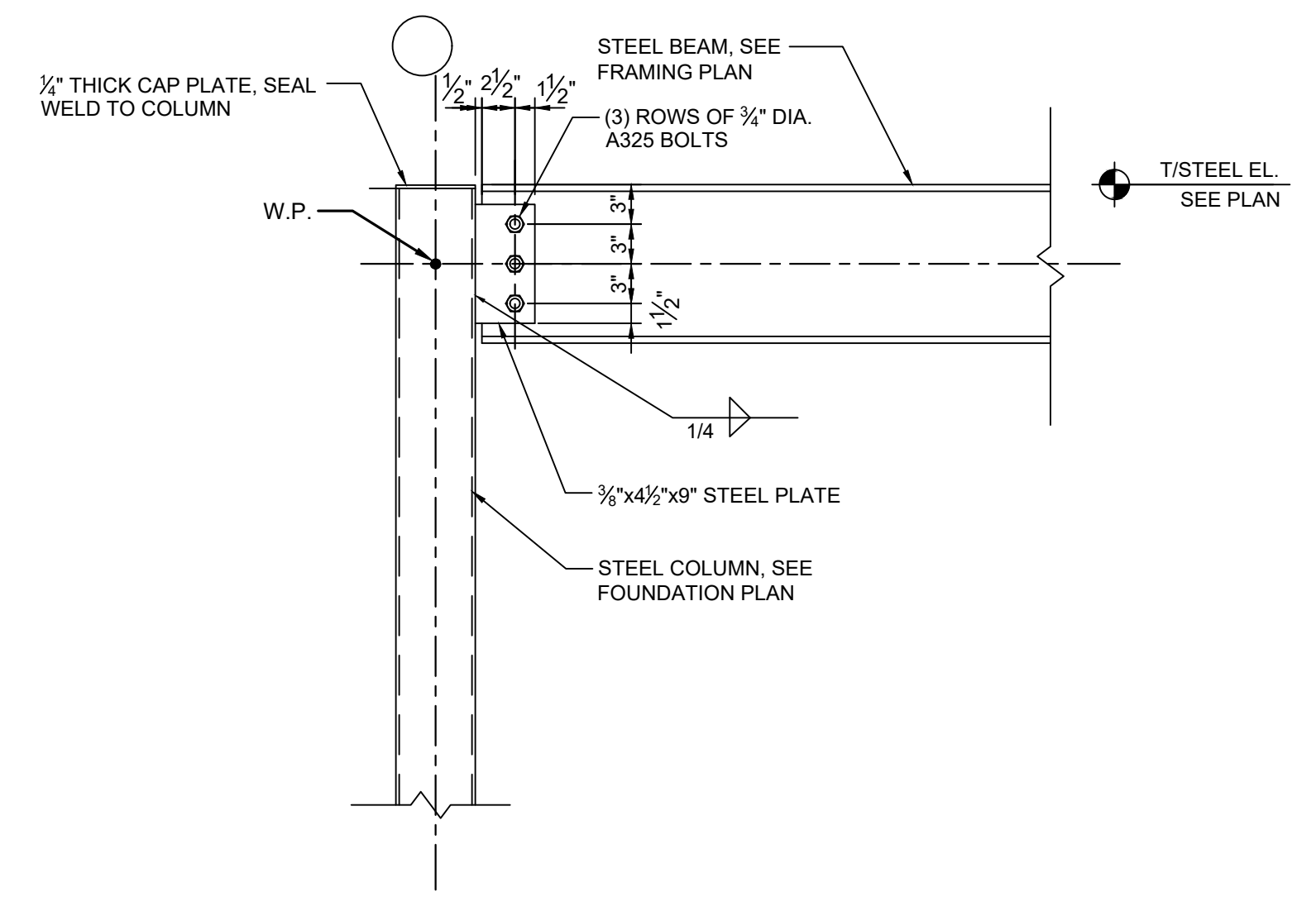
TYP. FOOTING IN UNDERCUT AREA
SCALE: 1" = 1'-0" 2
S9



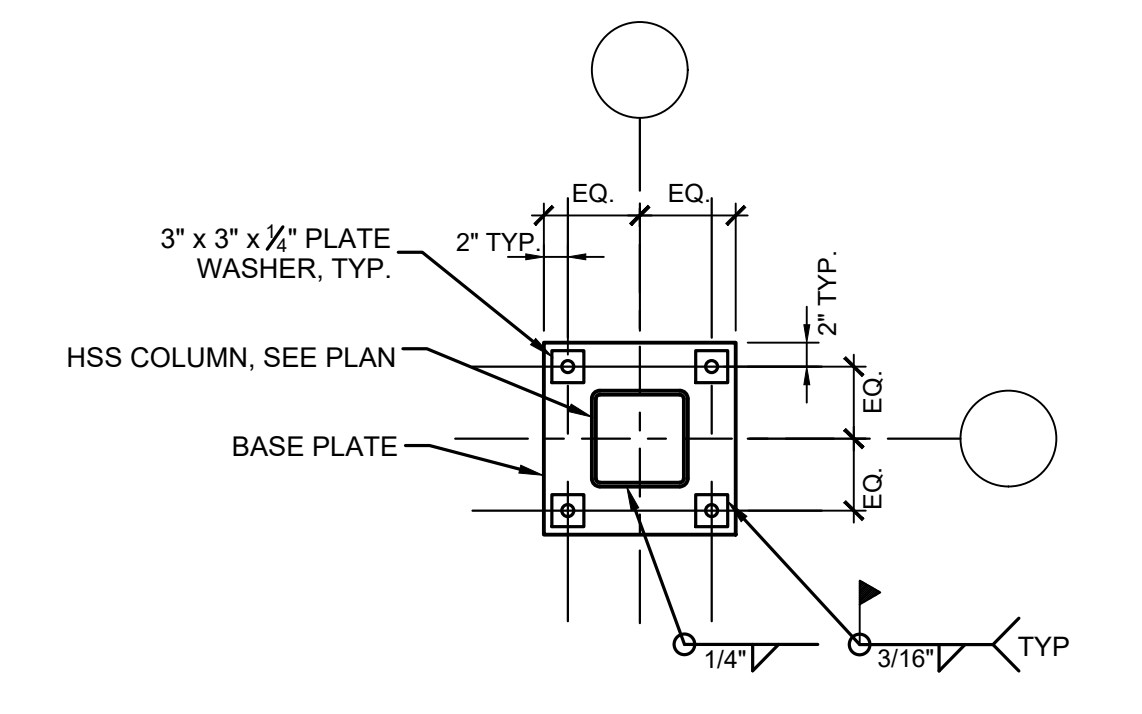
STAIR BASE DETAIL
SCALE: 3/4" = 1'-0" 12
S9



TYPICAL FENCE DETAIL
SCALE: 1 1/2" = 1'-0" 9
S9



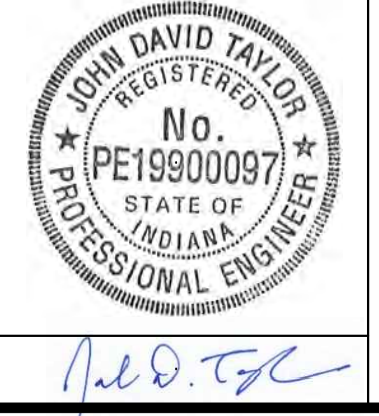
TYPICAL BEAM TO COLUMN CONNECTION
SCALE: 1" = 1'-0" 6
S9



BASE PLATE DETAIL
SCALE: 1" = 1'-0" 3
S9

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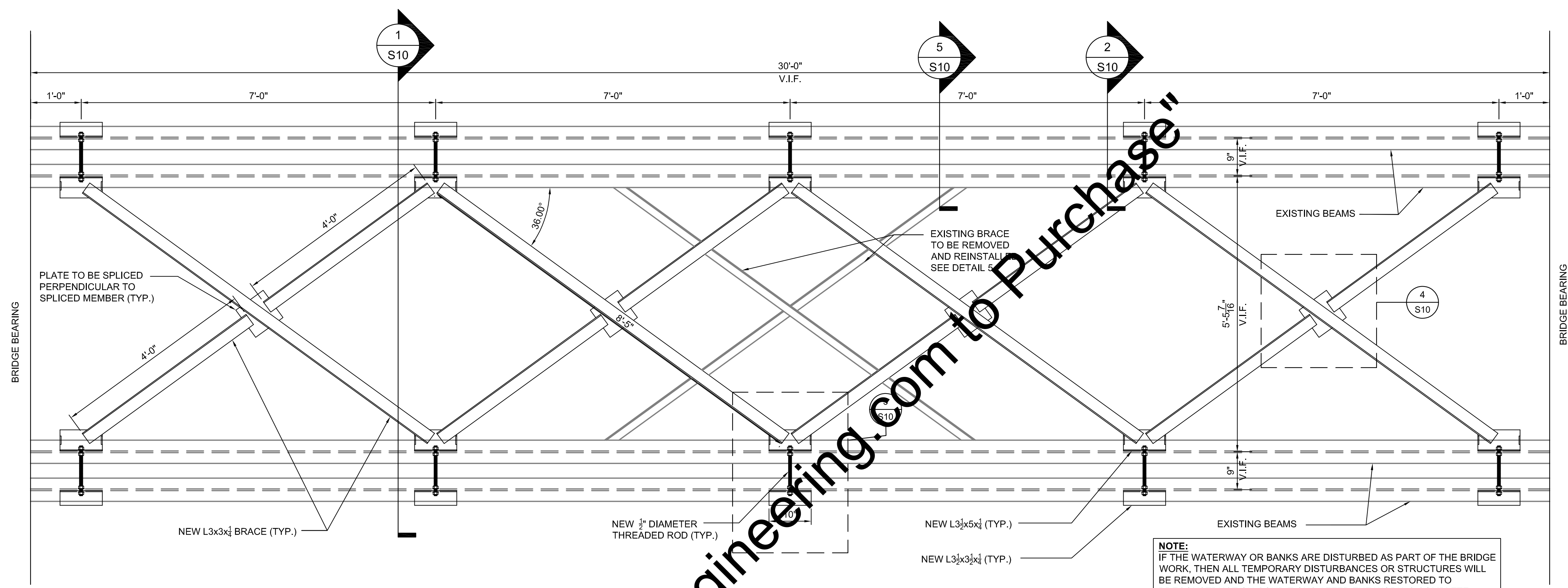


