CN REDBIRD HEALTH CENTER - HARDENED SPACE

GENERATOR

301 SOUTH J T STITES STREET, SALLISAW, OK 74955

CHILDERS ARCHITECT
A NATIVE AMERICAN OWNED FIRM

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WALLACE DESIGN COLLECTIVE
123 N. MARTIN LUTHER KING JR. BLVD
TULSA, OKLAHOMA 74103
(918) 584-5858

CIVIL ENGINEER

LEE & BROWNE CONSULTING ENGINEERS, INC.
1207 S. SHERIDAN RD
TULSA, OK 74112
(918)836-0271

MECHANICAL, ELECTRICAL, PLUMBING

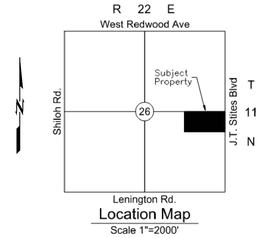
FINAL CONSTRUCTION DOCUMENTS

05/29/25 | 25-08.68

CN REDBIRD HEALTH CENTER

GENERATOR

301 SOUTH J T STITES STREET, SALLISAW, OK 74955



Location Map

Scale 1"=2000'

SEQUOYAH COUNTY
OKLAHOMA

GENERAL NOTES:

1. CONDUCT SITE CLEARING OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM AUTHORITIES HAVING JURISDICTION. STREETS AND ROADWAYS SHALL BE THOROUGHLY CLEANED AND/OR SWEPT ON A DAILY BASIS OR MORE FREQUENTLY AS REQUIRED BY THE GOVERNING AUTHORITY. RESTORE DAMAGED IMPROVEMENTS TO ORIGINAL CONDITION AS ACCEPTABLE TO PARTIES HAVING JURISDICTION.
2. THE CONTRACTOR SHALL PROVIDE DUST CONTROL MEASURES IN ACCORDANCE WITH LOCAL AUTHORITIES.
3. ALL STREET SURFACES, DRIVEWAYS, CULVERTS, ROADSIDE DRAINAGE DITCHES, AND OTHER STRUCTURES THAT ARE DISTURBED OR DAMAGED IN ANY MANNER AS A RESULT OF CONSTRUCTION SHALL BE REPLACED IN ACCORDANCE WITH THE SPECIFICATIONS.
4. UNLESS SPECIFIED OTHERWISE, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE STANDARDS, SPECIFICATIONS, AND REGULATIONS OF THE CITY OF SALLISAW, OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY, AND STATE DEPARTMENT OF TRANSPORTATION, AND/OR THE APPROPRIATE LOCAL AUTHORITIES.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, PERMIT FEES, LICENSES, LICENSE FEES, TAP FEES, ETC.
6. ALL ELEVATIONS IN PAVED AREAS ARE TOP OF FINISHED PAVEMENT UNLESS OTHERWISE NOTED.
7. RELOCATION OF ANY UTILITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF THE APPROPRIATE UTILITY COMPANY AND/OR REGULATORY AGENCY. CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM ENGINEER BEFORE ANY UTILITY RELOCATION.
8. NO DIMENSION MAY BE SCALED. REFER UNCLEAR ITEMS TO THE ENGINEER FOR INTERPRETATION.

EXCAVATION NOTIFICATION

1. ALL CONTRACTORS SHALL NOTIFY UTILITY COMPANIES AND GOVERNMENT AGENCIES IN WRITING OF THE INTENT TO EXCAVATE NO LESS THAN 72 HOURS PRIOR TO SUCH EXCAVATION (EXCLUSIVE OF SATURDAYS, SUNDAYS, AND HOLIDAYS).
2. CONTRACTORS TO CALL 811 (OR VISIT CALL811.COM) TO REQUEST UTILITY LOCATES. ONCE COMPLETION OF MARKINGS HAS BEEN CONFIRMED BY THE CONTRACTOR, NO AUTOMATED OR MECHANICAL EQUIPMENT SHOULD BE USED WITHIN TWO FEET ON EITHER SIDE OF THE MARKINGS (OR ANOTHER MORE STRINGENT TOLERANCE AS DIRECTED), AND EXISTING FACILITIES MUST BE EXPOSED BY HAND.
3. EXISTING UTILITY LOCATIONS SHOWN SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION. LOCATIONS OF UNDERGROUND UTILITIES ON THESE DRAWINGS ARE APPROXIMATE ONLY AND BASED ON ACTUAL FIELD LOCATIONS OF VISIBLE STRUCTURES AND PLAN COMPUTATIONS.

UNANTICIPATED SOIL CONDITIONS

1. IF UNSUITABLE BEARING MATERIALS ARE ENCOUNTERED AT THE SPECIFIED SUBGRADE DEPTHS, THE CONTRACTOR SHALL NOTIFY THE OWNER. SOIL SUBGRADES WHICH ARE UNSTABLE DUE TO INADEQUATE CONSTRUCTION DEWATERING OR EXCESSIVE SUBGRADE DISTURBANCE ARE NOT DEEMED UNSUITABLE SOILS.
2. FILL SOIL THAT IS NOT WITHIN +/- 2% OPTIMUM MOISTURE FOR COMPACTION OF THE PARTICULAR MATERIAL IN PLACE AS DETERMINED BY THE OWNER'S REPRESENTATIVE AND IS DISTURBED BY THE CONTRACTOR DURING CONSTRUCTION OPERATIONS SO THAT PROPER COMPACTION CANNOT BE REACHED SHALL NOT BE CONSTRUED AS UNSUITABLE BEARING MATERIAL.
3. THE CONTRACTOR SHALL FOLLOW A CONSTRUCTION PROCEDURE WHICH PERMITS VISUAL IDENTIFICATION OF FIRM NATURAL GROUND.
4. SURFACE RUNOFF: SURFACE WATER ON AND AROUND THE SITE SHALL BE COLLECTED INTO LOCAL SUMPS BY MEANS OF TRENCHES, PIPES, ETC., AND PUMPED INTO THE STORM WATER SYSTEM. USE APPROPRIATE FILTRATION OR SEDIMENTATION TO PREVENT PUMPING OF SUSPENDED SOLIDS INTO THE STORM SEWER. A PERMIT MUST BE OBTAINED FOR SUCH PUMPING.
5. DEWATERING OF TRENCHES AND EXCAVATIONS: TRENCHES AND EXCAVATIONS SHALL BE KEPT FREE OF STANDING WATER AT ALL TIMES. PUMPING IS TO BEGIN AS SOON AS WATER BEGINS TO ACCUMULATE AND IS TO CONTINUE UNTIL WATER IS REMOVED.

SITE ACCESSIBILITY

1. ALL FEATURES OF THIS PROJECT INCLUDING, BUT NOT LIMITED TO, SIDEWALKS, CURB RAMPS, ACCESSIBLE PARKING, AND ACCESSIBLE ROUTES SHALL COMPLY WITH THE APPLICABLE ACCESSIBILITY CODES [AMERICANS WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES: THE PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG) PUBLISHED IN THE FEDERAL REGISTER AUGUST 2023; INTERNATIONAL BUILDING CODE (IBC); ICC A117.1; ETC.]
2. WHERE SPATIAL LIMITATIONS OR EXISTING FEATURES WITHIN THE LIMITS OF THE PROJECT PREVENT FULL COMPLIANCE WITH THESE GUIDELINES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER UPON DISCOVERY OF SUCH FEATURES. THE CONTRACTOR SHALL NOT PROCEED WITH ANY ASPECT OF THE WORK WHICH IS NOT IN FULL COMPLIANCE WITH THESE GUIDELINES WITHOUT PRIOR, WRITTEN PERMISSION FROM THE ENGINEER. ANY WORK WHICH IS NOT PERFORMED WITHIN THESE GUIDELINES, FOR WHICH THE CONTRACTOR DOES NOT HAVE WRITTEN APPROVAL, SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

3. GENERAL SLOPE GUIDANCE:
   - 3.1. CROSS SLOPES SHALL NOT EXCEED 1:50 (2.0%). PREFERRED SLOPE IS 1.5%.
   - 3.2. RUNNING SLOPES SHALL NOT EXCEED 5% EXCEPT AT RAMPS. PREFERRED MAXIMUM SLOPE IS 4.5%.
   - 3.3. RAMP RUNNING SLOPES SHALL NOT EXCEED 1:12 (8.3%). PREFERRED MAXIMUM SLOPE IS 7.8%.
   - 3.4. SLOPES AT LANDINGS, ACCESSIBLE PARKING STALLS, AND ACCESSIBLE AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION. PREFERRED MAXIMUM SLOPE IS 1.5%.
   - 3.5. EXCEPTIONS WITHIN THE PUBLIC RIGHT-OF-WAY: WHERE THE ESTABLISHED ADJACENT STREET GRADE EXCEEDS 5%, RUNNING SLOPES PARALLEL TO THE STREET SLOPES SHALL NOT EXCEED THE GENERAL GRADE ESTABLISHED FOR THE ADJACENT STREET. CURB RAMP RUNNING SLOPE CAN EXCEED 8.3% TO LIMIT THE RESULTING THE RAMP LENGTH TO 15 FEET.

GEOTECHNICAL

1. NONE PROVIDED.

SURVEY

1. EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION ARE SHOWN PER THE FIELD SURVEY PERFORMED BY WALLACE DESIGN COLLECTIVE, PC DATED APRIL 8, 2025.

AS-BUILTS:

THE CONTRACTOR SHALL KEEP ON SITE A CURRENT SET OF THE APPROVED CONSTRUCTION WORKING DRAWINGS AT ALL TIMES. THE CONTRACTOR SHALL MARK (IN RED INK) ALL CHANGES MADE TO THE APPROVED PLANS. THESE CHANGES MAY BE INITIATED FROM FIELD CONDITIONS, CHANGES MADE BY THE ENGINEER OF RECORD, OR CHANGES REQUESTED BY REPRESENTATIVES OF THE JURISDICTIONS HAVING AUTHORITY. ALL CHANGES SHALL BE REVIEWED AND AGREED TO BY THE ENGINEER OF RECORD PER AN RFI SUBMITTAL PROCESS. THE CONTRACTOR SHALL SUBMIT THE WORKING DRAWINGS TO THE ENGINEER OF RECORD AFTER FINAL INSPECTION OF THE PROJECT TO SERVE AS A BASIS FOR DEVELOPMENT OF FINAL AS-BUILT RECORD DOCUMENTS.

CAUTION

NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

SHEET INDEX

LEGEND

ABBREVIATIONS

BC	BACK OF CURB
BL	BUILDING LINE
CL	CENTERLINE
EG	EXISTING GRADE
FF	FINISHED FLOOR
FG	FINISHED GRADE
FL	FLOWLINE
GL	GUTTER LINE
HP	HIGH POINT
INV	INVERT
LF	LINEAR FEET
LP	LOW POINT
RW	RIGHT-OF-WAY
SF	SQUARE FEET
SY	SQUARE YARDS
TBK	TOP OF BANK
TC	TOP OF CURB
TG	TOP OF GRATE
TOE	TOE OF BANK
TP	TOP OF PAVEMENT
TR	TOP OF RIM
TS	TOP OF SIDEWALK
TW	TOP OF WALL

LINETYPES

CENTERLINE
SILT FENCE
LIMITS OF CONSTRUCTION
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
EASEMENT
FENCE
PROPERTY LINE
LOT LINE
BUILDING SETBACK
FIBER OPTIC
OVERHEAD COMMUNICATION
UNDERGROUND COMMUNICATION
OVERHEAD ELECTRIC
UNDERGROUND ELECTRIC
NATURAL GAS
SEWER FORCE MAIN
SANITARY SEWER MAIN
SANITARY SEWER SERVICE
DRAINAGE AREA, MAJOR
DRAINAGE AREA, MINOR
DRAINAGE FLOW PATH
STORM DRAINAGE PIPE
FIRE LINE
WATER LINE
WATER SERVICE LINE
IRRIGATION LINE

SYMBOLS

UTILITY POLE
LIGHT POLE
GUY ANCHOR
ELECTRIC BOX
ELECTRIC METER
ELECTRIC TRANSFORMER
A/C UNIT
ELECTRIC MANHOLE
GAS METER
GAS VALVE
OIL/GAS WELLHEAD
VENT PIPE
PIPELINE MARKER
COMMUNICATION PEDESTAL
COMMUNICATION MANHOLE
SEWER CLEAN-OUT
SANITARY SEWER MANHOLE
DOWNSPOUT
ROOF DRAIN
STORM DRAIN MANHOLE
FIRE DEPARTMENT CONNECTION
FIRE HYDRANT
IRRIGATION CONTROL VALVE
SHUT-OFF VALVE
SPRINKLER HEAD
WATER METER
WATER VALVE
YARD HYDRANT
PIPE BOLLARD
BENCHMARK
ACCESSIBLE PARKING
MAILBOX
MONITORING WELL
POTHOLE
SIGN

BENCHMARKS:

BENCHMARKS PER TOPOGRAPHIC SURVEY COMPLETED BY WALLACE DESIGN COLLECTIVE, PC DATED APRIL 8, 2025.