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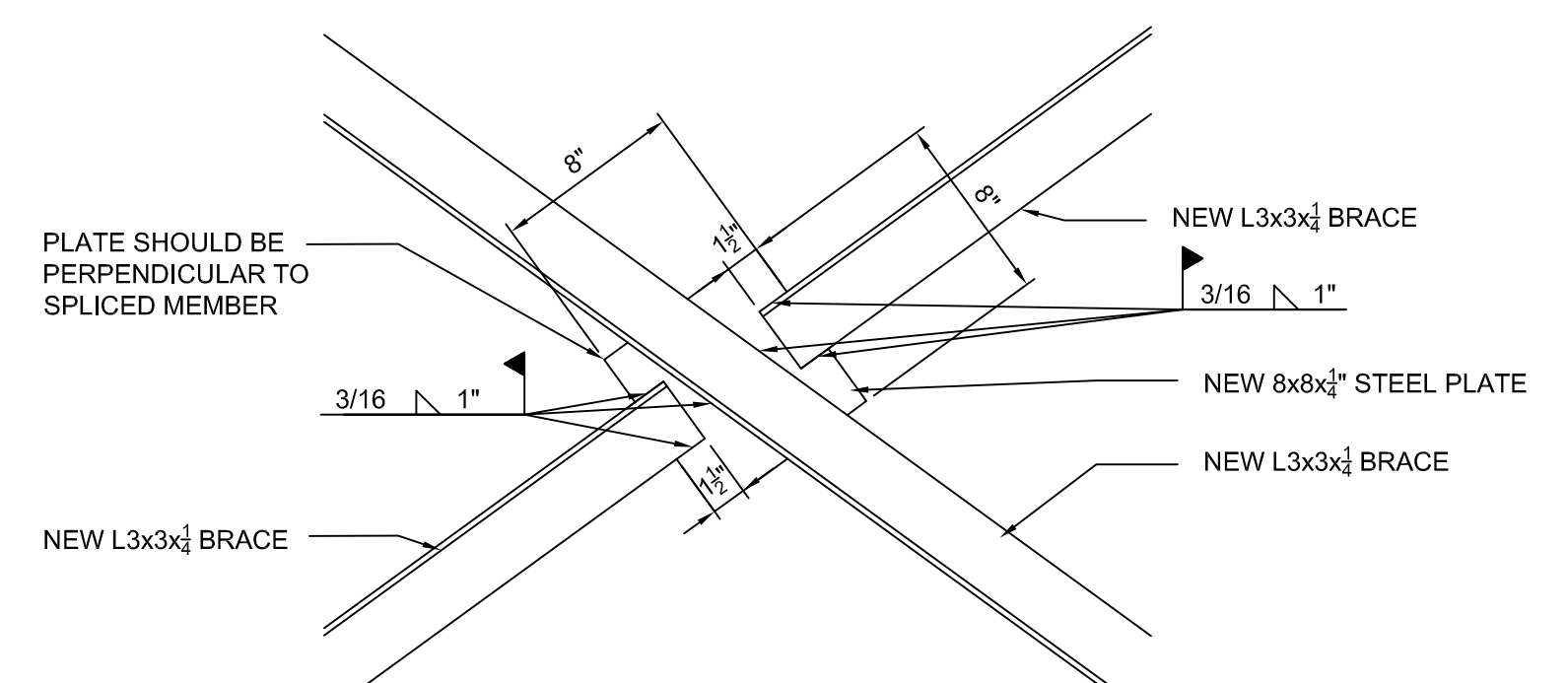
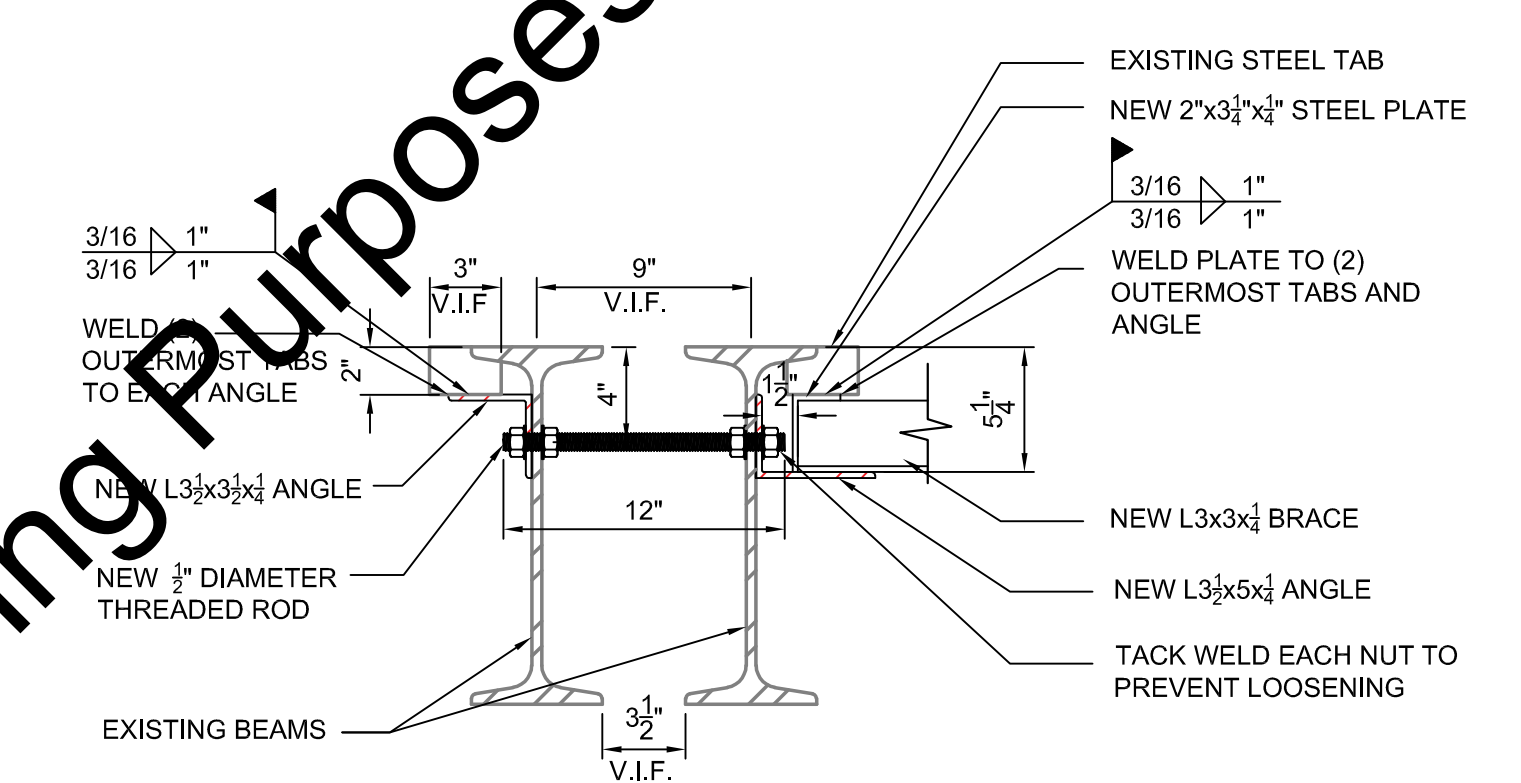
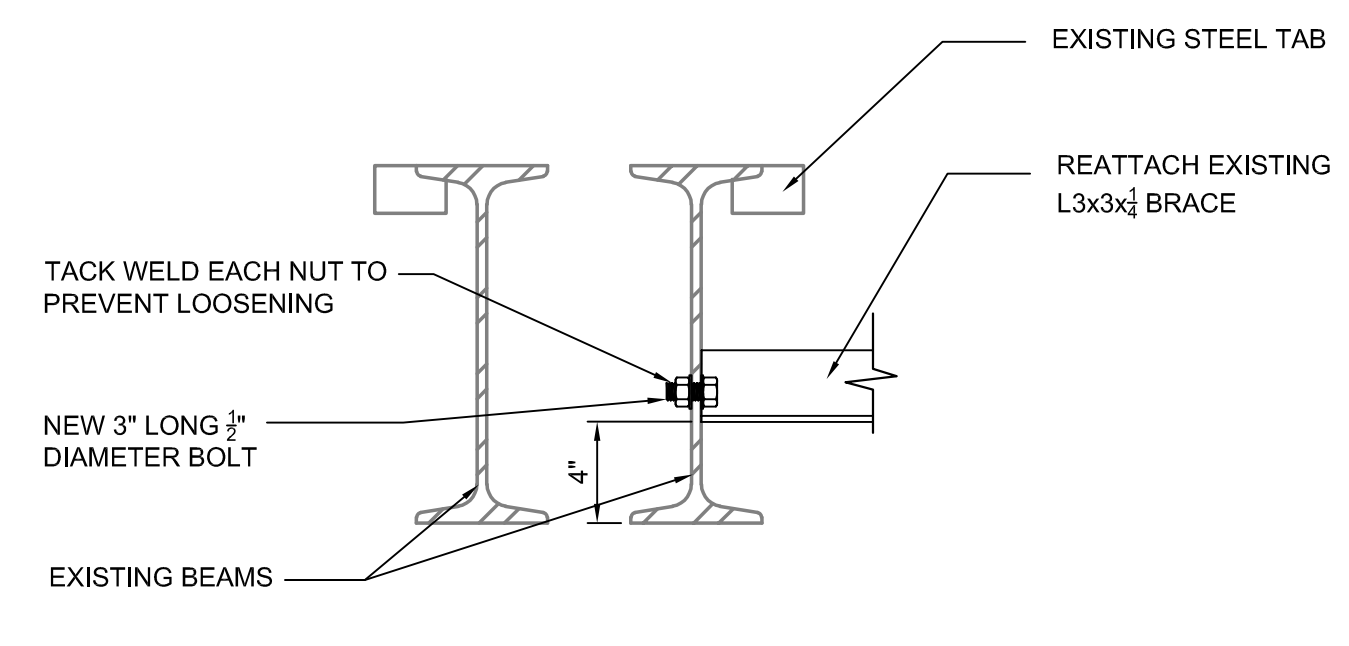
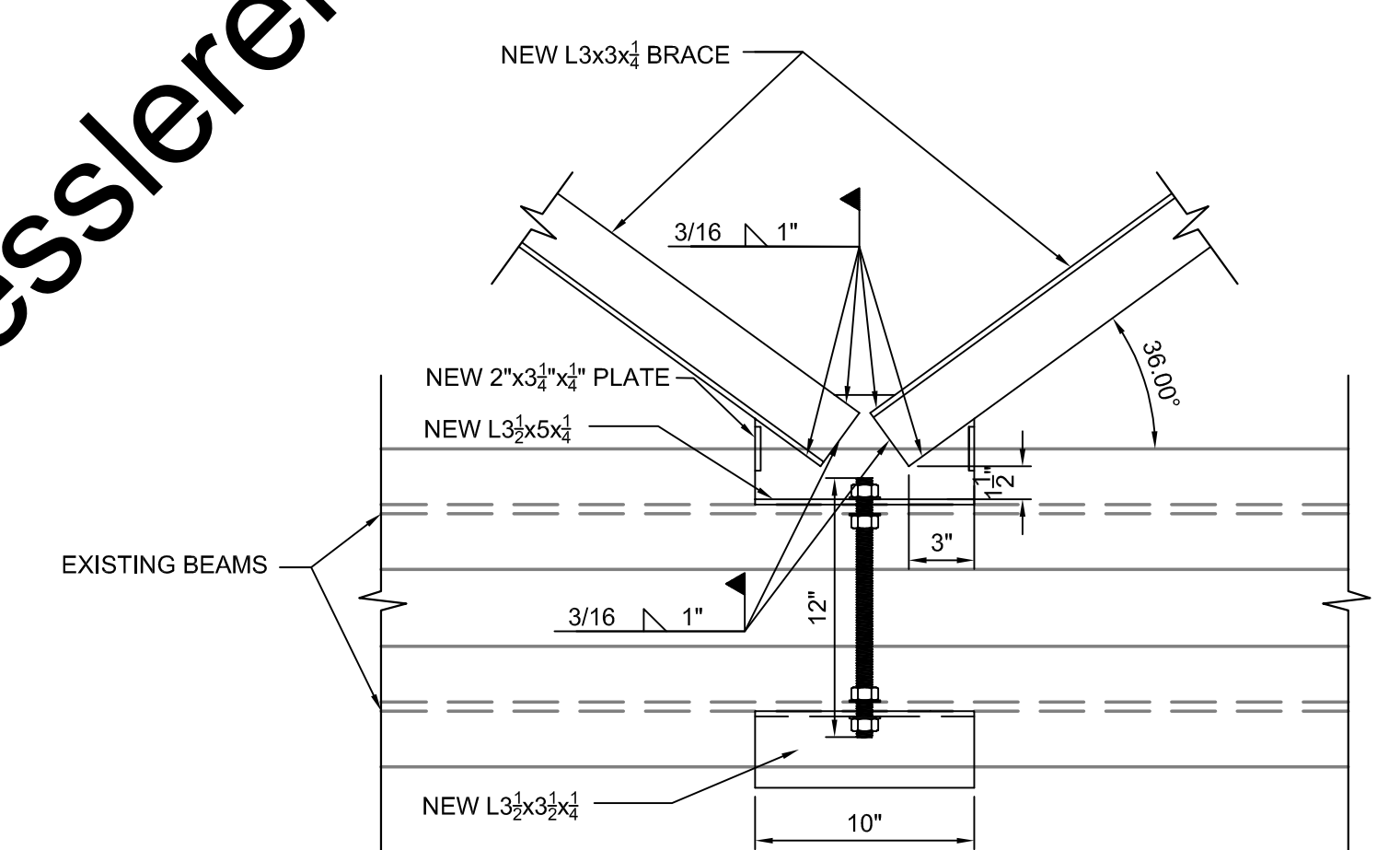
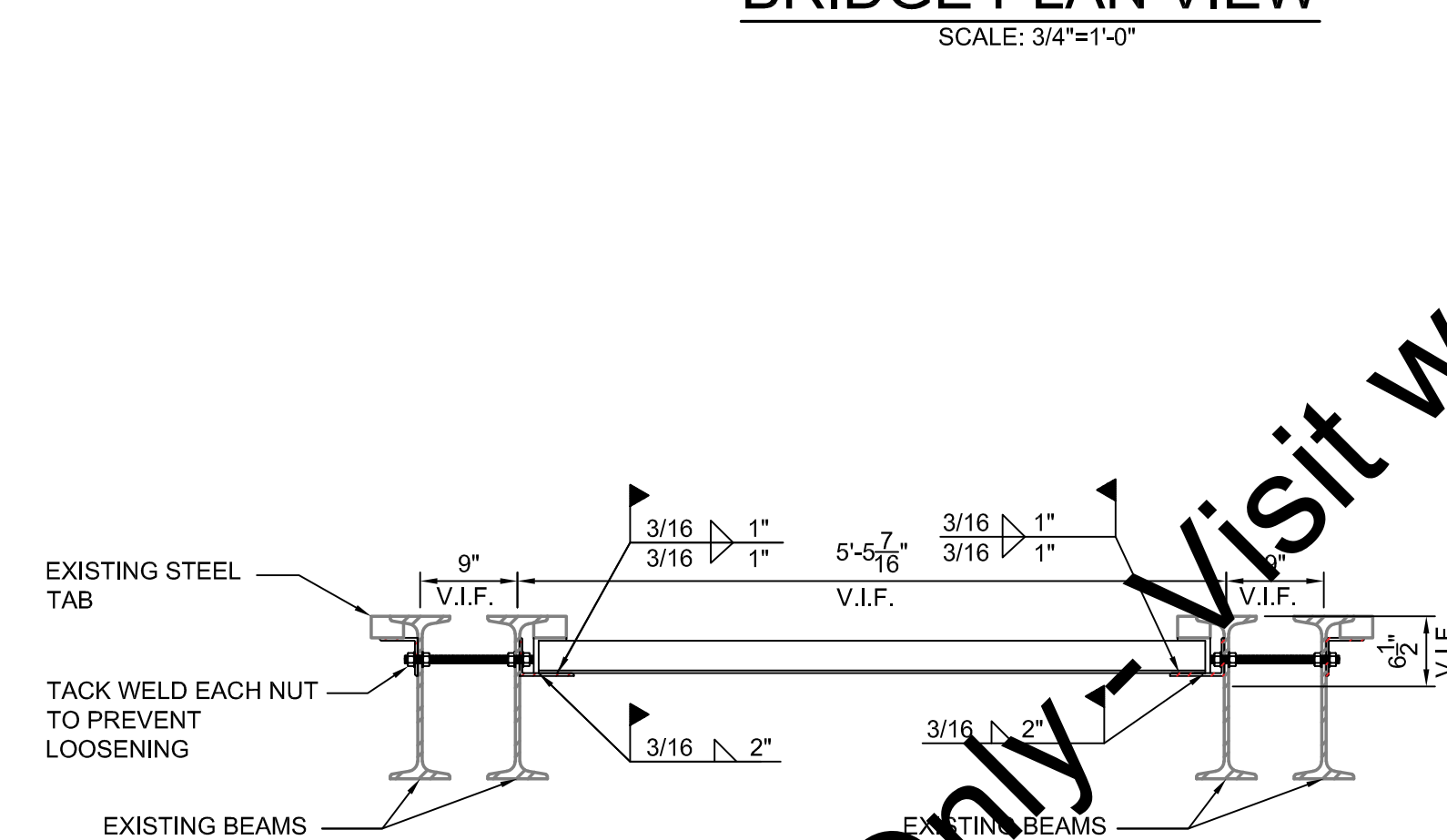
WELL FIELD IMPROVEMENTS
CITY OF LAWRENCE UTILITIES
LAWRENCE, INDIANA
STRUCTURAL DETAILS

SHEET NO. **S9**
PAGE NO. **17**

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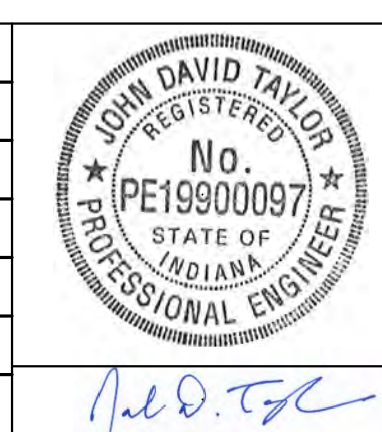
NOTE:
IF THE WATERWAY OR BANKS ARE DISTURBED AS PART OF THE BRIDGE WORK, THEN ALL TEMPORARY DISTURBANCES OR STRUCTURES WILL BE REMOVED AND THE WATERWAY AND BANKS RESTORED TO PRECONSTRUCTION CONDITIONS AFTER THE WORK IS COMPLETE.



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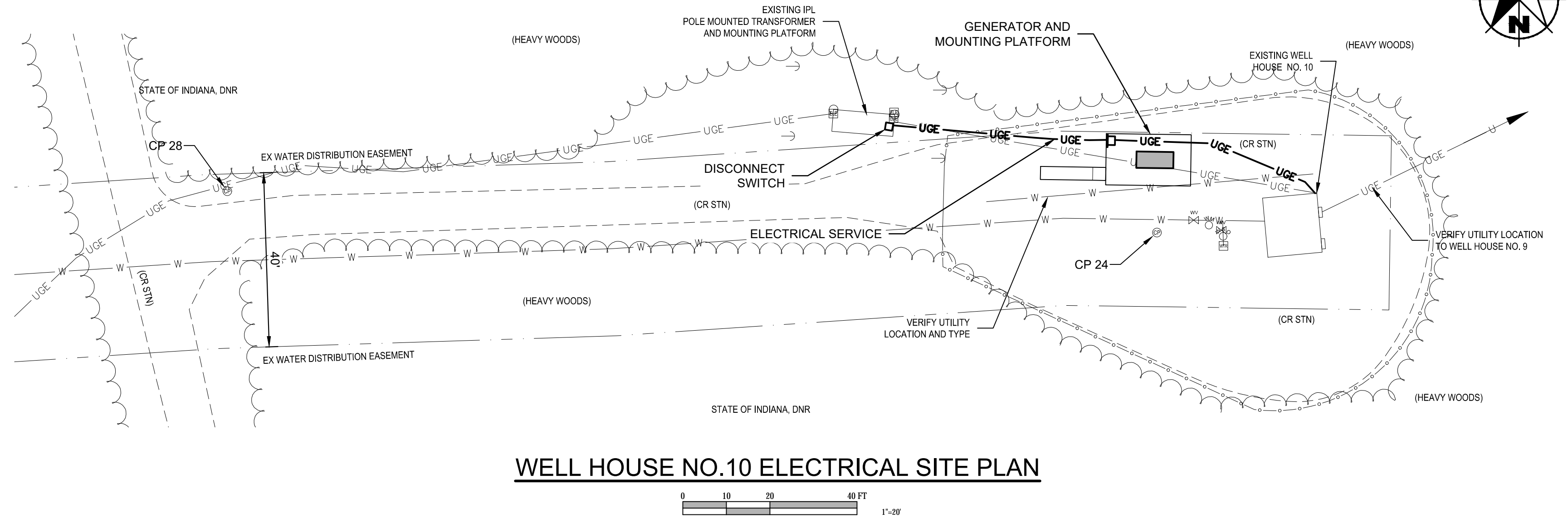
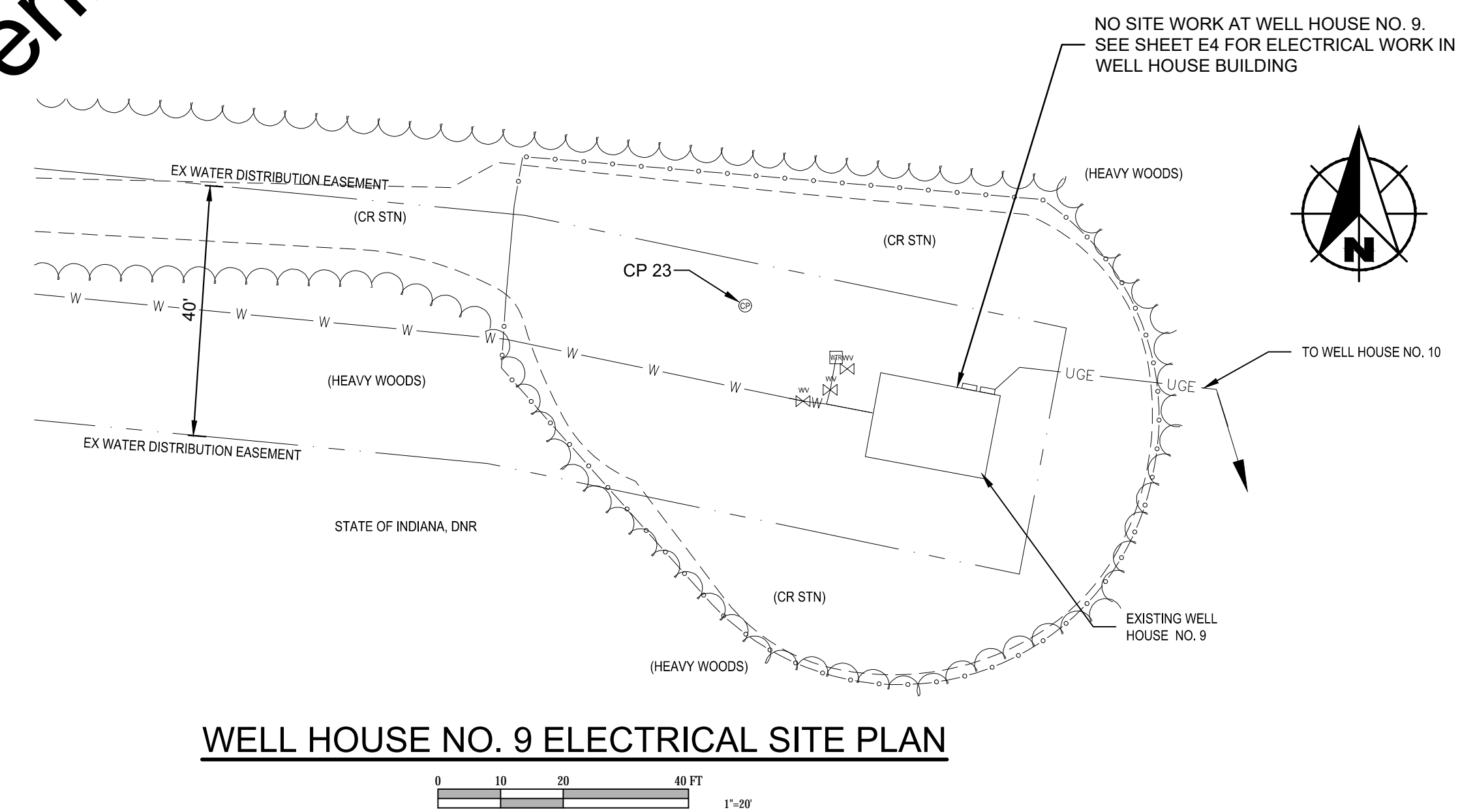
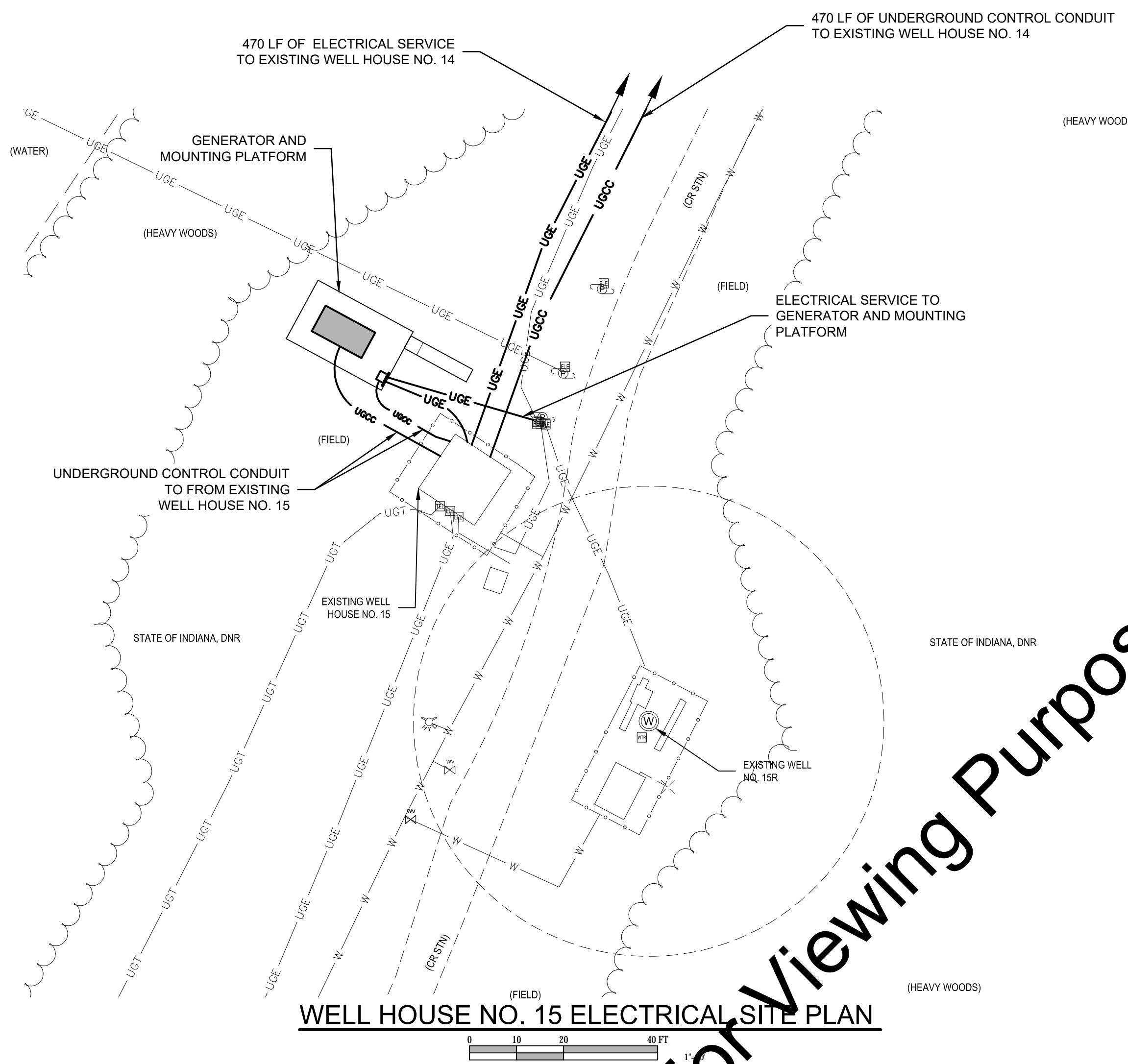
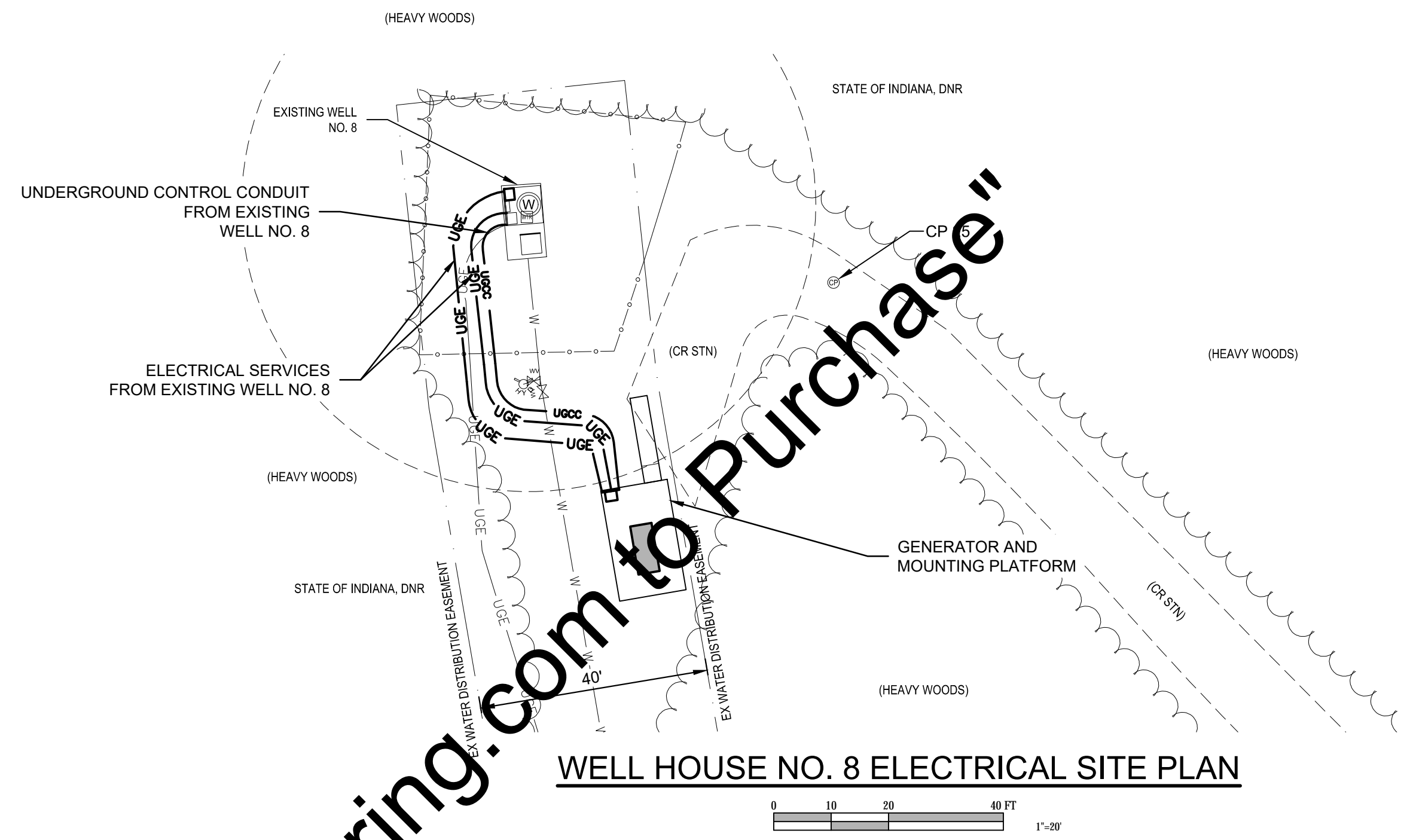
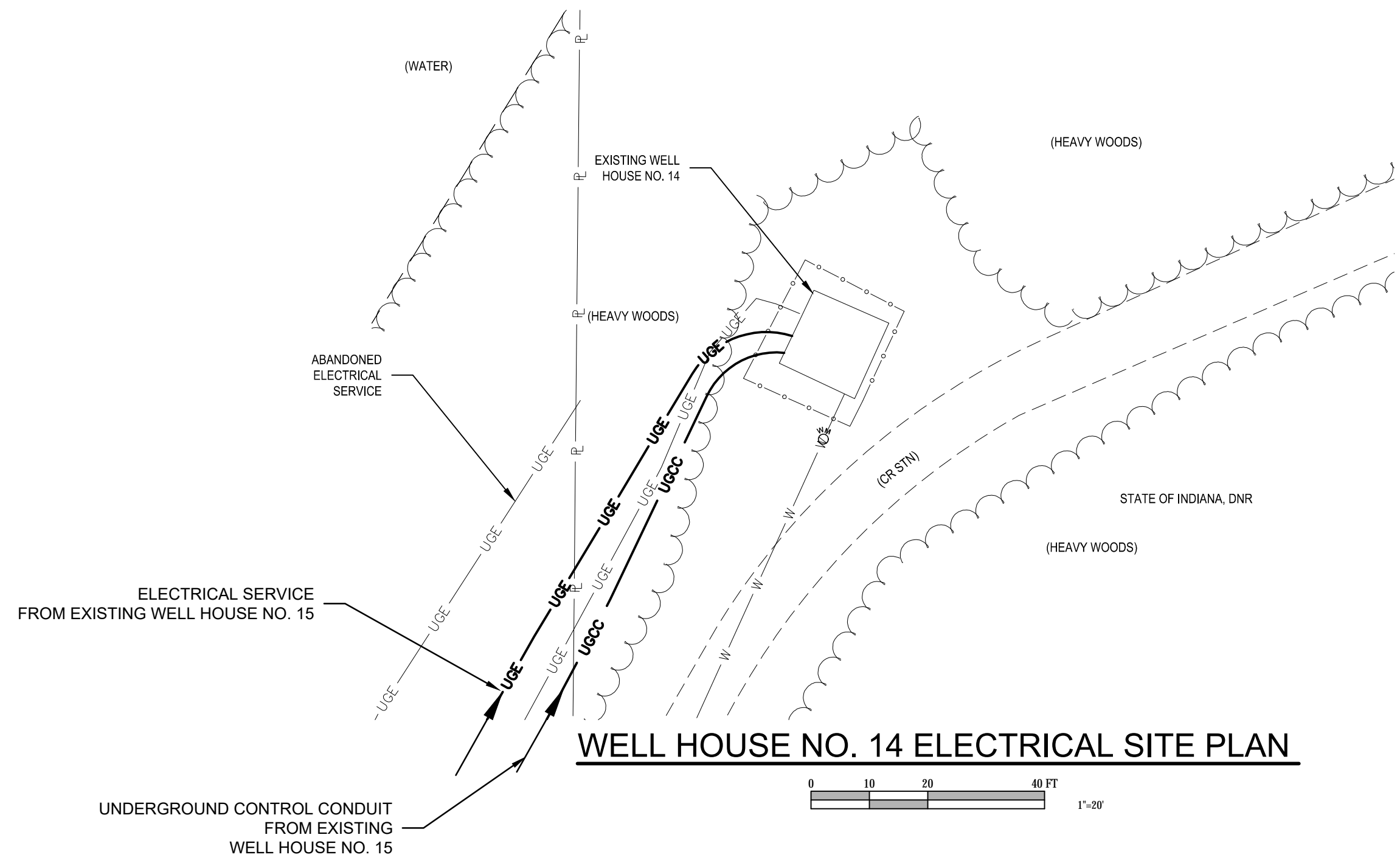