BENCHMARK 40000	BENCHMARK 40002
3/8" IPS W/ CAP "WDC CONTROL"	SET MAG NAIL W/ WASHER "WDC CONTROL"
ELEV: 544.82	ELEV: 543.94
N: 181549.47	N: 181601.49
E: 2916723.43	E: 2916863.40

ARCHITECT:

JAMES R. CHILDERS
ARCHITECT, INC.
45 SOUTH 4TH STREET
FORT SMITH, AR 72901
479.783.2480

BUILDING DEVELOPMENT:

KEITH MILLER, DIRECTOR
CITY HALL 2ND FLOOR
115 E CHOCTAW
SALLISAW, OK 74995
918.775.6241

ENGINEER:

WALLACE DESIGN COLLECTIVE
123 N. MARTIN LUTHER KING JR. BLVD.
TULSA, OKLAHOMA 74103
918.584.5858

FIRE:

OKLAHOMA STATE FIRE MARSHALL
2401 NW 23RD, SUITE 4
OKLAHOMA CITY, OK 73107
405.522.5005

GAS:

ARKANSAS OKLAHOMA GAS COMPANY
ALLEN SOPHIRE
115 N. 12TH STREET
FORT SMITH, AR
479.783.3181

COMMUNICATION

DIAMONDNET
115 E. CHOCTAW
SALLISAW, OK 74955
918.775.6241
918.775.4151

ELECTRIC/WATER/SEWER:

CITY OF SALLISAW
115 E. CHOCTAW
SALLISAW, OK 74955
918.775.6241

Know what's below. Call before you dig.

CAUTION

NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

CHILDERS ARCHITECT
A NATIVE AMERICAN OWNED FIRM
45 South 4th Street
Fort Smith, AR 72901
479-783-2480
www.childersarchitect.com

PROFESSIONAL SEAL:

Licensed Professional Engineer — Eric Allen LaMont — Oklahoma

5/28/2025

CONSULTANT LOGO:

wallace design collective

wallace design collective, pc
structural · civil · landscape · survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-25

CLIENT:

SEAL OF THE CHEROKEE NATION — SEPT. 6, 1839

CN REDBIRD HEALTH CENTER
GENERATOR
301 SOUTH J T STITES STREET, SALLISAW, OK 74955

KEY PLAN:

PROJECT PHASE:

FINAL CONSTRUCTION DOCUMENTS

REVISIONS	

JOB NUMBER: 25-08.68

DATE: 05/29/25

SHEET NUMBER: **C1.00**

SHEET TITLE: COVER

GENERAL SITE NOTES:

1. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL MUNICIPAL REGULATIONS AND CODES, WHICHEVER IS MORE STRINGENT.
2. ALL WORK AND MATERIALS SHALL COMPLY WITH O.S.H.A. STANDARDS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES' SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN BASE BID.
4. ALL DIMENSIONS AND COORDINATES ARE FROM FACE OF CURB UNLESS SHOWN OTHERWISE.

GENERAL EROSION CONTROL NOTES:

1. ALL GRADING AND EROSION CONTROL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE CITY OF SALLISAW STANDARDS AND SPECIFICATIONS.
2. THE PERMITTEE SHALL BE RESPONSIBLE FOR NOTIFYING THE LAND OWNER AND EACH CONTRACTOR OR ENTITY (INCLUDING UTILITY CREWS AND CITY EMPLOYEES OR THEIR AGENTS) WHO WILL PERFORM WORK AT THE SITE OF THE EXISTENCE OF THE SWPPP AND WHAT ACTIONS OR PRECAUTIONS SHALL BE TAKEN WHILE ON-SITE TO MINIMIZE THE POTENTIAL FOR EROSION AND THE POTENTIAL FOR DAMAGING ANY BMP. THE PERMITTEE IS RESPONSIBLE FOR ANY DAMAGE A SUBCONTRACTOR MAY DO TO ESTABLISHED BMPS AND ANY SUBSEQUENT WATER QUALITY VIOLATION RESULTING FROM THE DAMAGE.
3. ENSURE THE DESIGN, INSTALLATION, AND MAINTENANCE OF EFFECTIVE EROSION AND SEDIMENT CONTROLS TO MINIMIZE THE DISCHARGE OF POLLUTANTS. AT A MINIMUM, SUCH CONTROLS MUST BE DESIGNED, INSTALLED, AND MAINTAINED TO:
   - 3.1. CONTROL STORMWATER VOLUME, VELOCITY, AND PEAK FLOW RATES WITHIN THE SITE TO MINIMIZE SOIL EROSION;
   - 3.2. CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOW RATES AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS AND TO MINIMIZE DOWNSTREAM CHANNEL AND STREAM BANK EROSION AND SCOUR;
   - 3.3. MINIMIZE THE AMOUNT OF EXPOSED SOIL DURING CONSTRUCTION ACTIVITY;
   - 3.4. MINIMIZE THE DISTURBANCE OF STEEP SLOPES;
   - 3.5. MINIMIZE SEDIMENT DISCHARGES FROM THE SITE. DESIGN, INSTALL AND MAINTAIN EROSION AND SEDIMENT CONTROLS THAT ADDRESS FACTORS SUCH AS THE AMOUNT, FREQUENCY, INTENSITY AND DURATION OF PRECIPITATION, THE NATURE OF RESULTING STORMWATER RUNOFF, AND SOIL CHARACTERISTICS, INCLUDING THE RANGE OF SOIL PARTICLE SIZE EXPECTED TO BE PRESENT ON THE SITE.
   - 3.6. PROVIDE AND MAINTAIN NATURAL BUFFERS AROUND SURFACE WATERS
   - 3.7. DIRECT STORMWATER TO VEGETATED AREAS TO INCREASE SEDIMENT REMOVAL AND MAXIMIZE STORMWATER INFILTRATION AND FILTERING, UNLESS INFEASIBLE; AND
   - 3.8. MINIMIZE SOIL COMPACTION AND PRESERVE TOPSOIL WHERE PRACTICABLE
4. INSTALLATION OF BMPS NECESSARY TO PREVENT SOIL EROSION AND SEDIMENTATION AT THE DOWNGRADIENT PROJECT BOUNDARY (E.G. BUFFERS, PERIMETER CONTROLS, EXIT POINT CONTROLS, STORM DRAIN INLET PROTECTION) MUST BE COMPLETE PRIOR TO THE START OF ALL PHASES OF CONSTRUCTION. BY THE TIME CONSTRUCTION ACTIVITY IN ANY GIVEN PORTION OF THE SITE BEGINS, DOWNGRADIENT BMPS MUST BE INSTALLED AND OPERATIONAL TO CONTROL DISCHARGES FROM THE INITIAL SITE CLEARING, GRADING, EXCAVATING, AND OTHER EARTH-DISTURBING ACTIVITIES. ADDITIONAL BMPS SHALL BE INSTALLED AS NECESSARY THROUGHOUT THE LIFE OF THE PROJECT. FOLLOWING THE INSTALLATION OF THESE INITIAL BMPS, ALL BMPS NEEDED TO CONTROL DISCHARGES SHALL BE INSTALLED AND MADE OPERATIONAL PRIOR TO SUBSEQUENT EARTH DISTURBING ACTIVITIES.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING OF VEHICLE WHEELS IN ACCORDANCE WITH THE CITY OF SALLISAW STANDARDS AND SPECIFICATIONS.
6. UNLESS LOCAL OR STATE REQUIREMENTS NECESSITATE MORE FREQUENT MONITORING, CONTRACTOR SHALL INSPECT EROSION CONTROL DEVICES EVERY 7 DAYS OR WITHIN 24 HOURS OF A STORM OF 0.5 INCHES OR MORE IN DEPTH (EXCLUSIVE OF HOLIDAYS). THE CONTRACTOR SHALL REPAIR DAMAGE, CLEAN OUT SEDIMENT, AND ADD ADDITIONAL CONTROL DEVICES AS NEEDED AS SOON AS POSSIBLE AFTER INSPECTION. DEFICIENCIES MUST BE CORRECTED WITHIN 7 DAYS.
7. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY AND ALL FINES ASSOCIATED WITH EROSION CONTROL VIOLATIONS.

TEMPORARY STABILIZATION:

1. INITIATE THE INSTALLATION OF STABILIZATION MEASURES IMMEDIATELY IN ANY DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE OR WILL BE TEMPORARILY INACTIVE FOR 14 OR MORE CALENDAR DAYS ON ANY PORTION OF THE SITE.
2. TEMPORARY STABILIZATION SHALL INCLUDE TEMPORARY SEEDING, GEOTEXTILES, MULCHES, AND/OR OTHER TECHNIQUES TO REDUCE OR ELIMINATE EROSION UNTIL EITHER FINAL STABILIZATION CAN BE ACHIEVED OR UNTIL FURTHER CONSTRUCTION ACTIVITIES TAKE PLACE TO RE-DISTURB THIS AREA.
3. TEMPORARY STABILIZATION SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL AND STATE REQUIREMENTS.

FINAL STABILIZATION:

1. FINAL STABILIZATION SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL AND STATE REQUIREMENTS.
2. UNLESS OTHERWISE INDICATED, ALL DISTURBED SOIL AREAS SHALL RECEIVE FOUR (4) INCHES OF TOPSOIL AND SHALL BE PERMANENTLY STABILIZED WITH SEED OR SOD.
3. CONTRACTOR SHALL MAINTAIN PERENNIAL VEGETATION UNTIL UNIFORM COVER IS ESTABLISHED. UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS, THIS SHALL INCLUDE A MINIMUM OF 70% COVERAGE AND NO BARE AREAS OF 10 SQUARE FEET OR MORE.

GENERAL DEMOLITION NOTES:

1. ALL CONCRETE AND ASPHALT NOTED FOR REMOVAL SHALL BE SAW CUT FULL DEPTH AND REMOVED OFF SITE.
2. CONTRACTOR SHALL PROTECT ALL SURVEY CONTROL POINTS.
3. CONTRACTOR SHALL REMOVE ALL WASTE MATERIALS OFF SITE.
4. ALL EXISTING STRUCTURES, UNLESS OTHERWISE NOTED TO REMAIN, FENCING, TREES, ETC., WITHIN CONSTRUCTION AREA SHALL BE REMOVED & DISPOSED OF OFF SITE. ALL COST SHALL BE INCLUDED IN BASE BID.
5. WITH PRIOR APPROVAL, CONTRACTOR MAY ESTABLISH AN ON-SITE STAGING AREA. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING STAGING AREA TO ITS ORIGINAL CONDITION. SECURITY OF STAGING AREA SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
6. ON-SITE VEGETATION SHALL BE PROTECTED AS NOTED. IN DESIGNATED PROTECTION AREAS WHERE THE CONTRACTOR DOES NOT PROTECT VEGETATION AS NOTED, CONTRACTOR SHALL RESTORE VEGETATION TO EXISTING CONDITION AT NO ADDITIONAL EXPENSE TO THE OWNER, TO THE SATISFACTION OF THE ARCHITECT.
7. CONTRACTOR SHALL PROTECT ALL ABOVE GROUND UTILITY FEATURES NOT BEING REMOVED INCLUDING, BUT NOT LIMITED TO, MANHOLES, VALVES, AND INLETS. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE THE EXISTING STRUCTURE AS NECESSARY.
8. TOPSOIL STOCKPILES AND DISTURBED PORTIONS OF THE SITE, WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR AT LEAST 14 DAYS SHALL BE STABILIZED IMMEDIATELY WITH TEMPORARY SEED AND MULCH PER THE AUTHORITY HAVING JURISDICTION.
9. CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL DURING CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, LANE CLOSURES, DETOURS, ETC. BOTH VEHICULAR AND PEDESTRIAN.
10. CONTRACTOR SHALL PROVIDE TEMPORARY UTILITY SERVICE IF REQUIRED.
11. CONTRACTOR SHALL ENSURE CONSTRUCTION SITE HAS POSITIVE DRAINAGE THROUGHOUT THE DURATION OF CONSTRUCTION.
12. PRIOR TO UTILITY DEMOLITION COORDINATE WITH AUTHORITY HAVING JURISDICTION.
13. UTILITIES BEING REMOVED OR RELOCATED SHALL BE ISOLATED AND SERVICE DISCONNECTED PRIOR TO ANY DEMOLITION.
14. NO UTILITY INTERRUPTIONS WILL BE ALLOWED WITHOUT CONSENT OF THE OWNER. CONTRACTOR SHALL NOTIFY THE OWNER AND ARCHITECT A MINIMUM OF FOUR WORKING DAYS PRIOR TO THE REQUESTED SHUT DOWN.