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WELL FIELD IMPROVEMENTS
CITY OF LAWRENCE UTILITIES
LAWRENCE, INDIANA

BRIDGE REINFORCEMENT
PLAN, SECTIONS, AND DETAILS

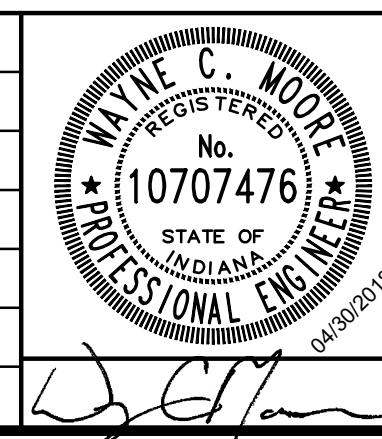
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PAGE NO. **18**



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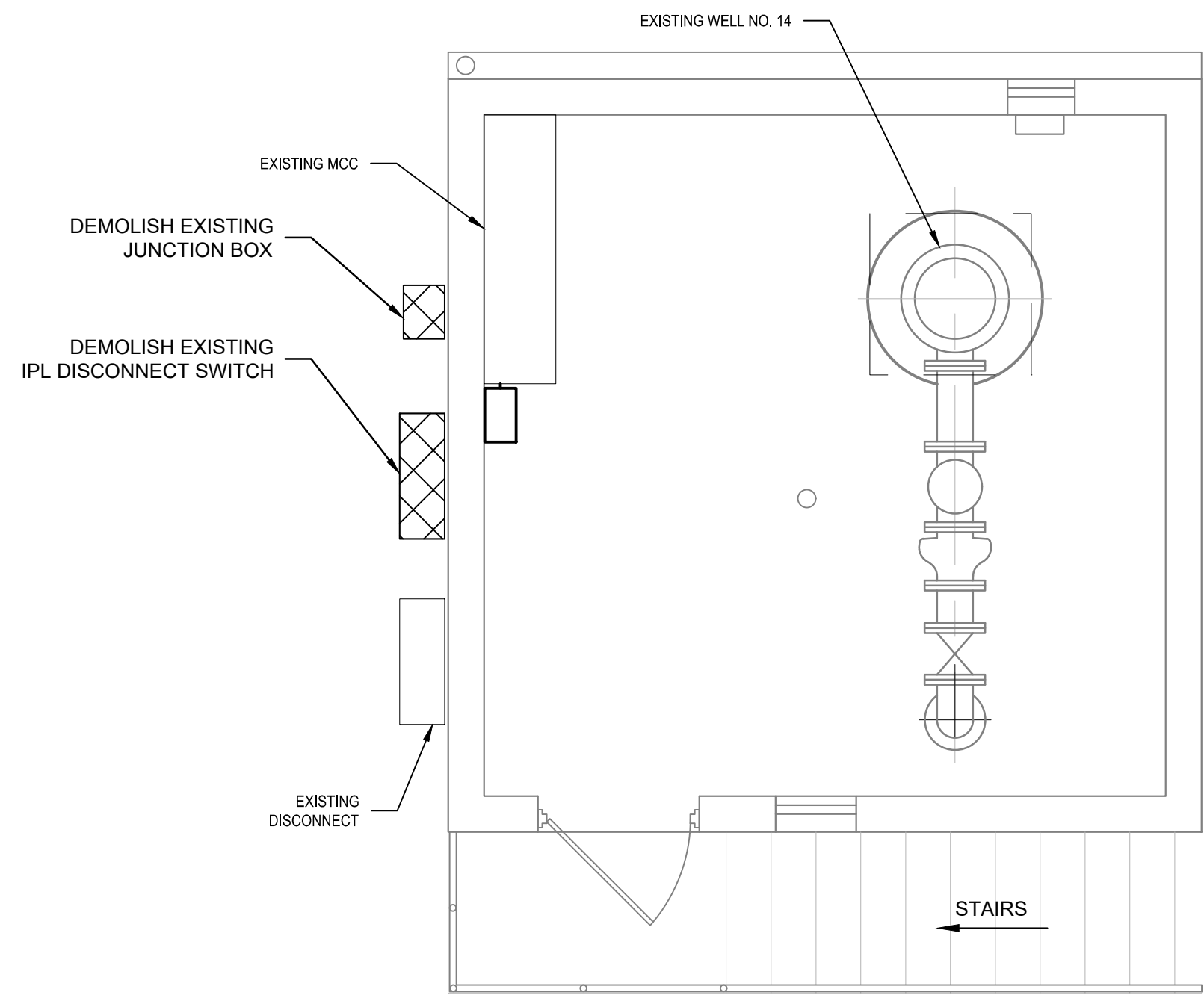
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WELL FIELD IMPROVEMENTS
 CITY OF LAWRENCE UTILITIES
 LAWRENCE, INDIANA

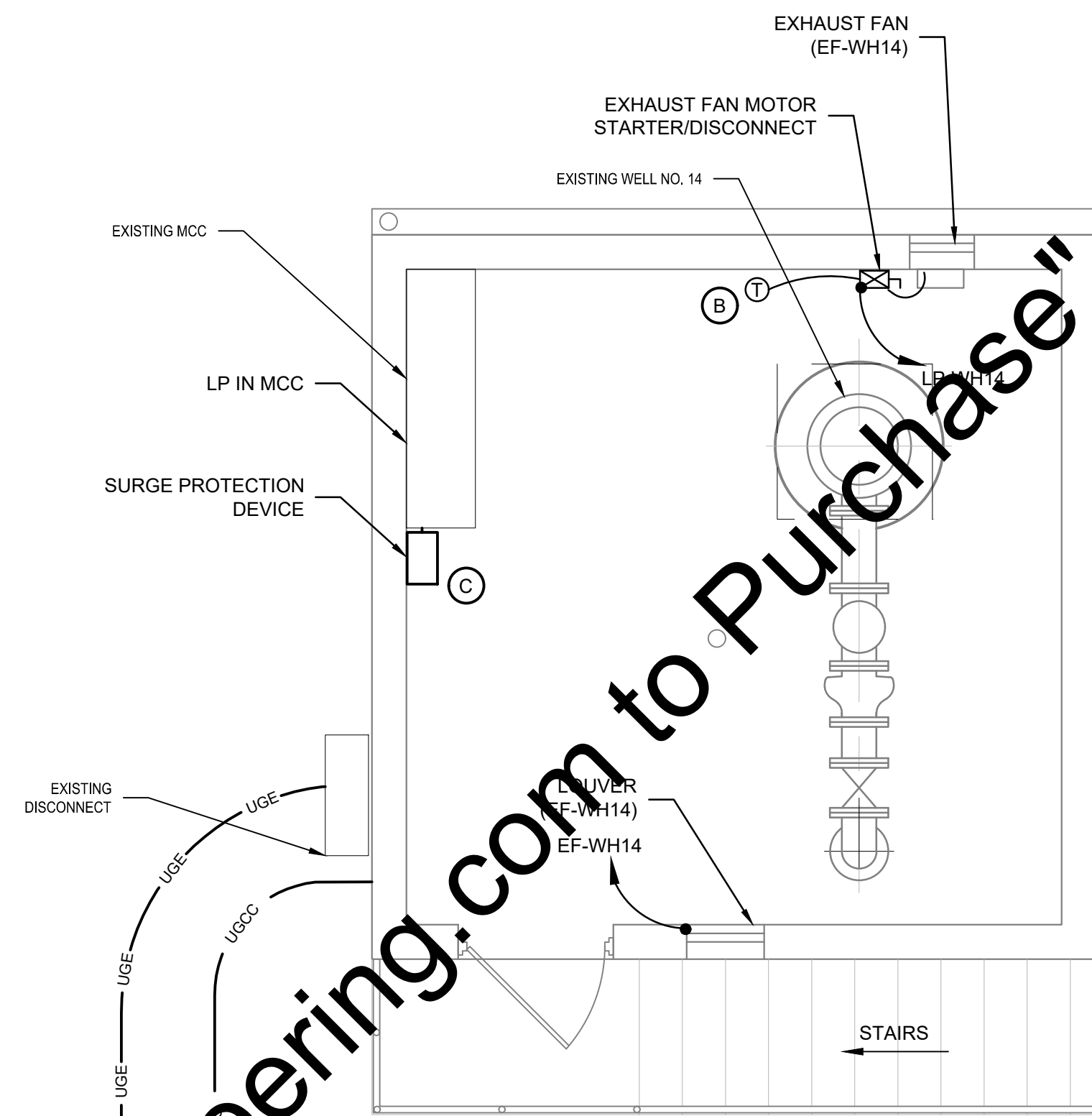
INDIAN LAKE AND FORT HARRISON
 WELL HOUSE ELECTRICAL SITE PLANS

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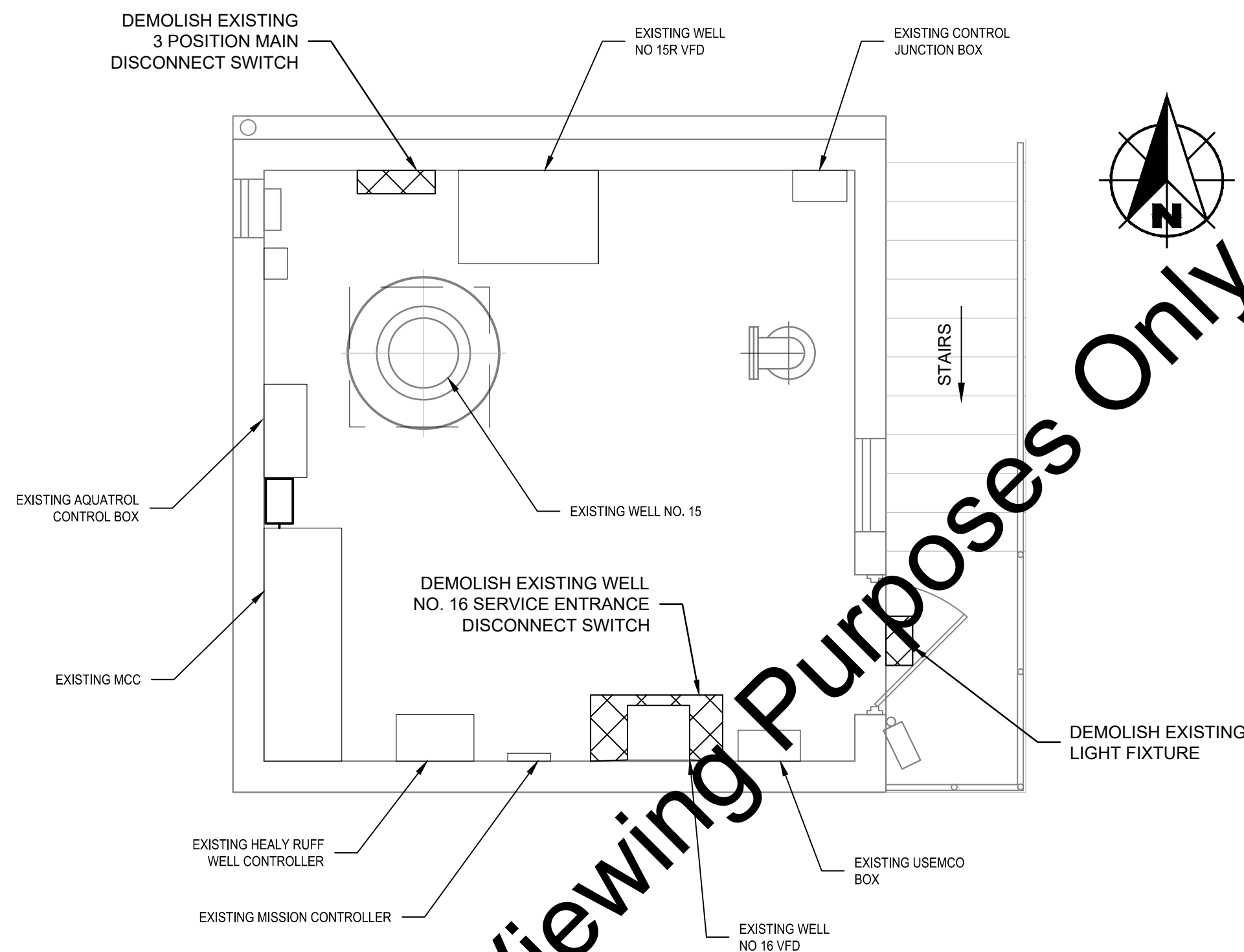
**WELL HOUSE NO. 14
DEMOLITION PLAN**

0 2 4 6 FT
3/8"=1'-0"



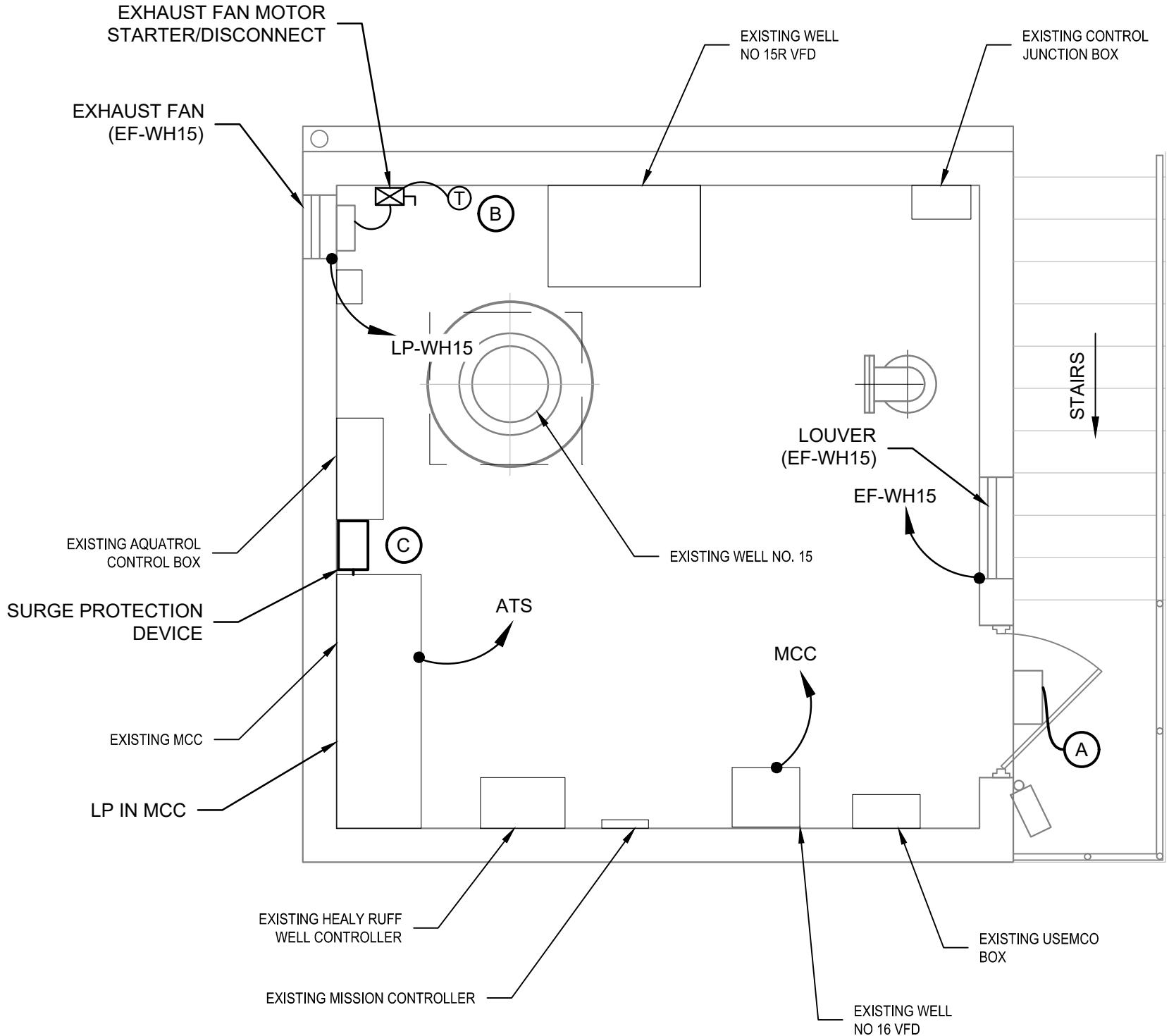
**WELL HOUSE NO. 14
IMPROVEMENTS PLAN**

0 2 4 6 FT
3/8"=1'-0"