GENERAL PAVING NOTES:

1. ALL MATERIALS, EXECUTION, AND TESTING TO CONFORM TO AHJ REQUIREMENTS (I.E. LOCAL OR STATE DOT STANDARDS AND SPECIFICATIONS).
2. ALL PAVING AND EARTHWORK OPERATIONS SHALL CONFORM TO PLANS AND SPECIFICATIONS.
3. CONTRACTOR TO PROVIDE PRODUCT DATA SUBMITTALS INCLUDING, BUT NOT LIMITED TO, DESIGN MIXES, MATERIAL CERTIFICATES, AND MATERIAL TEST REPORTS FOR MATERIALS AND PRODUCTS ASSOCIATED WITH PAVING AND PAVEMENT MARKING OPERATIONS.
4. CONTRACTOR SHALL DEVELOP AND IMPLEMENT PROPER TRAFFIC CONTROL IN CONFORMANCE WITH THE LATEST REVISION OF THE MUTCD. ACCESS FOR EMERGENCY VEHICLES AND LOCAL TRAFFIC SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
5. PAVEMENT SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AND TO THE GRADES AND ELEVATIONS REQUIRED BY THE CONSTRUCTION DOCUMENTS.
6. PAVEMENT CONTRACTOR TO INSPECT PAVEMENT SUBGRADE AND CORRECT ANY DEFICIENCIES PRIOR TO PAVING OPERATIONS.
7. CONTRACTOR TO COORDINATE CONSTRUCTION TESTING UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS.
8. THE PAVEMENT SECTIONS SHOWN IN DETAIL 1 / C8.00 ARE SHOWN FOR REFERENCE. ANY QUESTIONS REGARDING THE SUITABILITY OF THESE OR ALTERNATE PAVEMENTS SECTIONS, SPECIFIC PAVEMENT MAINTENANCE REQUIREMENTS, OR POTENTIAL PAVEMENT LIFE SHOULD BE DIRECTED TO THE ONSITE GEOTECHNICAL ENGINEER, AS THIS IS BEYOND WALLACE'S SCOPE OF SERVICES FOR THIS PROJECT.

ASPHALT PAVEMENT:

9. CONSTRUCT JOINTS TO ENSURE A CONTINUOUS BOND BETWEEN ADJOINING PAVEMENT SECTIONS. OFFSET LONGITUDINAL JOINTS, IN SUCCESSIVE COURSES, A MINIMUM OF 6 INCHES AND TRANSVERSE JOINTS A MINIMUM OF 24 INCHES.
10. WHERE DIFFERENT THICKNESS PAVEMENTS ABUT, PROVIDE A THICKENED EDGE ON THE THINNER PAVEMENT SECTION, WHICH TRANSITIONS TO THE THICKER PAVEMENT DEPTH ACROSS FOUR FEET.
11. UNIFORM DENSITY REQUIREMENTS:
   - 11.1. AVERAGE DENSITY: 96 PERCENT OF REFERENCE LABORATORY DENSITY ACCORDING TO ASTM D 6927 BUT NOT LESS THAN 94 PERCENT OR GREATER THAN 100 PERCENT, OR
   - 11.2. AVERAGE DENSITY: 92 PERCENT OF REFERENCE MAXIMUM THEORETICAL DENSITY ACCORDING TO ASTM D 2041 BUT NOT LESS THAN 90 PERCENT OR GREATER THAN 96 PERCENT.
12. INSTALLATION TOLERANCES:
   - 12.1. PAVEMENT THICKNESS: BASE COURSE PLUS OR MINUS 1/2 INCH; SURFACE PLUS 1/4 INCH.
   - 12.2. PAVEMENT SMOOTHNESS: BASE COURSE 1/4 INCH IN 10 FEET; SURFACE COURSE 1/8 INCH IN 10 FEET.

CONCRETE PAVEMENT:

13. CONCRETE PLACEMENT TO CONFORM TO ACI 301 / 306 / 330 REQUIREMENTS.
14. CONCRETE MATERIAL:
   - 14.1. 28 DAY COMPRESSIVE STRENGTH: 4000 PSI MINIMUM
   - 14.2. MAXIMUM W/C RATIO AT POINT OF PLACEMENT: 0.45
   - 14.3. SLUMP: 4 INCHES PLUS OR MINUS 1 INCH
   - 14.4. AIR CONTENT: 6 PERCENT PLUS OR MINUS 1-1/2 PERCENT
15. STEEL:
   - 15.1. GRADE 60
   - 15.2. COMPLY WITH CRSI'S "MANUAL OF STANDARD PRACTICE" FOR FABRICATION, PLACEMENT, AND SUPPORT.
16. JOINTS:
   - 16.1. FORM CONSTRUCTION, ISOLATION, AND CONTRACTION JOINTS WITH FACES PERPENDICULAR TO SURFACE PLANE OF CONCRETE. WHEN JOINING EXISTING PAVING, PLACE JOINTS TO ALIGN WITH PREVIOUSLY PLACED JOINTS UNLESS OTHERWISE INDICATED.
   - 16.2. FORM ISOLATION JOINTS OF PREFORMED JOINT-FILLER STRIPS ABUTTING LIGHT STANDARD FOUNDATIONS, MANHOLES, INLETS, STRUCTURES, OR OTHER FIXED OBJECTS. EXTEND JOINT FILLERS THE FULL WIDTH AND DEPTH OF PAVEMENT.
   - 16.3. CONTRACTION JOINT DEPTH TO BE 1/4 OF THE TOTAL CONCRETE THICKNESS.
   - 16.4. JOINTS SHOULD EXTEND THROUGH ADJACENT CURB AND GUTTER.
17. JOINT SPACING
   - 17.1. JOINT SPACING SHALL NOT EXCEED 24 TO 30 TIMES THE PAVEMENT THICKNESS (E.G. 0.5' THICK CONCRETE x 30 = 15' MAXIMUM JOINT SPACING) WITH A MAXIMUM SPACING OF 15 FEET.
   - 17.2. LAY OUT JOINTS TO FORM SQUARE PANELS. WHEN THIS IS NOT PRACTICAL, RECTANGULAR PANELS CAN BE USED, BUT THE LENGTH SHALL NOT BE MORE THAN 25% LONGER THAN THE WIDTH (E.G. A 15' LONG PANEL CANNOT BE WIDER THAN 12').
   - 17.3. CONTRACTOR TO SUBMIT A JOINT LAYOUT PLAN FOR REVIEW AND APPROVAL PRIOR TO COMMENCING PAVING OPERATIONS. CONTRACTOR TO TAKE INTO ACCOUNT REVIEW TIME AND CHANGES PER ANY COMMENTS WHEN SCHEDULING THE SUBMISSION OF THE JOINT LAYOUT PLAN.
18. REINFORCEMENT OF IRREGULARLY SHAPED PANELS OR MISMATCHED JOINTS
   - 18.1. ON PANELS WITH RADII, ON PANELS THAT TAPER TO A SHARP ANGLE, AND/OR WHEN THE LENGTH TO WIDTH RATIO EXCEEDS 1.25, PROVIDE A MINIMUM OF 0.05 PERCENT STEEL IN BOTH DIRECTIONS ACROSS THE ENTIRE PANEL.
   - 18.2. WHERE JOINT PATTERNS OF ABUTTING PAVEMENTS DO NOT MATCH AND ARE NOT SEPARATED BY AN EXPANSION JOINT, PROVIDE A MINIMUM OF 0.05 PERCENT STEEL IN THE PAVEMENT OPPOSITE OF THE MISMATCHED JOINT FOR A DISTANCE OF THREE FEET BACK FROM THE JOINT ALONG THE FULL WIDTH OF THE PANEL.
19. WHERE DIFFERENT THICKNESS PAVEMENTS ABUT, PROVIDE A THICKENED EDGE ON THE THINNER PAVEMENT SECTION WHICH TRANSITIONS TO THE THICKER PAVEMENT DEPTH ACROSS FOUR FEET.
20. PROVIDE MEDIUM TO FINE TEXTURED BROOM FINISH UNLESS OTHERWISE INDICATED ON THE PLANS.
21. INSTALLATION TOLERANCES
   - 21.1. ELEVATION: 1/4 INCH
   - 21.2. THICKNESS: PLUS 3/8 INCH, MINUS 1/4 INCH
   - 21.3. SURFACE: 1/4 INCH IN 10 FEET

PAVEMENT MARKINGS:

22. ALLOW PAVING TO AGE A MINIMUM OF 30 DAYS BEFORE STARTING PAVEMENT MARKING OPERATIONS.
23. PAVEMENT MARKING PAINT SHALL BE ACRYLIC, WATERBORNE EMULSION, LEAD AND CHROMATE FREE, READY MIXED, COMPLYING WITH FS TT-P-1952, TYPE II, WITH A DRYING TIME OF LESS THAN THREE MINUTES.
24. COLOR AS INDICATED.

GENERAL UTILITY NOTES:

1. PRIOR TO CONSTRUCTION, LOCATION OF SITE UTILITIES SHALL BE VERIFIED BY CONTRACTOR WITH THE PROPER UTILITY COMPANY PROVIDING SERVICE. SERVICE LINES SHOWN FOR COORDINATION AND REFERENCE ONLY. CONTRACTOR SHALL COORDINATE WITH ALL SERVICE PROVIDERS (TELECOMMUNICATIONS, ELECTRIC, GAS, ETC.) PRIOR TO INSTALLING SERVICE LINES OR APPURTENANCES. CONTRACTOR IS TO COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.
2. THIS PLAN DEPICTS THE INTENT OF PRIVATE AND FRANCHISE UTILITY ROUTINGS AS UNDERSTOOD DURING DESIGN PHASES OF THE PROJECT. IT IS THE OWNER/DEVELOPER'S RESPONSIBILITY TO NEGOTIATE ALL CONTRACTS FOR SERVICE WITH EACH INDIVIDUAL UTILITY COMPANY AND TO PROVIDE THE ENGINEER WITH ANY DOCUMENTS THAT MAY AFFECT THE LAYOUT.
3. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITIES' INSPECTORS BEFORE CONNECTING TO ANY EXISTING LINE IN ACCORDANCE WITH LOCAL REQUIREMENTS.
4. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE SPECIFICATIONS OF THE LOCAL AUTHORITIES REGARDING TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.
5. NOT ALL EXISTING UNDERGROUND UTILITIES MAY BE SHOWN ON THIS PLAN. THE EXACT LOCATIONS AND NOTIFICATIONS OF THE PROPER AGENCY ARE THE RESPONSIBILITY OF THE CONTRACTOR PRIOR TO CONSTRUCTION.
6. RESTRAINED JOINTS SHALL BE PROVIDED ON 4" AND LARGER WATER LINES AT ALL BENDS TEES AND FIRE HYDRANTS FOR A MINIMUM 2 JOINTS BOTH SIDES OF FITTING PER AWWA MINIMUM STANDARDS.
7. CONTRACTOR SHALL REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING PLANS FOR PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS. TERMINATE SERVICE PIPING 5' FROM BUILDING WALL UNTIL BUILDING PIPING SYSTEMS ARE INSTALLED. TERMINATE PIPING WITH VALVE AND CAP PLUG OR FLANGE AS REQUIRED FOR PIPING MATERIAL. MAKE CONNECTIONS TO BUILDING PIPING SYSTEMS WHEN THOSE SYSTEMS ARE INSTALLED.
8. REFER TO PLUMBING AND/OR FIRE PROTECTION SHEETS FOR FIRE LINE LEAD-IN LOCATION AND DETAIL. CONTRACTOR SHALL UTILIZE AWWA AND FACTORY MUTUAL TEST AND CERTIFICATIONS FOR ALL UNDERGROUND FIRE PROTECTION LINES AS A MINIMUM. LOCAL OR STATE AUTHORITIES MAY REQUIRE MORE STRINGENT TESTING WHICH SHALL BE PROVIDED BY THE GC IF REQUIRED.
9. ALL PIPING SHALL BE INSTALLED WITH A MINIMUM OF 30" OF COVER, UNLESS NOTED OTHERWISE. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS. UTILITY TRENCH DETAIL RE: 2/C8.00.
10. REFER TO MECHANICAL, ELECTRICAL, AND PLUMBING FOR CONTINUATION OF UTILITIES AT BUILDING.
11. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF ALL CONDUITS (INCLUDING IRRIGATION SLEEVES) PRIOR TO PAVING WHETHER OR NOT SHOWN ON CIVIL PLANS. THE CONTRACTOR SHALL INSTALL ALL CONDUITS WITH A PULL STRING. ALL CONDUIT SHALL BE SCH. 40 PVC, UNLESS NOTED OTHERWISE.
12. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE THE EXISTING STRUCTURE AS NECESSARY.
13. CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF ANY PROPOSED SIGN(S) AND INSTALLATION OF ANY SECURITY CAMERAS WITH OWNER'S CONSTRUCTION MANAGER. COORDINATE WITH ELECTRICAL SITE PLAN TO PROVIDE ALL CONDUIT NEEDED FOR DATA AND/OR POWER TO SITE SIGN(S), SECURITY CAMERAS, AND LIGHT POLES.