**WELL HOUSE NO. 15
DEMOLITION PLAN**

0 2 4 6 FT
3/8"=1'-0"



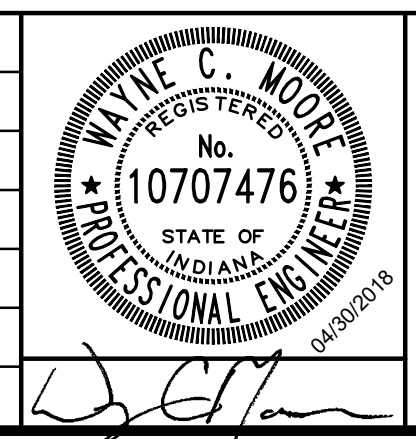
**WELL HOUSE NO. 15
IMPROVEMENTS PLAN**

0 2 4 6 FT
3/8"=1'-0"

- KEYED NOTES**
- A NEW LED WALL PAC, 73W, 1000MA DRIVE CURRENT, 7000 LUMENS, 40K COLOR TEMP, MEDIUM DISTRIBUTION, MVOLT, PHOTO CELL, VANDAL GUARD, HOLOPHANE WALL PAC IV LED. ORDER NO.: W4GLE-20C-1000-40K-T3M-MVOLT-PE-SF-BKSDP OR EQUAL.
 - B THERMOSTAT IS A DAYTON LINE VOLTAGE MECHANICAL THERMOSTAT MODEL: 4L294 OR EQUAL.
 - C SPD SHALL BE A CURRENT TECHNOLOGIES CGP-100-480-3 DG OR EMERSON EQUIVALENT. VENDOR SHALL SUPPLY LOW IMPEDANCE CABLE. CONTRACTOR TO SUPPLY 1" CONDUIT. WALL OR RACK MOUNT AS CLOSE AS POSSIBLE TO MCC.

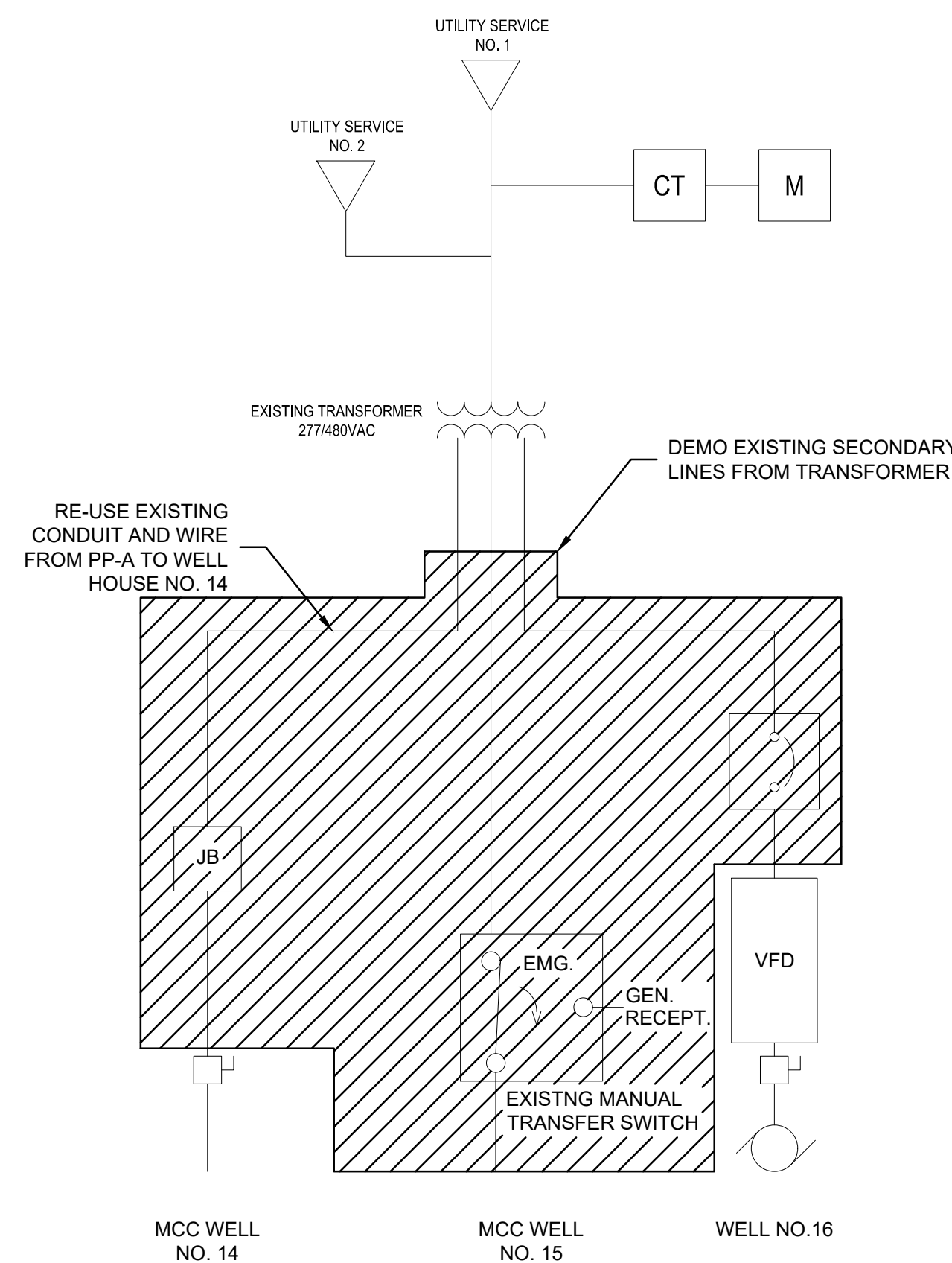
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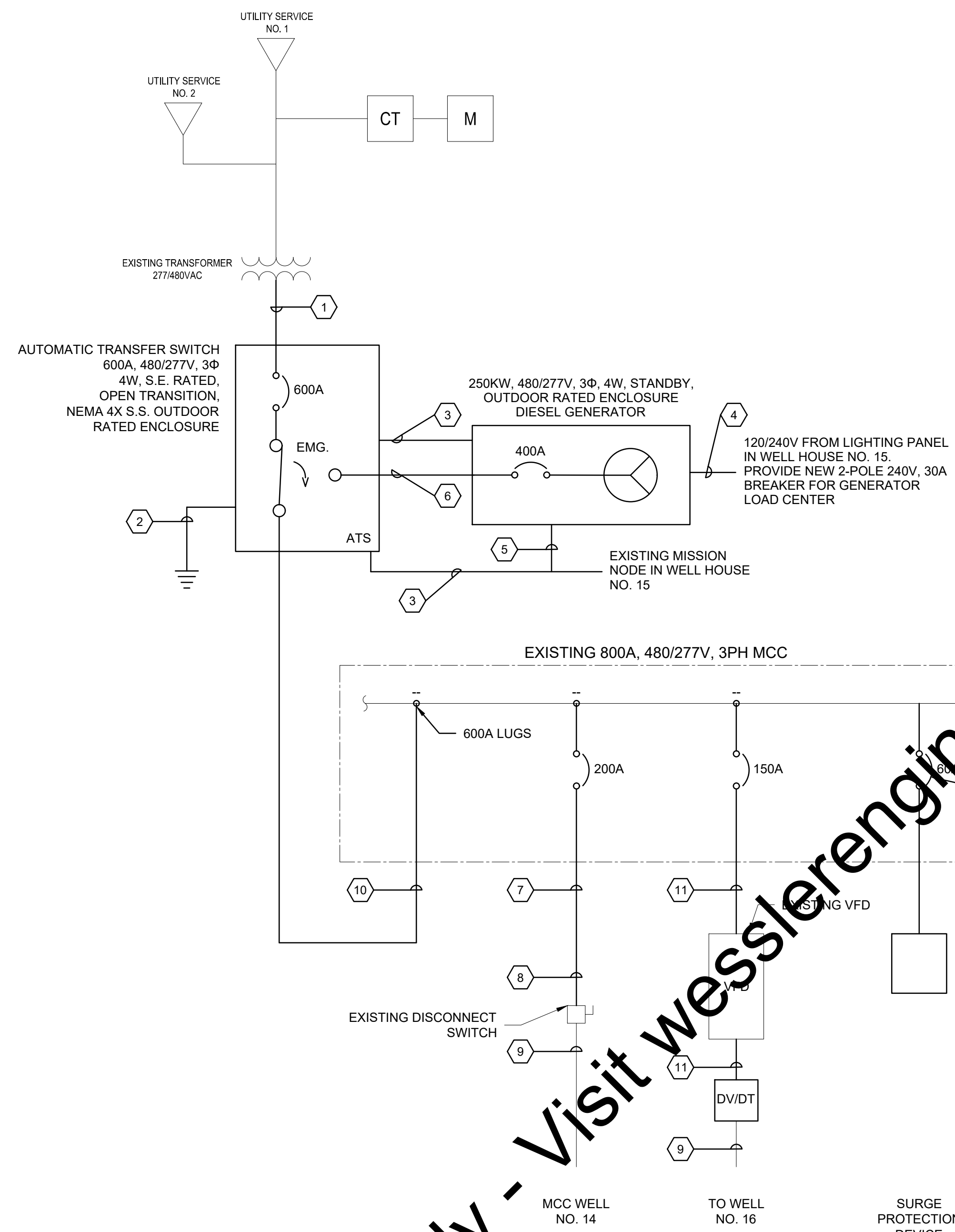
WELL FIELD IMPROVEMENTS
CITY OF LAWRENCE UTILITIES
LAWRENCE, INDIANA

INDIAN LAKE WELL HOUSE ELECTRICAL IMPROVEMENTS

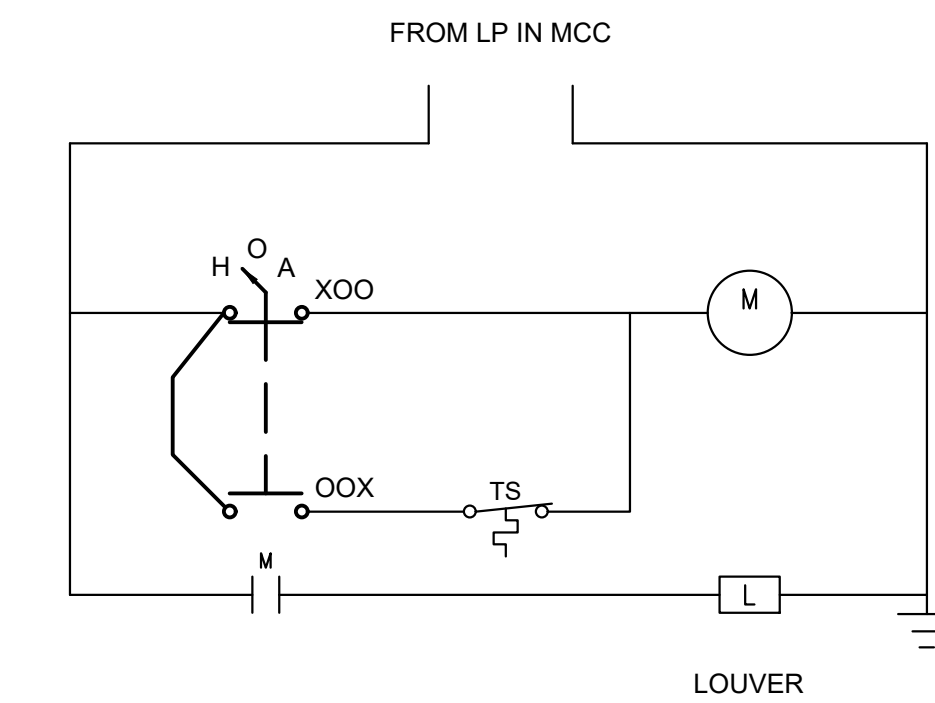


EXISTING ELECTRICAL ONE-LINE
SCALE: NONE

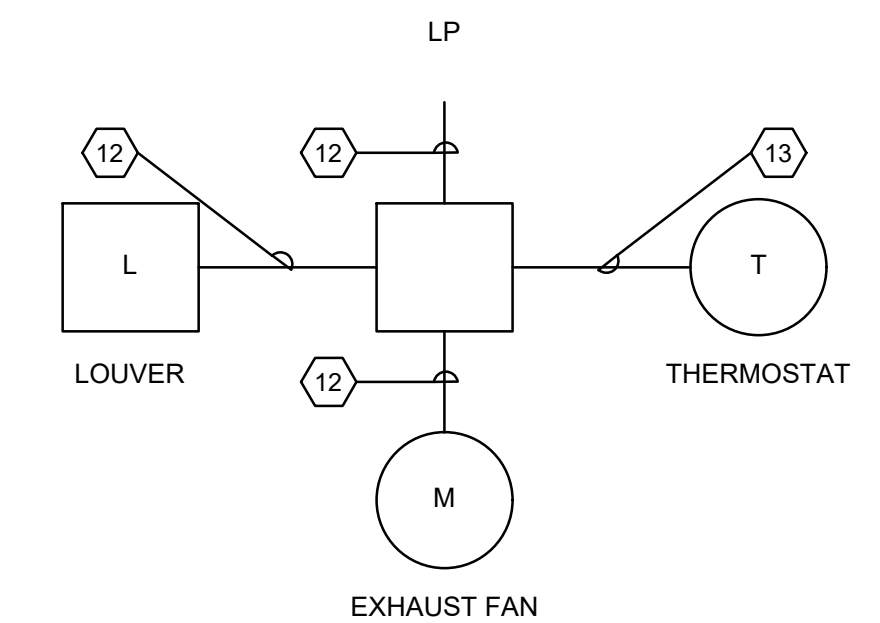
600A MAIN LUGS		PRIMARY SWITCH 1 PH. 7.5 KVA TRANSFORMER
LIGHTING ARRESTOR & SPARE CAPACITOR	WELL NO. 15R	PROPOSED LOCATION WELL NO. 16
LIGHTING PANEL (LP-1)	WELL NO. 13 MPC SPARE	C.B. FOR SPD
7.5 KVA 1 PHASE TRANSFORMER	PROPOSED LOCATION WELL NO. 14	SPARE
		SPARE



EXISTING WELL HOUSE NO. 15 PARTIAL ONE-LINE DIAGRAM
SCALE: NONE



EF-WH14 & EF-WH15 MOTOR STARTER SCHEMATIC
SCALE: NONE



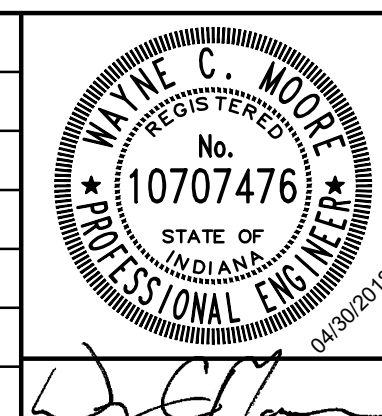
EF-WH14 & EF-WH15 WIRING DIAGRAM
SCALE: NONE

CONDUIT AND WIRE SCHEDULE:

- 1 2-4" C, 3#350, #350N
- 2 #3/0 BARE COPPER GROUND
- 3 1" C, 6#14
- 4 2" C, 2#10, #10N, #10G
- 5 1" C, 8#14
- 6 2-4" C, (3#4/0, #4/0N, #3G)
- 7 4" C, 3#250, #250N, #4G
- 8 2" C SPARE
- 9 EXISTING CONDUIT AND WIRE
- 10 2-4" C, 3#350, #350N, #1G
- 11 3" C, 3#2, #6G
- 12 3/4" C, 2#12, #12G
- 13 3/4" C, 2#14, #14G

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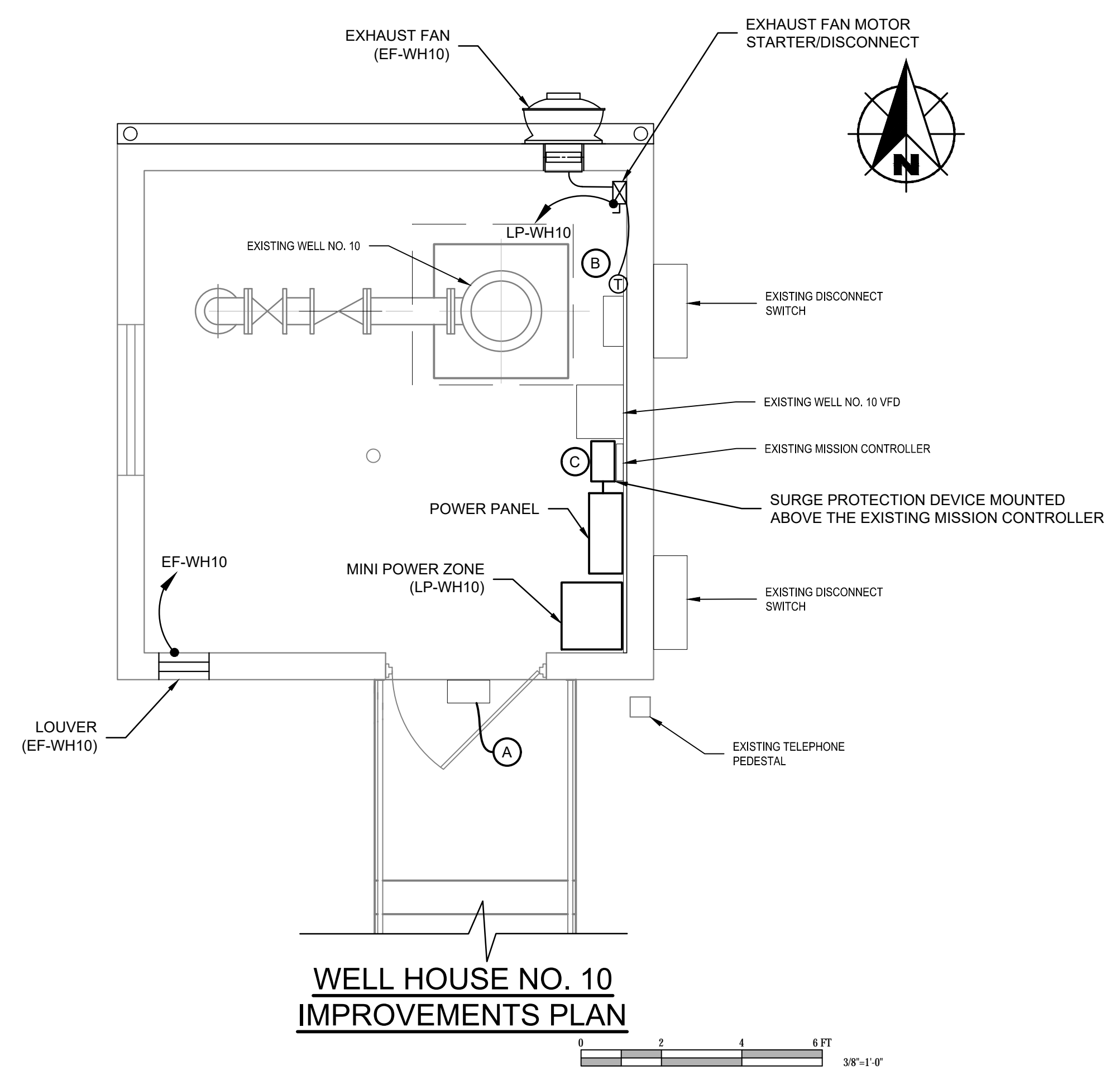
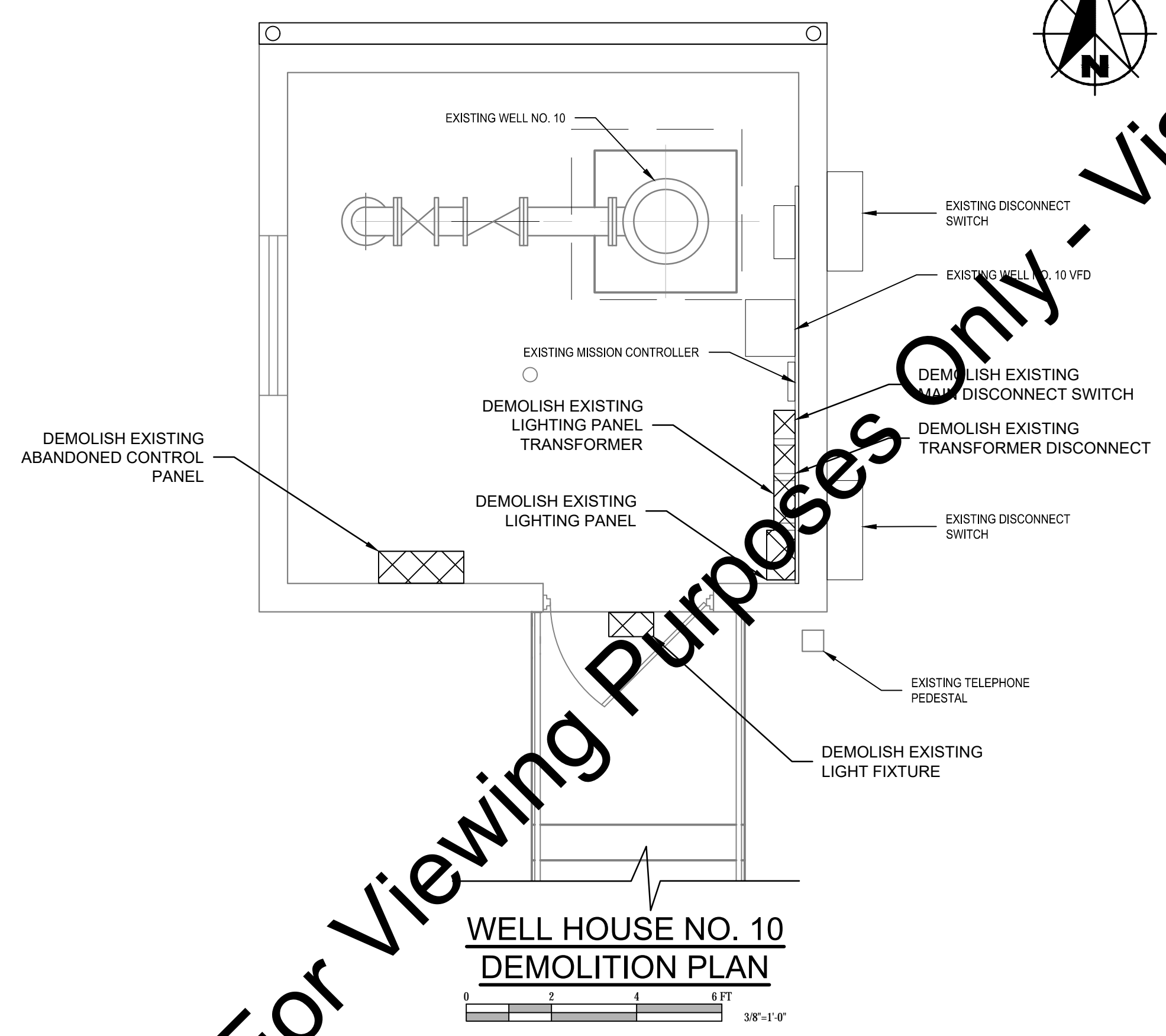
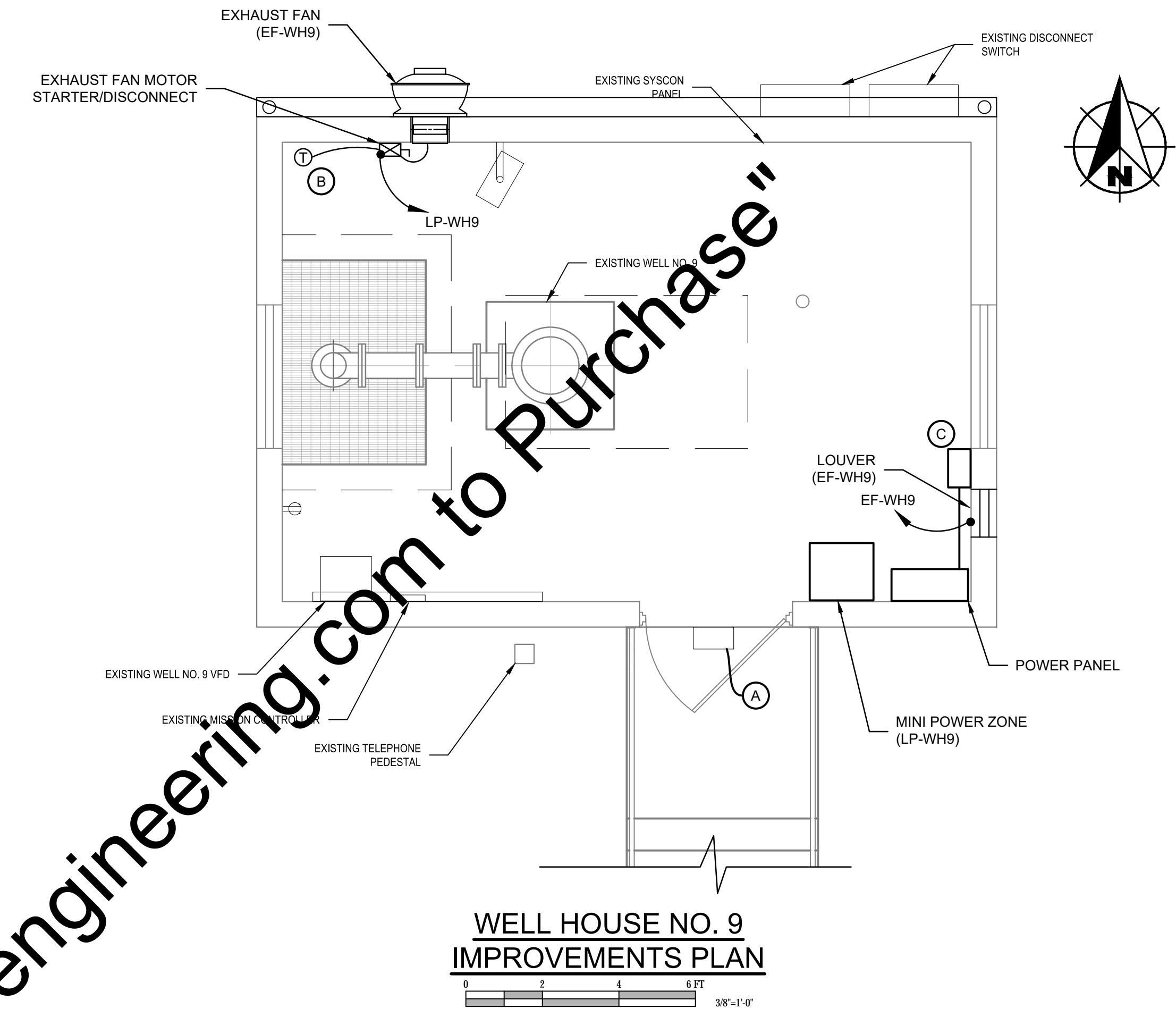
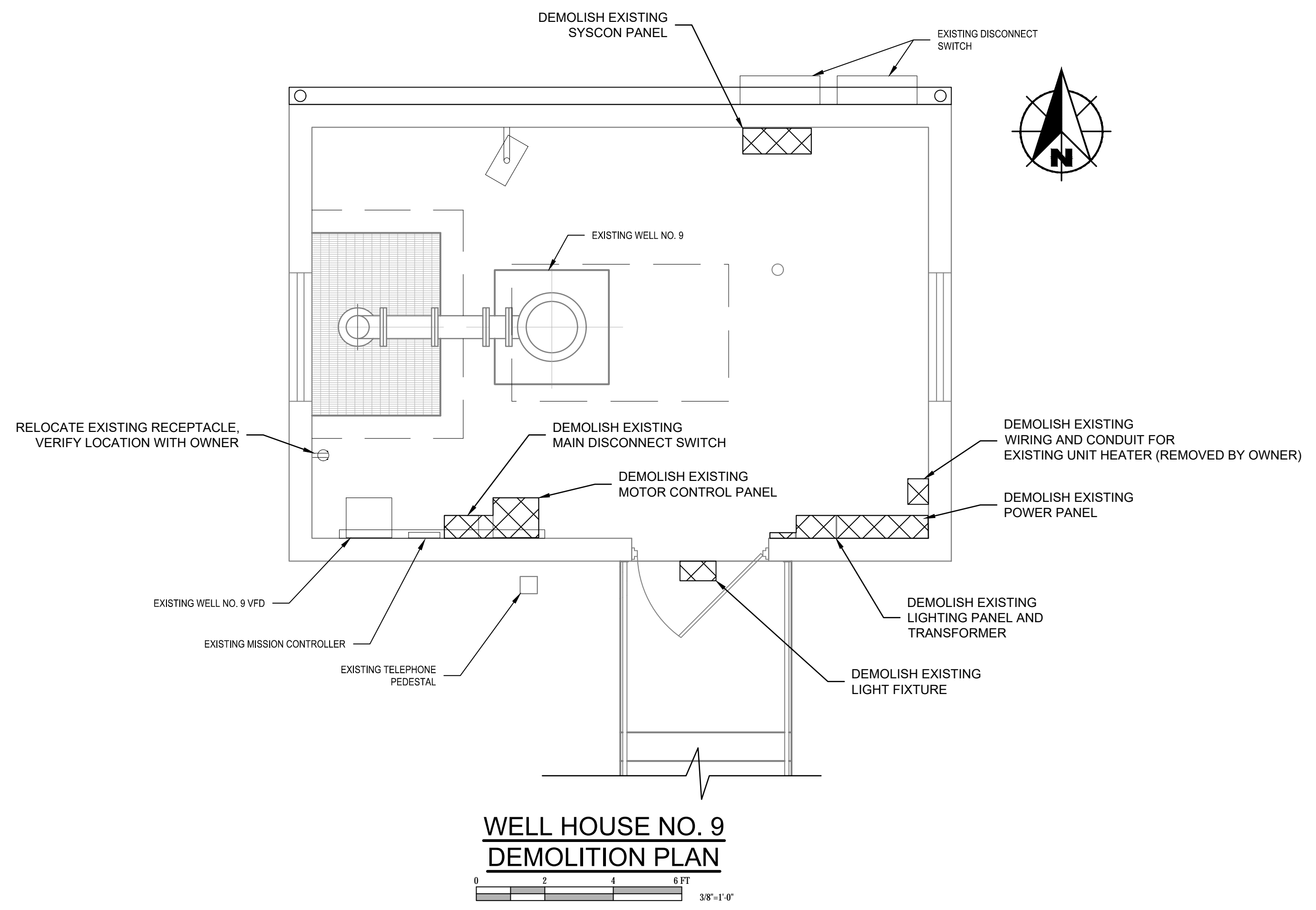