GENERAL GRADING NOTES:

1. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED, INSPECTED, AND APPROVED BY LOCAL AUTHORITIES.
2. ALL BENCHMARKS, CONTROL POINTS, PROPERTY MARKERS, AND RIGHT-OF-WAY MONUMENTS DISTURBED OR DESTROYED SHALL BE RESET UNDER THE SUPERVISION OF A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF OKLAHOMA. ALL SURVEYING COSTS SHALL BE THE CONTRACTOR'S.
3. THE CONTRACTOR SHALL VERIFY UTILITY LOCATIONS BEFORE EXCAVATING.
4. TOPSOIL SHALL BE STRIPPED TO A DEPTH WHERE SOIL IS FREE OF ROOTS AND VEGETATION.
5. REFER TO ONSITE GEOTECHNICAL ENGINEER FOR ADDITIONAL INFORMATION REGARDING PAVING AND SUBGRADE RECOMMENDATIONS. CIVIL ENGINEER WILL NOT INTERPRET ANY SOILS REPORTS OR ACCEPT RESPONSIBILITY FOR ALTERNATIVE METHODS PROPOSED BY THE CONTRACTOR.
6. UNDERCUTTING OF SOFT SPOTS AND PLACEMENT OF EARTHWORK IS GOVERNED FIRST BY THE GEOTECHNICAL REPORT. OBSERVATION AND TESTING SHALL BE PERFORMED BY A QUALIFIED GEOTECHNICAL ENGINEER TO VERIFY THAT THE SOFT SPOTS ARE PROPERLY OVEREXCAVATED AND REPLACED OR STABILIZED.
7. IF EXCAVATED MATERIAL IS UNSUITABLE FOR COMPACTION, AS DETERMINED BY THE GEOTECHNICAL ENGINEER, THE CONTRACTOR SHALL FURNISH SUITABLE BORROW.
8. STRIPPING, PROOFROLLING, SUBGRADE SCARIFICATION, COMPACTION, AND FILL CONSTRUCTION IN THE BUILDING AND PAVING AREAS SHALL BE PERFORMED ACCORDING TO THE GEOTECHNICAL REPORT. EMBANKMENT BENEATH BUILDING PADS OR FOR PAVING SUBGRADE SHALL BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES AND COMPACTED TO A MINIMUM OF 98% AND 95% STANDARD PROCTOR DENSITY, RESPECTIVELY, AT OPTIMUM MOISTURE CONTENT UNLESS OTHERWISE SPECIFIED THEREIN. CONTRACTOR SHALL PROVIDE WATER AS REQUIRED TO OBTAIN SPECIFIED COMPACTION.
9. EXCAVATE TO INDICATED ELEVATIONS AND DIMENSIONS WITHIN A TOLERANCE OF PLUS OR MINUS 1 INCH. IF APPLICABLE, EXTEND EXCAVATIONS A SUFFICIENT DISTANCE FROM STRUCTURES FOR PLACING AND REMOVING CONCRETE FORMWORK, FOR INSTALLING SERVICES AND OTHER CONSTRUCTION, AND FOR INSPECTIONS.
10. PAVING CONTRACTOR IS RESPONSIBLE TO REVIEW ALL FIELD ESTABLISHED GRADES PRIOR TO PLACEMENT OF MATERIALS SO AS TO PROVIDE POSITIVE DRAINAGE IN ALL CASES.
11. CONTRACTOR SHALL COORDINATE AND PROVIDE ALL STAKING NECESSARY TO INSTALL CONDUITS SUFFICIENT FOR UTILITY AND IRRIGATION SERVICES WHETHER OR NOT SHOWN ON THE CIVIL ENGINEER'S PLANS.
12. GRADES NOT OTHERWISE INDICATED ON THE PLANS SHALL BE UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE GIVEN, ABRUPT CHANGES IN SLOPES SHALL BE WELL ROUNDED. THE CONTRACTOR IS RESPONSIBLE FOR POSITIVE SITE DRAINAGE.
13. CONTRACTOR IS RESPONSIBLE TO MEET AND MATCH NEW PAVEMENT WITH EXISTING ADJACENT PAVEMENT AREAS. THE TRANSITION BETWEEN THIS SITE AND ADJACENT SITES MUST BE SMOOTH AND MONOLITHIC. ALL GRADING MUST MEET AND MATCH GRADES ON ALL SIDES.
14. ACCESSIBLE ROUTES AND SIDEWALKS ARE NOT TO EXCEED 5% RUNNING SLOPE (EXCEPT AT RAMPS) AND 2% CROSS. ACCESSIBLE PARKING AND ACCESS AISLES NOT TO EXCEED 2% SLOPE IN ANY DIRECTION. ALL RAMPS SHALL COMPLY WITH THE APPLICABLE ACCESSIBLE DESIGN GUIDELINES.
15. ALL CUT OR FILL SLOPES SHALL BE 3H:1V OR FLATTER UNLESS OTHERWISE NOTED.
16. LANDSCAPE ISLANDS TO BE FILLED WITH SOIL SUITABLE FOR VEGETATION. THE CONTRACTOR WILL ENSURE THAT NO PONDING WILL OCCUR AT LANDSCAPE ISLANDS. ALL SURFACE WATER MUST DRAIN AROUND THE ISLAND WITH POSITIVE SLOPE. NO WATER SHALL BE TRAPPED.
17. CONTRACTOR SHALL MEET AND MATCH TOP OF JUNCTION BOXES/MANHOLES OR CLEANOUTS WITH FINISHED PAVING GRADES. FINAL GRADES OF ABOVE SURFACE UTILITIES NOT IN PAVED AREAS, INCLUDING BUT NOT LIMITED TO JUNCTION BOX/MANHOLE LIDS, WATER METER LIDS, AND SEWER CLEANOUTS, ARE TO BE ADJUSTED BY THE UTILITY CONTRACTOR TO CONFORM TO LANDSCAPING SOD INSTALLATIONS.
18. CONTRACTOR SHALL REFER TO ARCHITECTURAL AND MEP PLANS FOR THE EXACT LOCATIONS AND DIMENSIONS OF ENTRY, EXIT PORCHES, PRECISE BUILDING DIMENSIONS, EXACT BUILDING UTILITY ENTRANCE LOCATIONS, AND DOWNSPOUTS.
19. EXISTING DRAINAGE STRUCTURES TO BE INSPECTED AND REPAIRED AS NEEDED. EXISTING PIPES ARE TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS AT THE COMPLETION OF THE PROJECT.
20. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE THE EXISTING STRUCTURE AS NECESSARY.
21. ALL STORM PIPE ENTERING CONCRETE STRUCTURES SHALL BE GROUTED TO ENSURE CONNECTION AT STRUCTURE IS WATER TIGHT.
22. CONTRACTOR IS RESPONSIBLE FOR TEMPORARY ACCESS ROADS AND SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM BUILDING AND STRUCTURES FOR ALL GRASSED AND PAVED AREAS OF ENTIRE SITE THROUGHOUT CONSTRUCTION AND AVOID PONDING OR RUTTING. TEMPORARY DEWATERING, INCLUDING PUMPING, MAY BE REQUIRED AND SHALL BE INCLUDED IN THE SCOPE OF WORK.
23. UNLESS OTHERWISE INDICATED, ALL DISTURBED SOIL AREAS SHALL RECEIVE FOUR (4) INCHES OF TOPSOIL AND SHALL BE PERMANENTLY STABILIZED WITH SEED OR SOD.
24. REMOVE ALL TREES (INCLUDING ROOTBALLS), GRASS, WEEDS, ROOTS, AND OTHER DEBRIS FROM THE AREA TO BE EXCAVATED, FILLED, OR GRADED.
25. EXISTING TREES WHERE INDICATED SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES. ALL TREE PROTECTION MEASURES SHALL BE INSTALLED PRIOR TO GRADING. ALL TREE PROTECTION FENCING TO BE INSPECTED DAILY AND ALL GRADING ACTIVITIES TO REMAIN OUTSIDE THE DRIP LINES.

UNANTICIPATED SOIL CONDITIONS

1. IF UNSUITABLE BEARING MATERIALS ARE ENCOUNTERED AT THE SPECIFIED SUBGRADE DEPTHS, THE CONTRACTOR SHALL NOTIFY THE OWNER. SOIL SUBGRADES WHICH ARE UNSTABLE DUE TO INADEQUATE CONSTRUCTION DEWATERING OR EXCESSIVE SUBGRADE DISTURBANCE ARE NOT DEEMED UNSUITABLE SOILS.
2. FILL SOIL THAT IS NOT WITHIN +/- 2% OPTIMUM MOISTURE FOR COMPACTION OF THE PARTICULAR MATERIAL IN PLACE AS DETERMINED BY THE OWNER'S REPRESENTATIVE AND IS DISTURBED BY THE CONTRACTOR DURING CONSTRUCTION OPERATIONS SO THAT PROPER COMPACTION CANNOT BE REACHED SHALL NOT BE CONSTRUED AS UNSUITABLE BEARING MATERIAL.
3. THE CONTRACTOR SHALL FOLLOW A CONSTRUCTION PROCEDURE WHICH PERMITS VISUAL IDENTIFICATION OF FIRM NATURAL GROUND.
4. SURFACE RUNOFF: SURFACE WATER ON AND AROUND THE SITE SHALL BE COLLECTED INTO LOCAL SUMPS BY MEANS OF TRENCHES, PIPES, ETC., AND PUMPED INTO THE STORM WATER SYSTEM. USE APPROPRIATE FILTRATION OR SEDIMENTATION TO PREVENT PUMPING OF SUSPENDED SOLIDS INTO THE STORM SEWER. A PERMIT MUST BE OBTAINED FOR SUCH PUMPING.
5. DEWATERING OF TRENCHES AND EXCAVATIONS: TRENCHES AND EXCAVATIONS SHALL BE KEPT FREE OF STANDING WATER AT ALL TIMES. PUMPING IS TO BEGIN AS SOON AS WATER BEGINS TO ACCUMULATE AND IS TO CONTINUE UNTIL WATER IS REMOVED.