WELL FIELD IMPROVEMENTS
CITY OF LAWRENCE UTILITIES
LAWRENCE, INDIANA

INDIAN LAKE ELECTRICAL DIAGRAMS AND DETAILS

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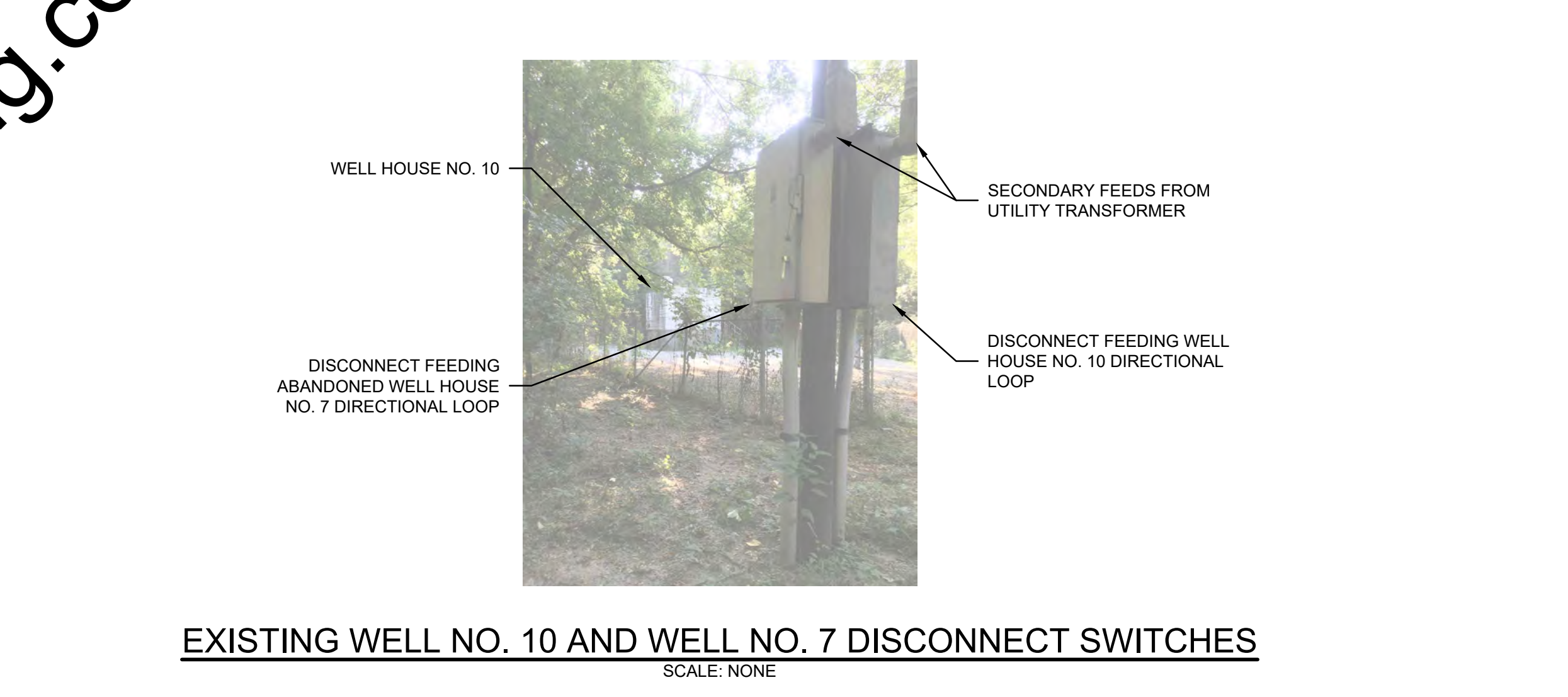
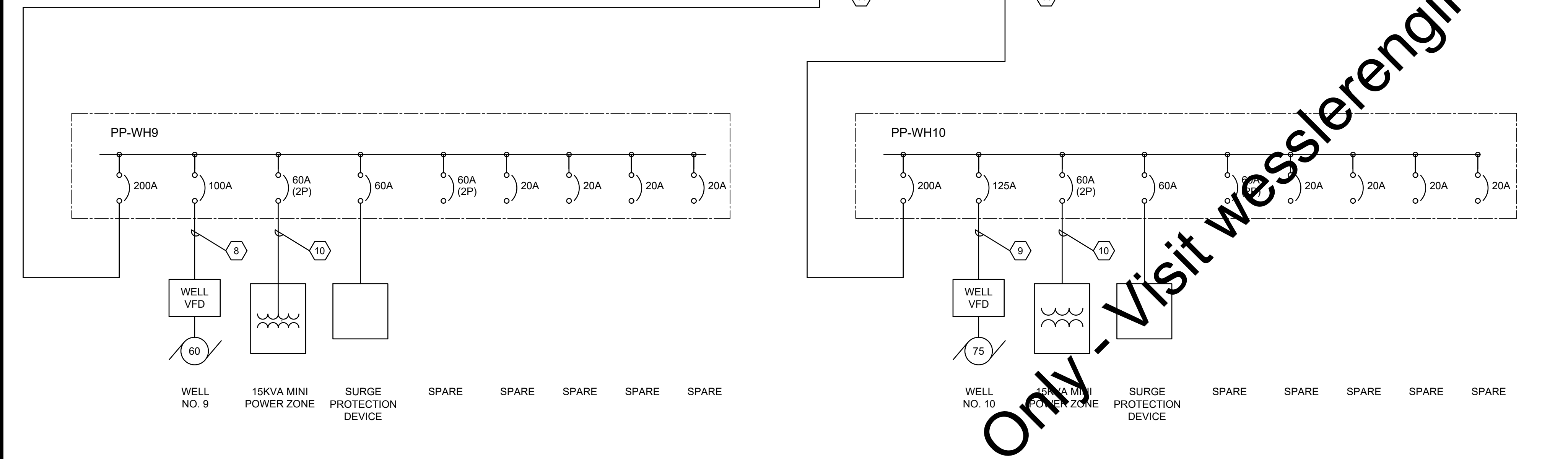
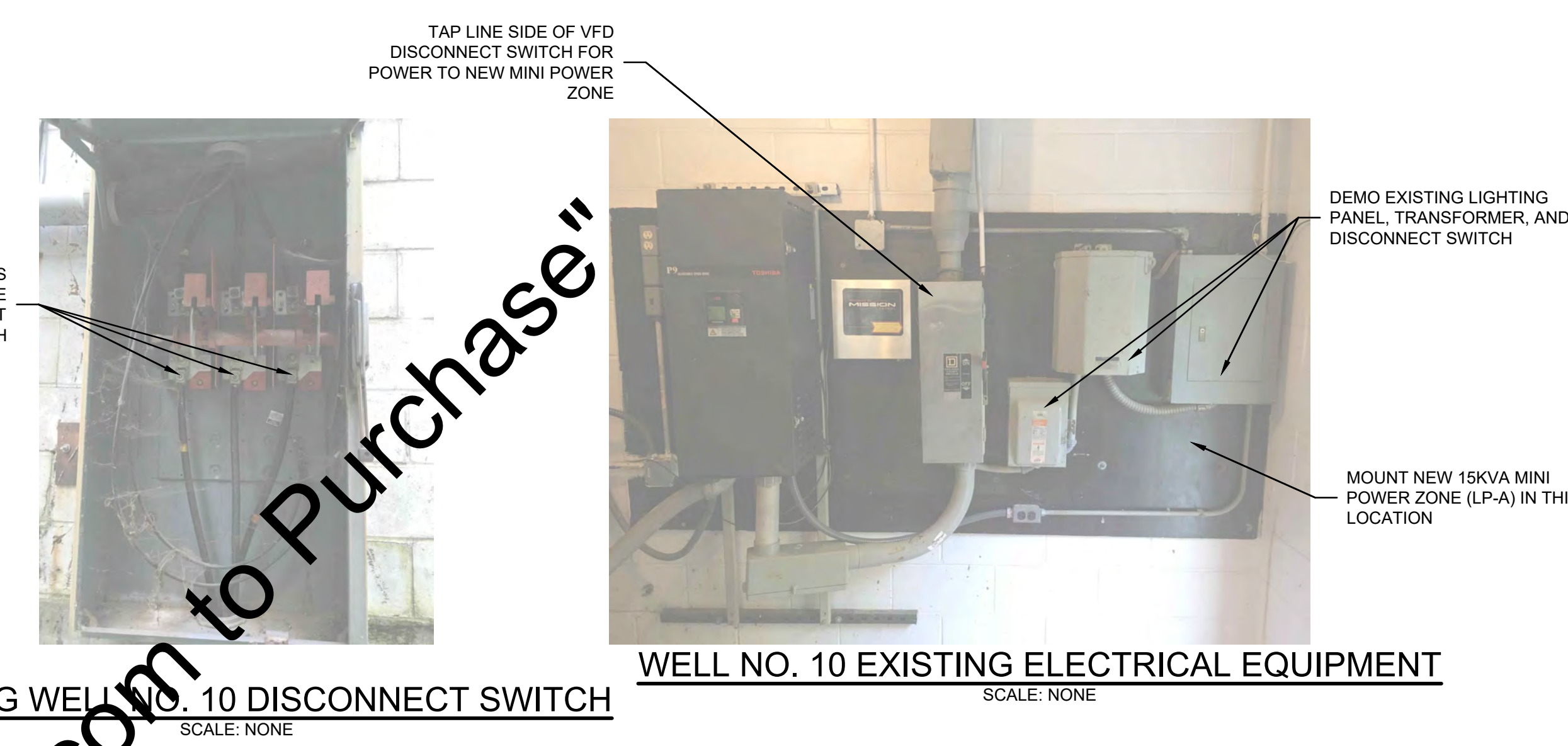
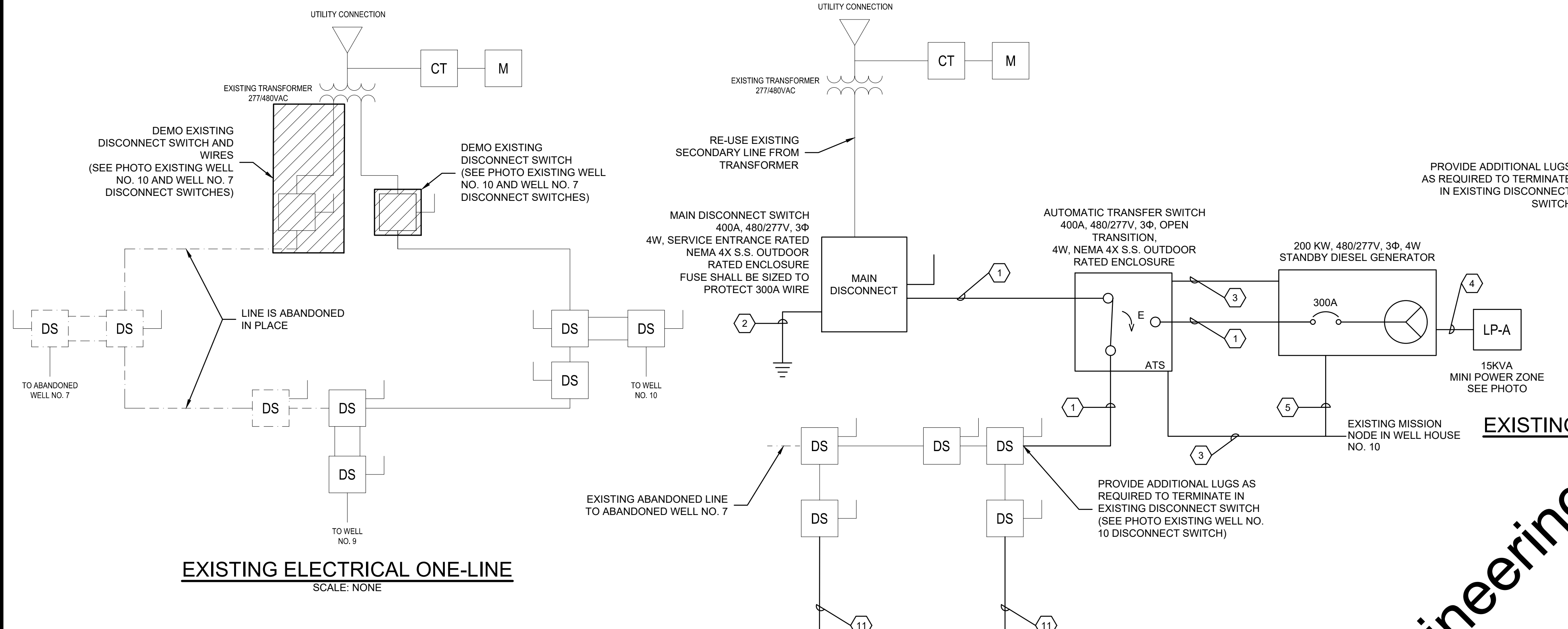
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- KEYED NOTES**
- A NEW LED WALL PAC, 73W, 1000MA DRIVE CURRENT, 7000 LUMENS, 40K COLOR TEMP, MEDIUM DISTRIBUTION, MVOLT, PHOTO CELL, VANDAL GUARD, HOLOPHANE WALL PAC IV LED. ORDER NO.: W4GLE-20C-1000-40K-T3M-MVOLT-PE SF-BKSDP OR EQUAL.
 - B THERMOSTAT IS A DAYTON LINE VOLTAGE MECHANICAL THERMOSTAT MODEL: 4L294 OR EQUAL.
 - C SPD SHALL BE A CURRENT TECHNOLOGIES CGP-100-480-3 DG OR EMERSON EQUIVALENT. VENDOR SHALL SUPPLY LOW IMPEDANCE CABLE. CONTRACTOR TO SUPPLY 1" CONDUIT. WALL OR RACK MOUNT AS CLOSE AS POSSIBLE TO MCC.