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5/28/2025

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exp: 6-30-25

CLIENT:
SEAL OF THE CHEROKEE NATION
SEPT. 6, 1839

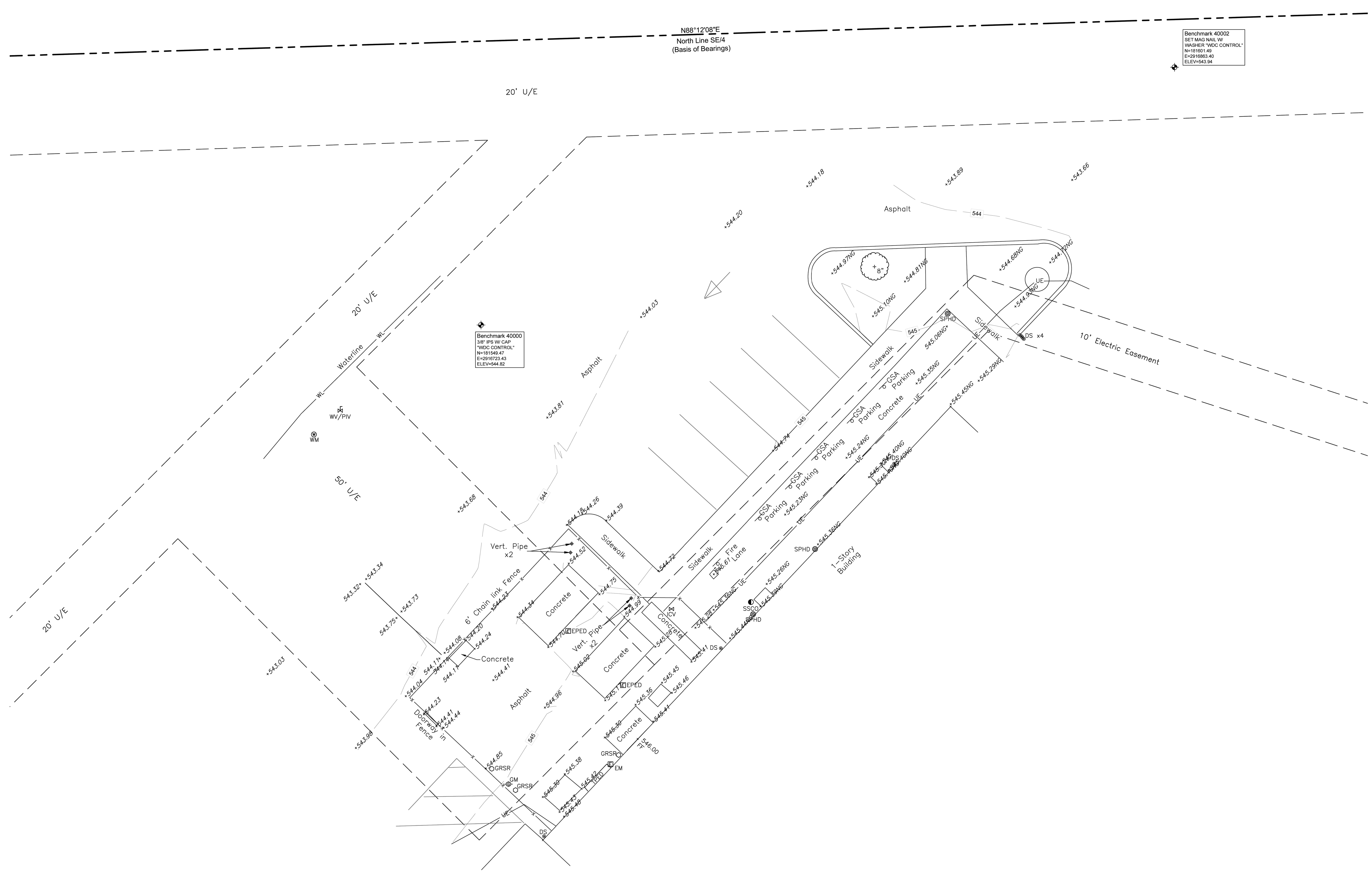
CN REDBIRD HEALTH CENTER
GENERATOR
301 SOUTH J T STITES STREET, SALLISAW, OK 74955

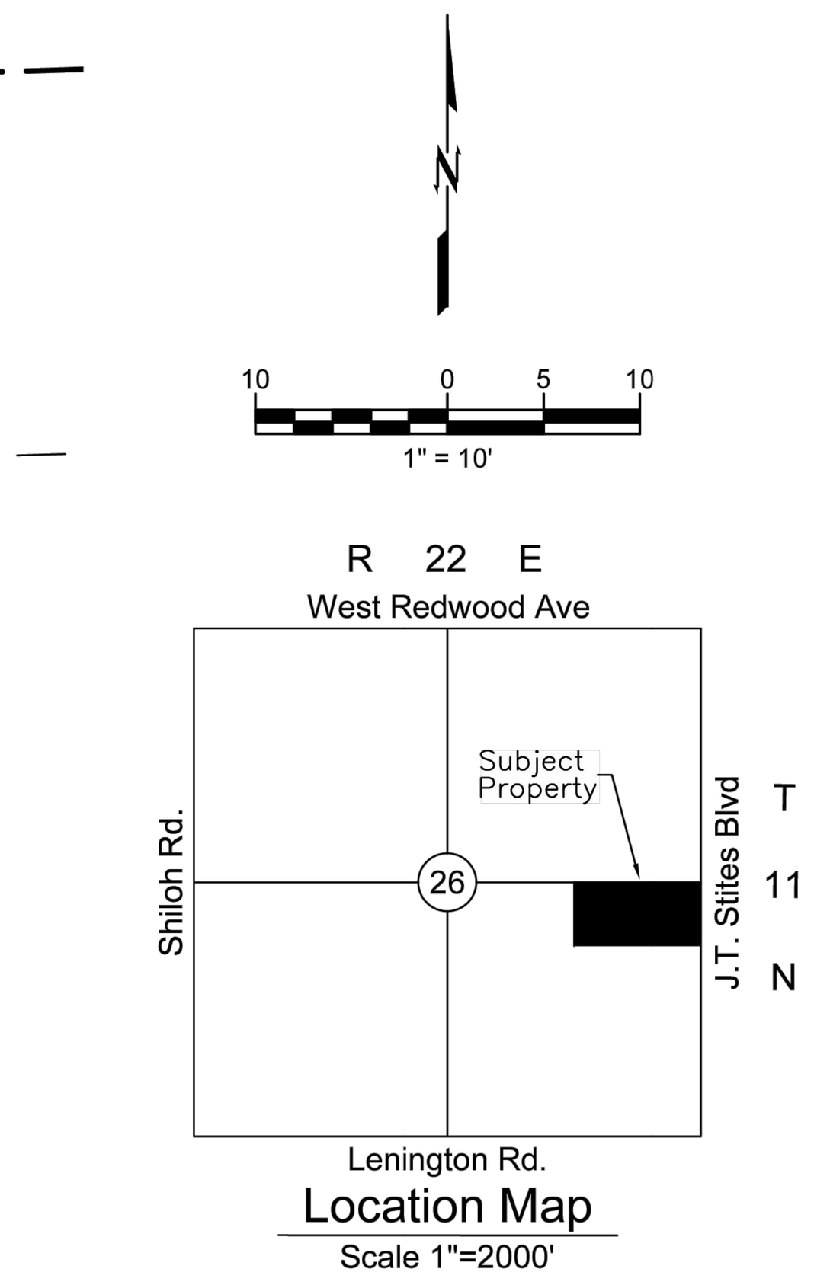
KEY PLAN:

PROJECT PHASE:
FINAL CONSTRUCTION DOCUMENTS

REVISIONS

JOB NUMBER: 25-08.68
DATE: 05/29/25
SHEET NUMBER: C1.01
SHEET TITLE: GENERAL NOTES





Benchmark Notes BM

Benchmark 40000	Benchmark 40002
3/8" IPS W/ CAP	SET MAG NAIL W/
"WDC CONTROL"	WASHER "WDC CONTROL"
N=181549.47	N=181601.49
E=2916723.43	E=2916863.40
ELEV=544.82	ELEV=543.94

LEGEND

SPHD	SPRINKLER HEAD
EPED	ELECTRIC PEDESTAL
SSCO	SEWER CLEAN-OUT
GRSR	GAS RISER
GM	GAS METER
DS	DOWNSPOUT
EM	ELECTRIC METER
ICV	IRRIGATION CONTROL VALVE
WV/PIV	WATER VALVE
WL	WATER LINE
U/E	UTILITY EASEMENT
UE	UNDERGROUND ELECTRIC

SURVEY NOTES:

1. THE BEARINGS SHOWN HEREON ARE BASED UPON THE OKLAHOMA STATE PLANE COORDINATE SYSTEM, NORTH ZONE (3501), NORTH AMERICAN DATUM 1983 (NAD83); SAID BEARINGS ARE BASED LOCALLY AS BEING BEING NORTH 88°12'08" EAST AS THE NORTH LINE OF THE SE/4 SECTION 26, TOWNSHIP 11 NORTH, RANGE 22 EAST OF THE INDIAN BASE AND MERIDIAN.
2. A TITLE COMMITMENT, INDICATING APPLICABLE EASEMENTS, HAS NOT BEEN PROVIDED, THEREFORE ALL EASEMENTS MAY NOT BE SHOWN HEREON. THIS FIRM WAS NOT CONTRACTED TO RESEARCH EASEMENTS OR ENCUMBRANCES OF RECORD, THEREFORE THE SUBJECT PROPERTY MAY HAVE EASEMENTS NOT SHOWN HEREON.
3. ALL UNDERGROUND UTILITIES MAY NOT BE SHOWN. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES PER ONE-CALL LOCATES, MUNICIPAL ATLAS SHEETS OF VARYING QUALITY, AND SURFACE VISIBLE FEATURES.
4. THE VERTICAL DATUM FOR THIS SURVEY IS BASED ON GPS DATA (NAVD88).
5. THE HORIZONTAL DATUM FOR THIS SURVEY IS BASED THE OKLAHOMA STATE PLANE COORDINATE SYSTEM NORTH ZONE (NAD83).
6. THE LAST SITE SURVEY VISIT WAS 03-13-2025.

TOPOGRAPHIC SURVEY CERTIFICATION:

I, AARON BURNS, CERTIFY THAT THIS PROJECT WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT THIS GROUND SURVEY WAS PERFORMED AT THE 95 PERCENT CONFIDENCE LEVEL TO MEET FEDERAL GEOGRAPHIC DATA COMMITTEE STANDARDS; THAT THIS SURVEY WAS PERFORMED TO MEET THE SPECIFICATIONS FOR TOPOGRAPHIC AND PLANIMETRIC MAPPING CONTAINED IN THE OKLAHOMA MINIMUM STANDARDS FOR THE PRACTICE OF LAND SURVEYING AS ADOPTED BY THE OKLAHOMA STATE BOARD OF LICENSURE FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS. THE ORIGINAL DATA WAS OBTAINED ON FEBRUARY 1, 2024; THAT THE SURVEY WAS COMPLETED ON FEBRUARY 1, 2024; AND ALL COORDINATES ARE BASED ON OKLAHOMA STATE PLANE COORDINATES, NORTH ZONE NAD83 (2011) AND ALL ELEVATIONS ARE BASED ON NAVD88.

WITNESS MY HAND AND SEAL THIS 8TH DAY OF APRIL, 2025.

REGISTERED PROFESSIONAL LAND SURVEYOR AARON BURNS 1923 OKLAHOMA

BY: [signature]
AARON BURNS
REGISTERED PROFESSIONAL LAND SURVEYOR
OKLAHOMA NO. 1923

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\\Chouteau-Server\Root\Jobs\2540095.2-Redbird Generator-Wallace_dwg (IN PROGRESS)\C3D Survey Database\2540095.2 TP.dwg PLOT:4/8/2025 1:17:46 PM ORIG SIZE:24"X36"

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tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-25

REDBIRD GENERATOR
Salisaw, OK

REV	DESCRIPTION	DATE

DATE	04/04/2025
BY	QTA
PROJECT NO.	2540095.2
SHEET NAME	TOPOGRAPHIC SURVEY
SHEET NO.	1 OF 1

SURVEY NOTE:
THIS SHEET IS FOR THE CONVENIENCE OF THE CONTRACTOR. IT IS INTENDED FOR GENERAL SURVEY INFORMATION ONLY. SURVEY INFORMATION WAS REPRODUCED BY ELECTRONIC TRANSFER FROM THE SURVEYOR. ORIGINAL SURVEY DRAWINGS AVAILABLE FROM THE SURVEYOR.
NOTE: SURVEY SCALED TO FIT PAGE.