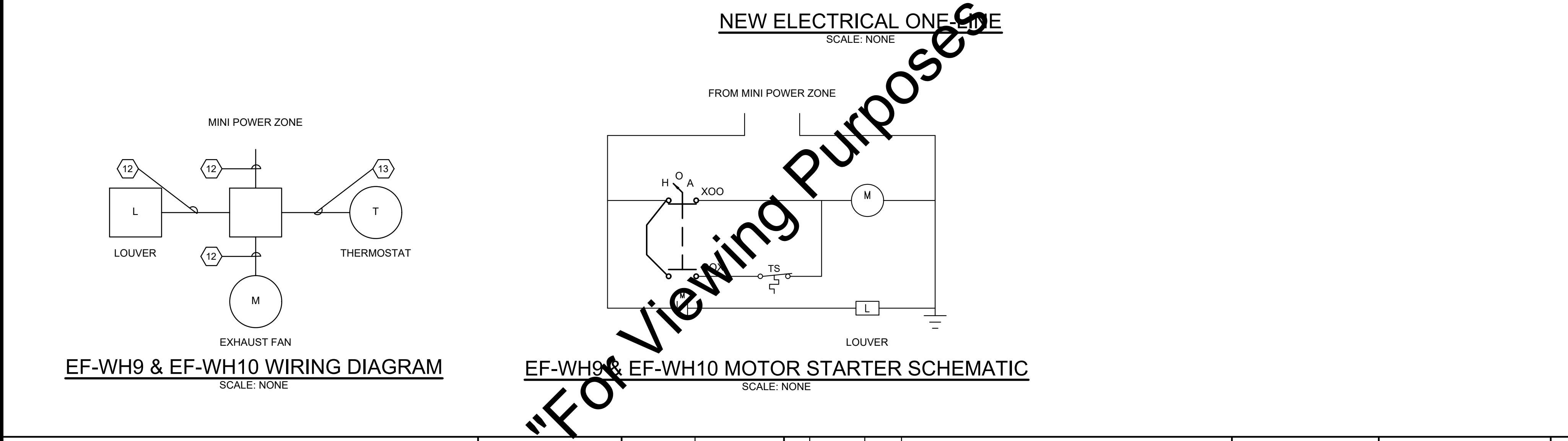
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	APPROVED BY	WCM									
	ISSUE DATE	MAY 2018									
	PROJECT NUMBER	194717-04-006								<p>PAGE NO.</p> <p style="font-size: 2em; font-weight: bold;">22</p>	
<p>FORT HARRISON WELL HOUSE ELECTRICAL IMPROVEMENTS</p>											



PANEL SCHEDULE		DESIGNATION: PANEL "LP-WH9" & "LP-WH10"				MAINS: 60 AMP MAIN CIRCUIT BREAKER		BUS SIZE: 60 AMP		PANEL MOUNTING: SURFACE		ALL BREAKERS: 10,000 A.I.C. (MINIMUM)	
CKT. NO.	LOAD DESCRIPTION	#	CKT. BKR.		KVA		CKT. BKR.		KVA	#	LOAD DESCRIPTION	CKT. NO.	
			AMPS	POLE	A	B	AMPS	POLE					
1	AGGETATOR	6	1.00	20	1	1.60	20	1	0.60	6	LIGHTS	2	
3	RECEPTACLES	6	2.00	20	1		300	20	1	1.00	6	OUTSIDE LIGHTS	4
5	WELL CONTACTOR	6	0.50	20	1	0.50		20	1			6	
7	HEATER	6	2.50	20	1		3.50	20	1	1.00	6	SYSTEM CONTROL PANEL	8
9	HEATER	6	2.50	20	1	5.50		30	2	3.00	7	GENERATOR LOAD CENTER	10
11	SPARE			20	1		3.00			3.00			
13	SPARE			20	1	0.00		20	1		SPARE	14	
15	SPARE			20	1		0.00	20	1		SPARE	16	
17	SPARE			20	1	0.00		20	1		SPARE	18	
19	SPARE			20	1		0.00	20	1		SPARE	20	
21	SPARE			20	1	0.00		20	1		SPARE	22	
23	SPARE			20	1		0.00	20	1		SPARE	24	
TOTAL CONNECTED LOAD:						7.50	9.50			TOTAL =	17.10	KVA	
# ONE (1) OR TWO (2) DIGIT NUMBERS REFER TO PANELBOARD BRANCH CIRCUIT CONDUIT AND CABLE SCHEDULE ON THIS SHEET.													

SCALE: NONE

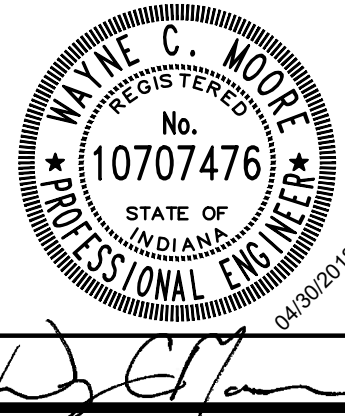


CONDUIT AND WIRE SCHEDULE:

1	4" 3#350, #350N, #2G	9	1" C, #1, #6G
2	#1/0 BARE COPPER GROUND	10	3/4" C, 2#6, #10G
3	1" C, #6/14	11	4" C, 3#4/0, #4/0N, #6G
4	2" C, 2#8, #8N, #10G		
5	1" C, #8/14		
6	3/4" C, 2 #12, #12G		
7	3/4" C, 2#8, #10G		
8	1" C, 3#4, #6G		

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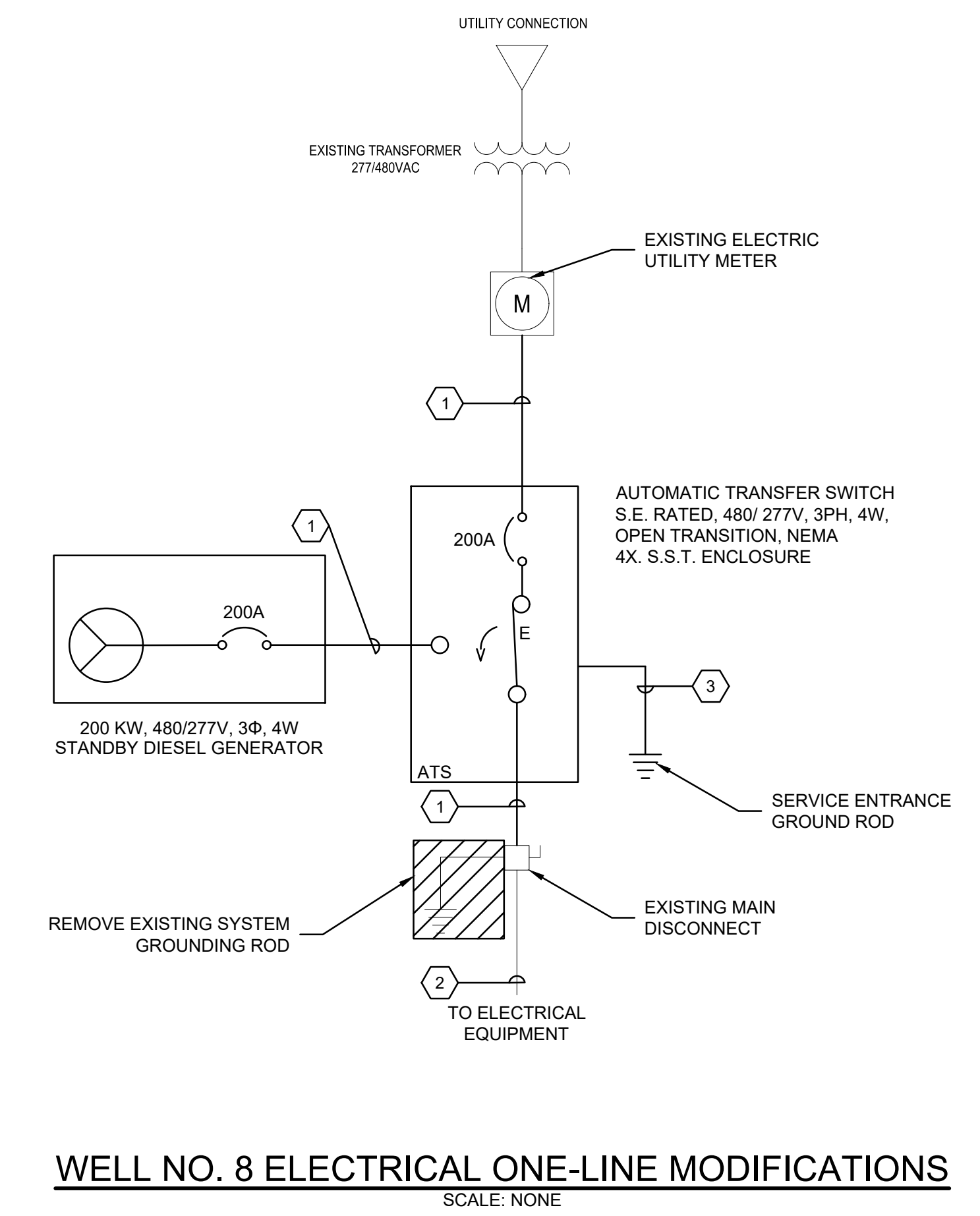
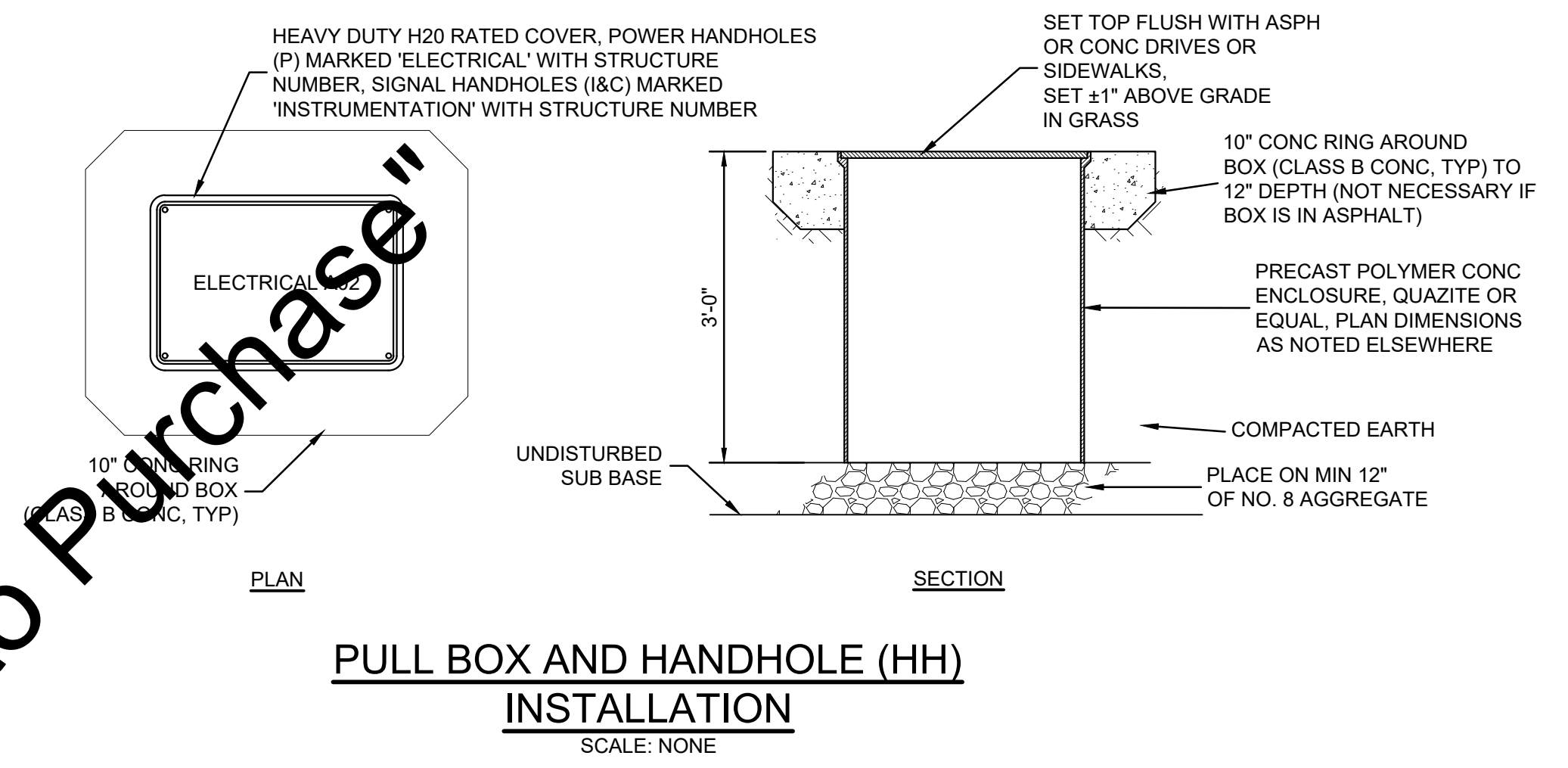
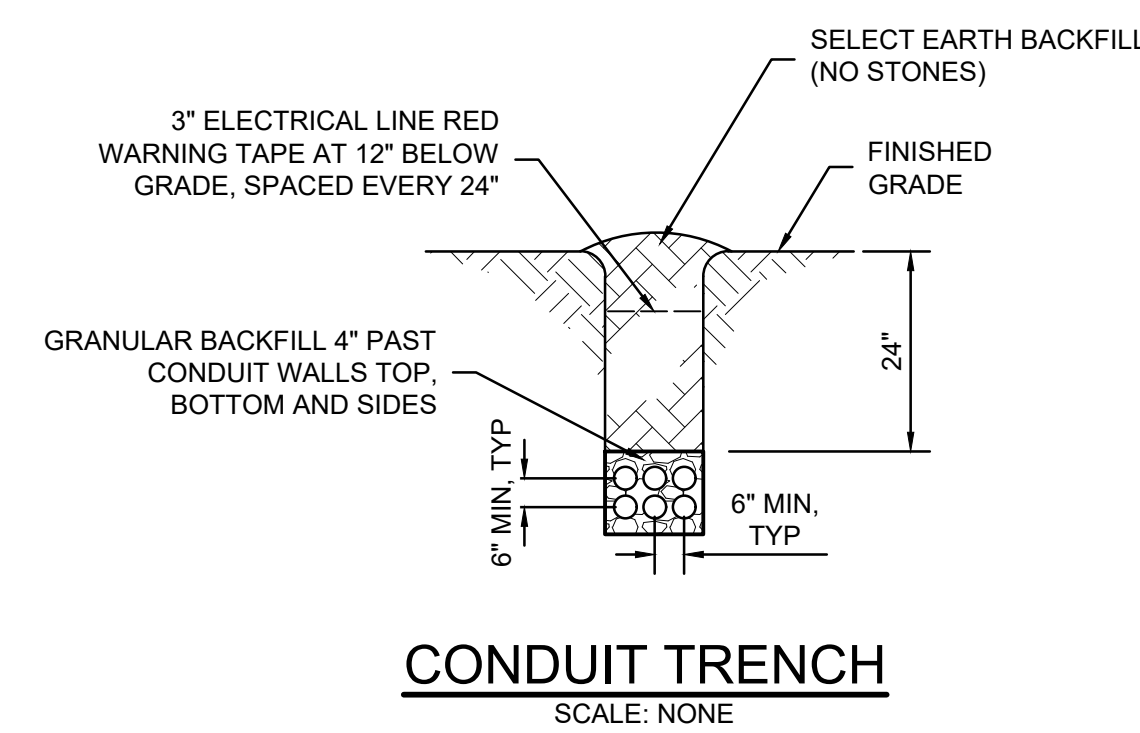


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WELL FIELD IMPROVEMENTS	SHEET NO.
CITY OF LAWRENCE UTILITIES	E5
LAWRENCE, INDIANA	PAGE NO.
FORT HARRISON ELECTRICAL DIAGRAMS	23

Drawing: J:\Lawrence\Projects\194717_Lawrence Water Imp Ph 1\CAD 04-006 Well Field\DWG\Sheets\194717_EL_SLD.dwg | Plotter: FORT HARRISON.SLDZ | Layout: FORT HARRISON.SLDZ @ 1:192.35 | LastSavedBy: Curtiss

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- CONDUIT AND WIRE SCHEDULE:**
- 1 4" 3#4/0, #4/0N, #6G
 - 2 EXISTING CONDUIT AND WIRE
 - 3 #2 BARE COPPER GROUND

<p>SCALE VERIFICATION</p> <p>BAR IS ONE INCH LONG ON ORIGINAL DRAWING</p> <p style="text-align: center;">—</p>	DRAWN BY	CLG	NO.	DATE	INITIALS	REVISION DESCRIPTIONS			WELL FIELD IMPROVEMENTS	SHEET NO.
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	APPROVED BY	WCM							LAWRENCE, INDIANA	PAGE NO.
	ISSUE DATE	MAY 2018							FORT HARRISON ELECTRICAL DIAGRAMS AND DETAILS	24
	PROJECT NUMBER	194717-04-006								