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KEY PLAN:

PROJECT PHASE:
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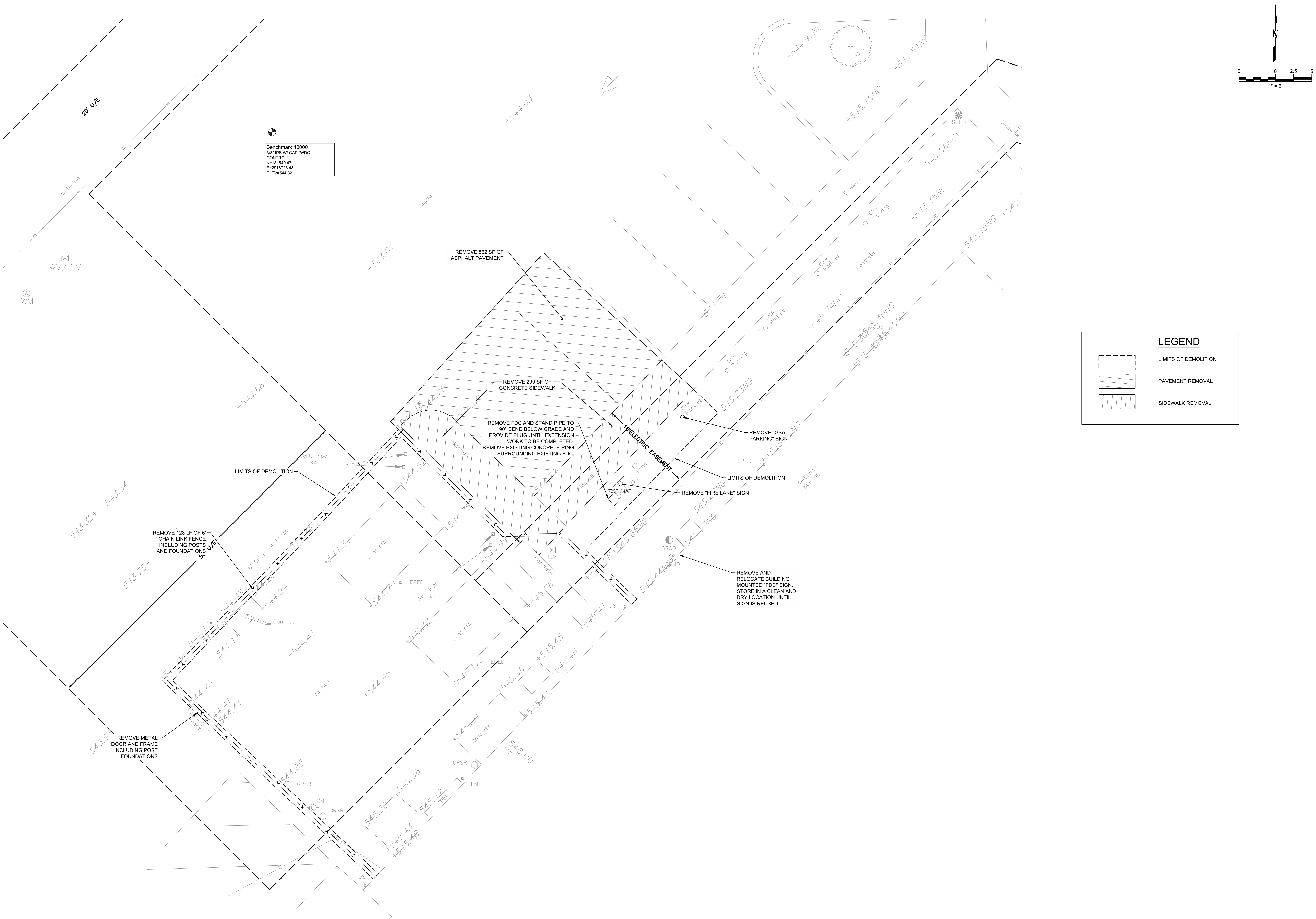
REVISIONS

JOB NUMBER:	25-08.68
DATE:	05/29/25
SHEET NUMBER:	**C2.00**
SHEET TITLE:	SURVEY



LEGEND

- LIMITS OF DEMOLITION
- PAVEMENT REMOVAL
- SIDEWALK REMOVAL

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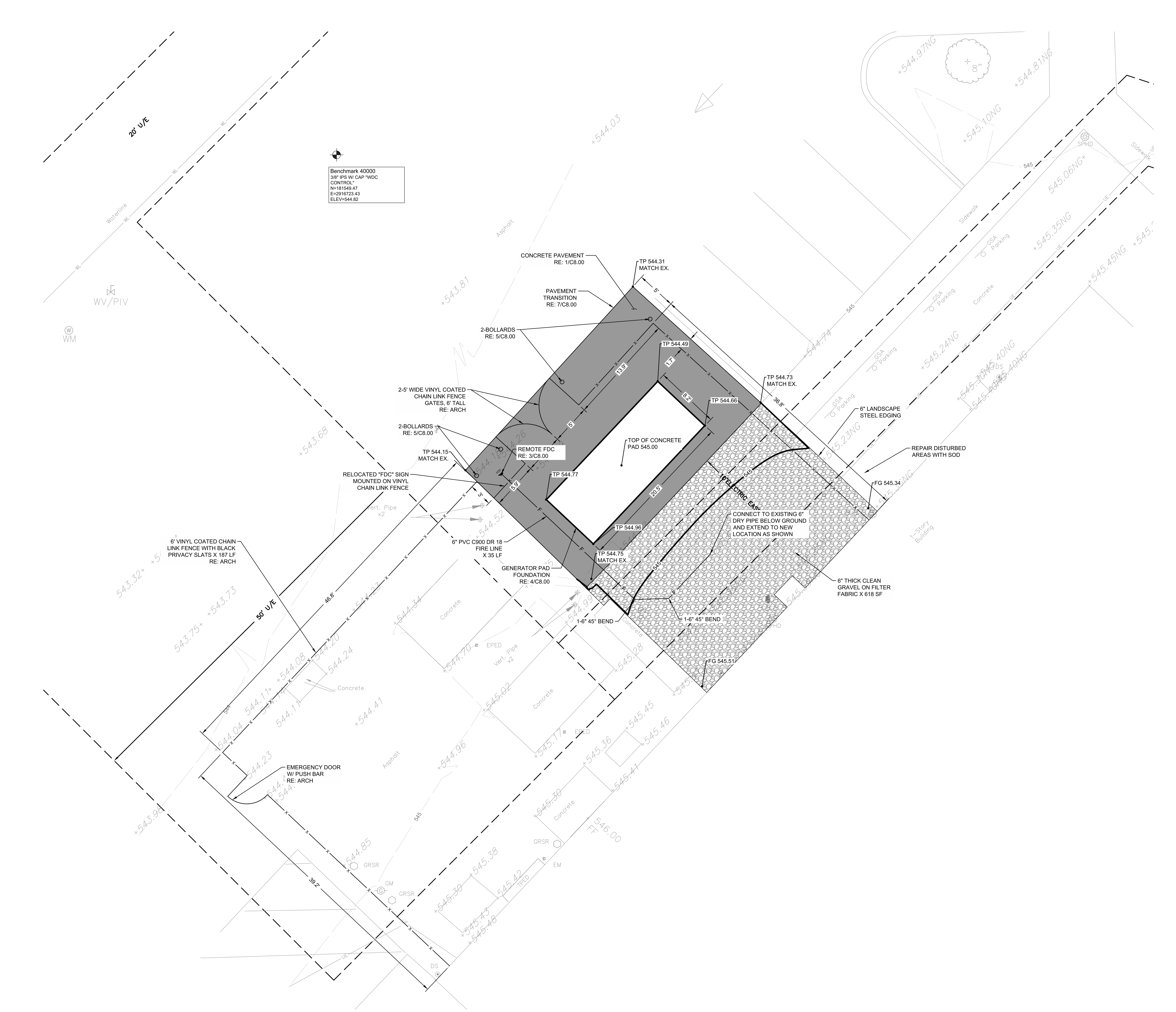
JOB NUMBER: 25-08.68
DATE: 05/29/25
SHEET NUMBER: C3.00
SHEET TITLE: DEMOLITION PLAN



Benchmark Notes

Benchmark 40000	Benchmark 40002
3/8" IPS W/ CAP	SET MAG NAIL W/
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PROFESSIONAL SEAL:
Eric Allen LeMon
OKLAHOMA
5/28/2025

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CLIENT:
SEAL OF THE CHEROKEE NATION
SEPT. 6, 1839

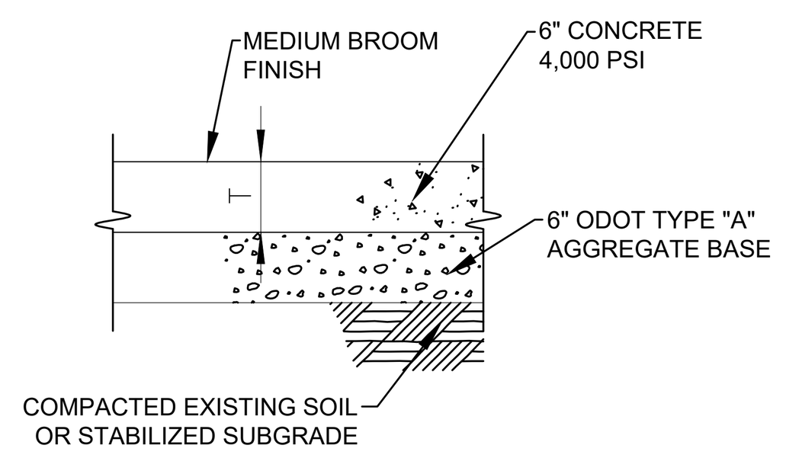
CN REDBIRD HEALTH CENTER
GENERATOR
301 SOUTH J T STITES STREET, SALLISAW, OK 74955

KEY PLAN

PROJECT PHASE:
FINAL CONSTRUCTION DOCUMENTS

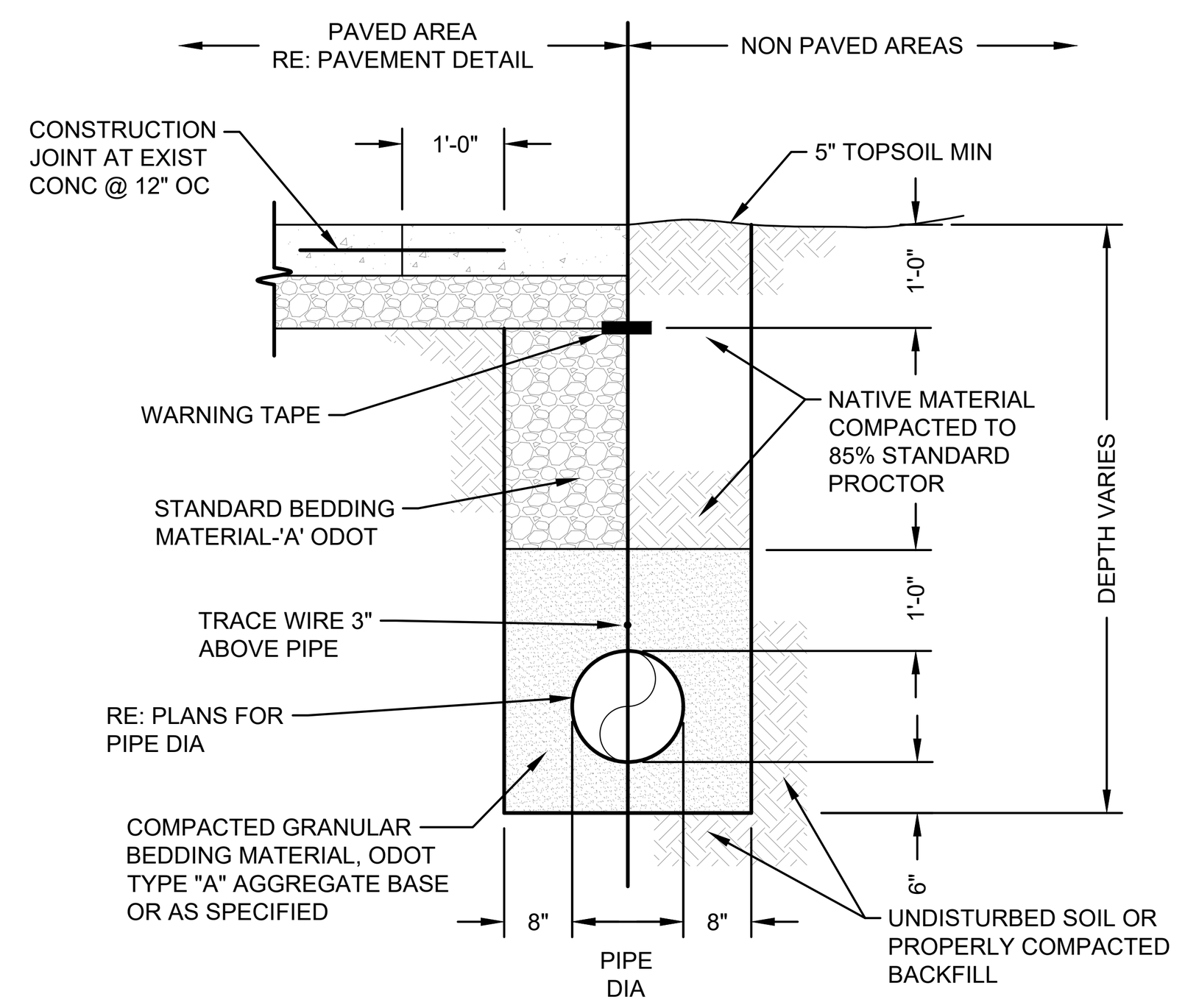
REVISIONS

JOB NUMBER: 25-08.68
DATE: 05/29/25
SHEET NUMBER: C4.00
SHEET TITLE: CIVIL PLAN



CONCRETE PAVEMENT

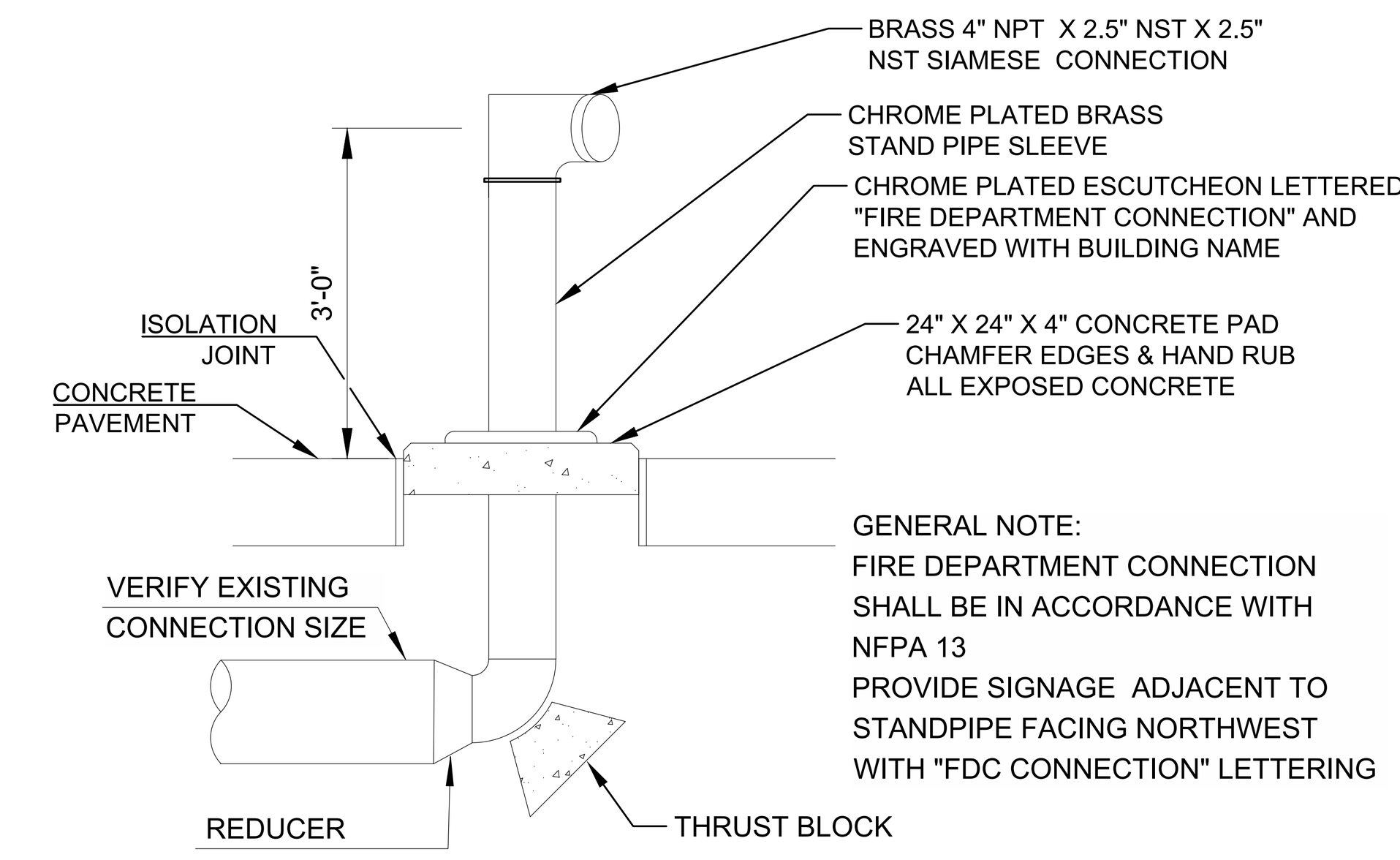
1 TYPICAL PAVEMENT SECTIONS
SCALE: NTS



TRENCH NOTE:
BRACING AND SHEATHING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND OSHA SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE RESPONSIBILITY OF THE CONTRACTOR.

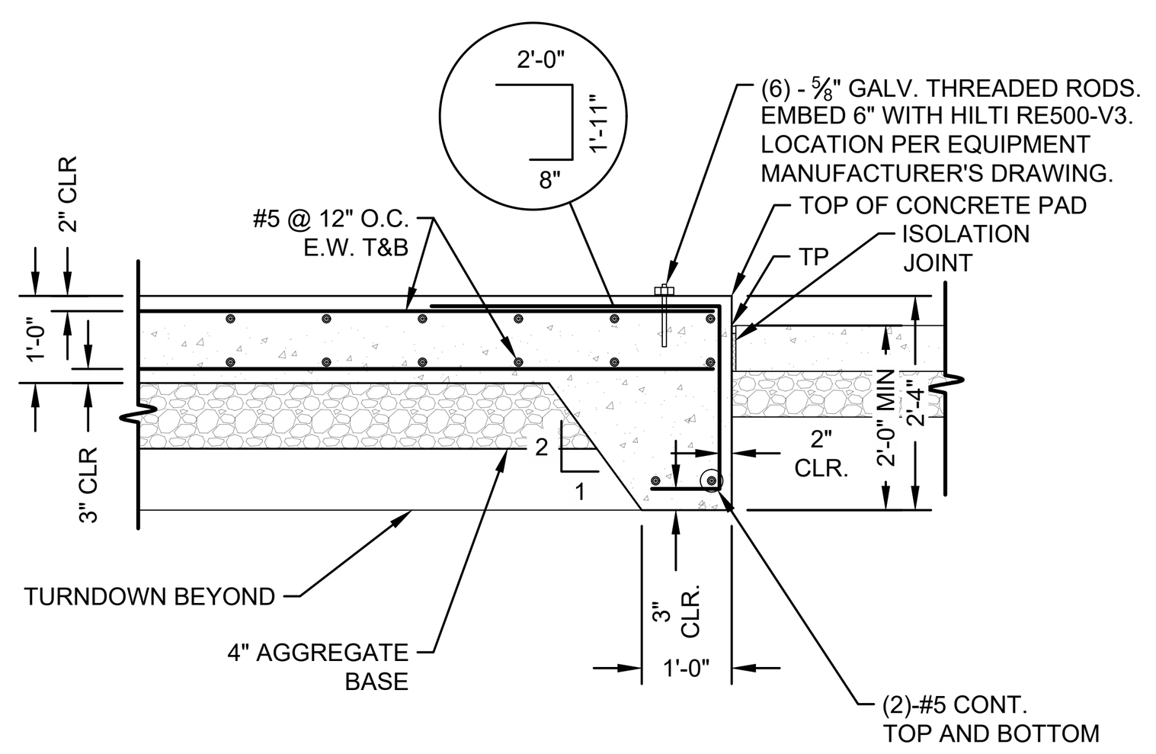
BEDDING NOTE:
UNDER PAVING ODOT TYPE "A" AGGREGATE BASE MUST BE TO THE TOP OF THE TRENCH. ODOT TYPE "A" AGGREGATE BASE TO BE COMPACTED TO 95% STANDARD PROCTOR.

2 PIPE TRENCH-ALL PIPES EXCEPT STORM SEWER
SCALE: NTS

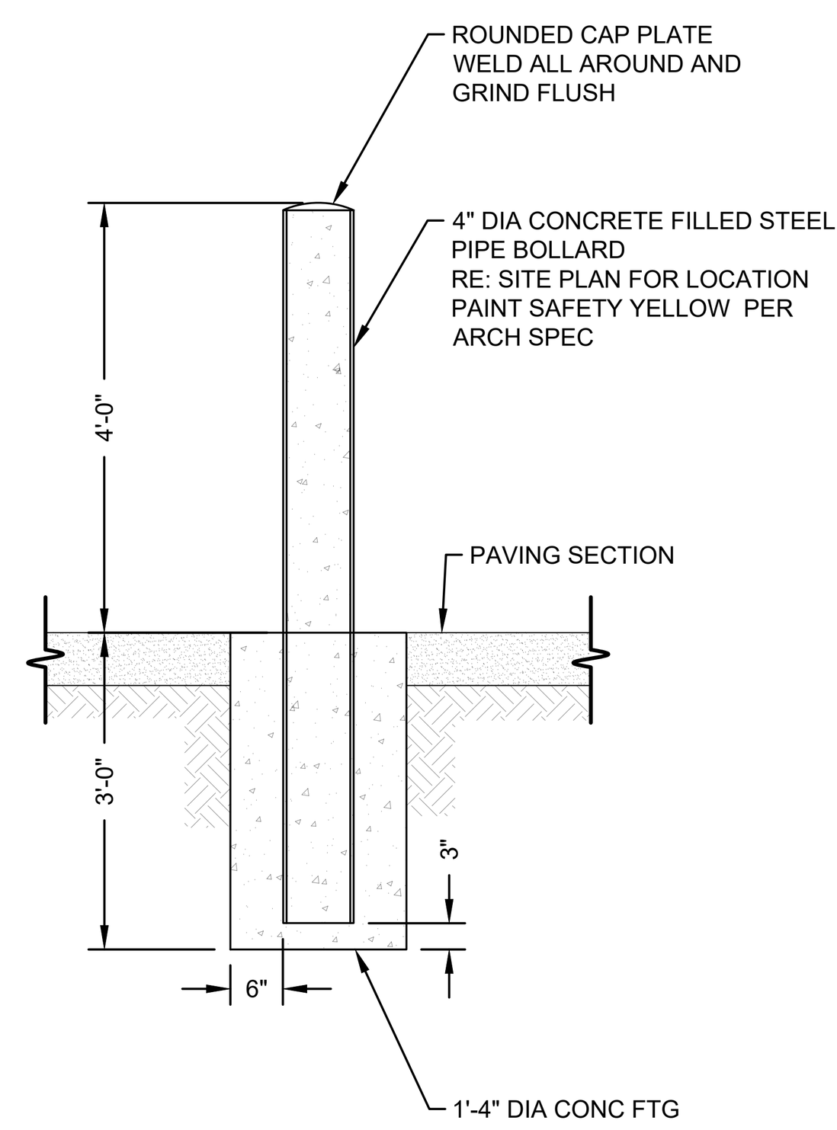


GENERAL NOTE:
FIRE DEPARTMENT CONNECTION SHALL BE IN ACCORDANCE WITH NFPA 13
PROVIDE SIGNAGE ADJACENT TO STANDPIPE FACING NORTHWEST WITH "FDC CONNECTION" LETTERING

3 STANDPIPE
SCALE: NTS

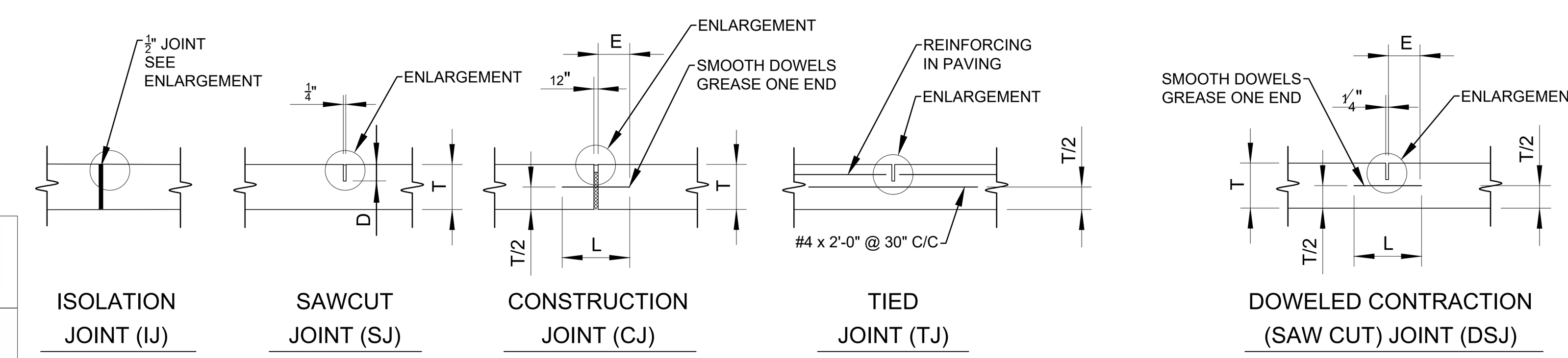


4 GENERATOR PAD
SCALE: NTS

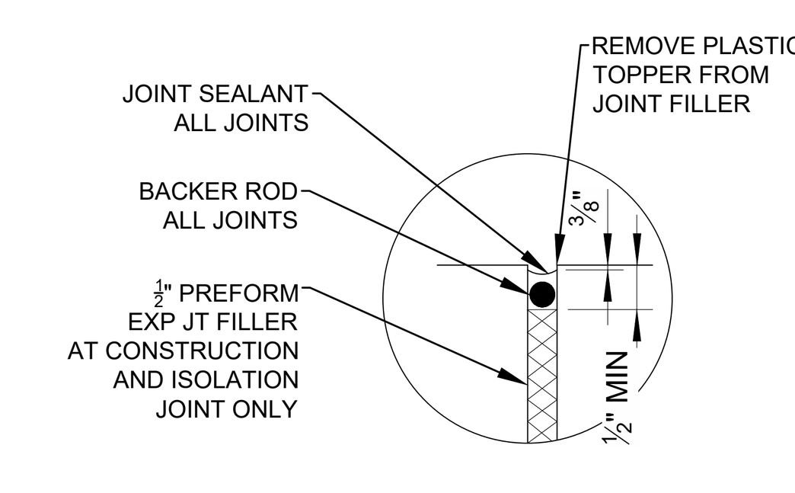


5 BOLLARD
SCALE: NTS

1. JOINTS NOT SHOWN OTHERWISE SHALL BE SAW JOINTS. SAW JOINTS SHALL BE MADE WITHIN 10 HOURS AFTER CONCRETE POUR.
2. CONCRETE PAVING JOINT SPACING, SEE SCHEDULE.
3. LENGTH <= 1.25 W. RE: SHEET NOTES FOR ADDITIONAL JOINT INFORMATION.
4. ALL DOWELS AND BARS TO BE EPOXY COATED. DOWEL BASKETS SHALL BE USED AT ALL DOWELED CONTRACTION JOINTS.
5. ISOLATION JOINTS REQUIRED WHERE CONCRETE ABUTS CURBS, CATCH BASINS, MANHOLES, INLETS, STRUCTURES, OTHER FIXED OBJECTS, OR EXISTING PAVEMENT



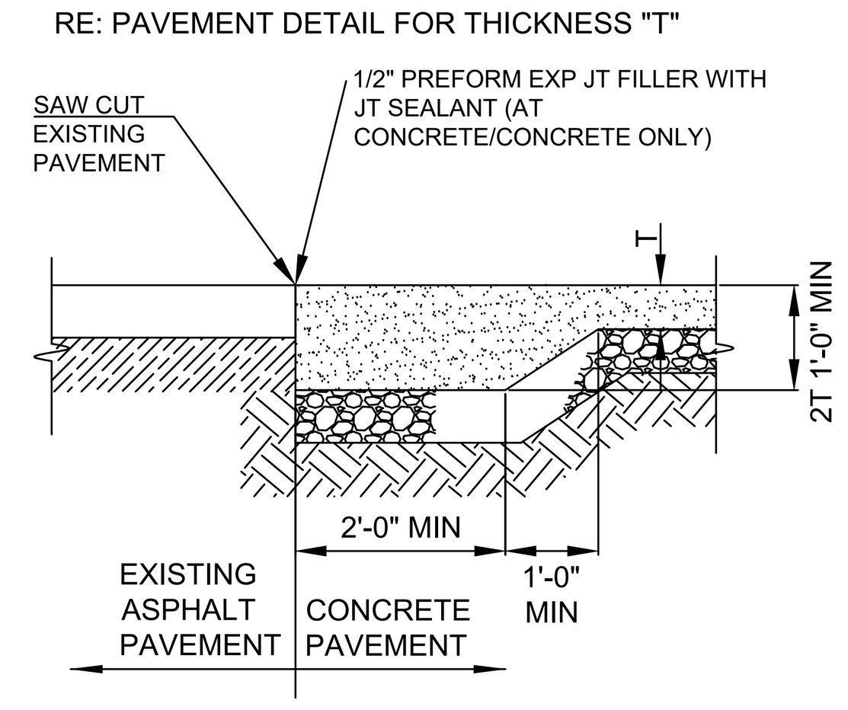
"T" PAVEMENT THICKNESS	DOWEL DIAMETER @12" C/C	"L" LENGTH	"E" EMBEDMENT	"D" SAWCUT DEPTH	MAX JOINT SPACING
5"	---	---	---	1 ¼"	12.5'
6"	¾"	14"	6"	1 ½"	15'
7"	⅞"	14"	6"	1 ¾"	15'
8"	1"	14"	6"	2"	15'



ENLARGEMENT

6 PAVING JOINT DETAIL
SCALE: NTS

RE: PAVEMENT DETAIL FOR THICKNESS "T"



7 PAVEMENT TRANSITION
SCALE: NTS

8" SCARIFY AND RECOMPACT SUBGRADE TO 95% STANDARD PROCTOR DENSITY

ENGINEERED FILL SPECIFICATIONS
1. MATERIAL WITH A MAXIMUM DRY DENSITY IN EXCESS OF 100 PCF
2. PLASTICITY INDEX (PI) MAXIMUM OF 18
3. LIQUID LIMIT (LL) MAXIMUM OF 40
4. CONTAINING AT LEAST 15 PERCENT FINES (MATERIAL PASSING THE NO.200, BASED ON DRY WEIGHT)
5. SHALL NOT CONTAIN ROCK FRAGMENTS GREATER THAN 3 INCHES IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION, AND OTHER DELETERIOUS MATTER.
6. PRIOR TO ANY FILLING OPERATIONS, SAMPLES WILL NEED TO BE TESTED BY AND APPROVED BY GEOTECH ENGINEER.

AGGREGATE BASE TO BE COMPACTED TO 98% STANDARD PROCTOR DENSITY

SUBGRADE AND AGG BASE

COMPRESSIVE STRENGTH (28 DAYS): 4000PSI

WATER-CEMENTITIOUS RATIO AT POINT OF PLACEMENT: 0.25-0.44

SLUMP LIMIT: 2" PLUS OR MINUS 1"

AIR CONTENT: 6.5% PLUS OR MINUS 1.5%

CALCIUM CHLORIDE SHALL NOT BE PERMITTED IN CONCRETE MIXTURES

CHEMICAL ADMIXTURES TO MEET DOT SPECS FOR HIGHWAY CONSTRUCTION

CEMENTITIOUS MATERIALS TO CONFORM TO THE DOT SPECIFICATION FOR HIGHWAY CONSTRUCTION; LIMIT PERCENTAGE BY WEIGHT OF CEMENTITIOUS MATERIAL OTHER THAN PORTLAND CEMENT ACCORDING TO ACI 301 REQUIREMENTS

CONCRETE PAVEMENT

8 TYPICAL PAVEMENT REQUIREMENTS
SCALE: NTS

Know what's below. Call before you dig.

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JOB NUMBER: 25-08.68
DATE: 05/29/25
SHEET NUMBER: C8.00
SHEET TITLE: DETAILS

Division 22
SECTION 22 1113 - FACILITY WATER DISTRIBUTION PIPING
PART 1 - GENERAL
1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
1.2 SUMMARY
A. This Section includes water-distribution piping and related components outside the building for water service and fire-service mains.
B. Utility-furnished products include water meters that will be furnished to the site, ready for installation.
1.3 DEFINITIONS
A. EPDM: Ethylene-propylene-diene-monomer rubber.
B. LLDPE: Linear, low-density polyethylene plastic.
C. PE: Polyethylene plastic.
D. PVC: Polyvinyl chloride plastic.
1.4 SUBMITTALS
A. Product Data: For each type of product indicated.
B. Shop Drawings: Detail precast concrete vault assemblies and indicate dimensions, method of field assembly, and components.
C. Coordination Drawings: For piping and specialties including relation to other services in same area, drawn to scale. Show piping and specialty sizes and valves, meter and specialty locations, and elevations.
D. Field quality-control test reports.
E. Operation and Maintenance Data: For water valves and specialties to include in emergency, operation, and maintenance manuals.
1.5 QUALITY ASSURANCE
A. Regulatory Requirements:
1. Comply with requirements of utility company supplying water. Include tapping of water mains and backflow prevention.
2. Comply with standards of authorities having jurisdiction for potable-water-service piping, including materials, installation, testing, and disinfection.
3. Comply with standards of authorities having jurisdiction for fire-suppression water-service piping, including materials, hose threads, installation, and testing.
B. Piping materials shall bear label, stamp, or other markings of specified testing agency.
C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
D. Comply with ASTM F 645 for selection, design, and installation of thermoplastic water piping.
E. Comply with FMG's "Approval Guide" or UL's "Fire Protection Equipment Directory" for fire-service-main products.
F. NFPA Compliance: Comply with NFPA 24 for materials, installations, tests, flushing, and valve and hydrant supervision for fire-service-main piping for fire suppression.
G. NSF Compliance:
1. Comply with NSF 14 for plastic potable-water-service piping.
2. Comply with NSF 61 for materials for water-service piping and specialties for domestic water.
1.6 DELIVERY, STORAGE, AND HANDLING
A. Preparation for Transport: Prepare valves, including fire hydrants, according to the following:
1. Ensure that valves are dry and internally protected against rust and corrosion.
2. Protect valves against damage to threaded ends and flange faces.
3. Set valves in best position for handling. Set valves closed to prevent rattling.
B. During Storage: Use precautions for valves, including fire hydrants, according to the following:
1. Do not remove end protectors unless necessary for inspection; then reinstall for storage.
2. Protect from weather. Store indoors and maintain temperature higher than ambient dew-point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.
C. Handling: Use sling to handle valves and fire hydrants if size requires handling by crane or lift. Rig valves to avoid damage to exposed parts. Do not use hand wheels or stems as lifting or rigging points.
D. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.
E. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside.
F. Protect flanges, fittings, and specialties from moisture and dirt.
G. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.
1.7 COORDINATION
A. Coordinate connection to water main with utility company.
PART 2 - PRODUCTS
2.1 DUCTILE-IRON PIPE AND FITTINGS
A. Mechanical-Joint, Ductile-Iron Pipe: AWWA C151, with mechanical-joint bell and plain spigot end unless grooved or flanged ends are indicated.
1. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
2. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.
B. Push-on-Joint, Ductile-Iron Pipe: AWWA C151, with push-on-joint bell and plain spigot end unless grooved or flanged ends are indicated.
1. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
2. Gaskets: AWWA C111, rubber.
2.2 PVC PIPE AND FITTINGS
A. PVC, Schedule 40 Pipe: ASTM D 1785.
1. PVC, Schedule 40 Socket Fittings: ASTM D 2466.
B. PVC, Schedule 80 Pipe: ASTM D 1785.
1. PVC, Schedule 80 Socket Fittings: ASTM D 2467.
2. PVC, Schedule 80 Threaded Fittings: ASTM D 2464.
C. PVC, AWWA Pipe: AWWA C900, Class 200, with bell end with gasket, and with spigot end.
1. Comply with UL 1285 for fire-service mains if indicated.
2. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
a. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.
2.3 JOINING MATERIALS
A. Brazing Filler Metals: AWS A5.8, BCuP Series.
B. Bonding Adhesive for Fiberglass Piping: As recommended by fiberglass piping manufacturer.
C. Plastic Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.
2.4 GATE VALVES
A. AWWA, Cast-Iron Gate Valves:
1. Manufacturers: Subject to compliance with requirements of City of Sallisaw.
2. Nonrising-Stem, Resilient-Seated Gate Valves:
a. Description: Gray- or ductile-iron body and bonnet; with bronze or gray- or ductile-iron gate, resilient seats, bronze stem, and stem nut.
1) Standard: AWWA C509.
2) Minimum Pressure Rating: 200 psig.
3) End Connections: Mechanical joint.
4) Interior Coating: Complying with AWWA C550.
2.5 GATE VALVE ACCESSORIES AND SPECIALTIES
A. Valve Boxes: Comply with AWWA M44 for cast-iron valve boxes. Include top section, adjustable extension of length required for depth of burial of valve, plug with lettering "WATER," and bottom section with base that fits over valve and with a barrel approximately 5 inches in diameter.
1. Operating Wrenches: Steel, tee-handle with one pointed end, stem of length to operate deepest buried valve, and socket matching valve operating nut.
B. Indicator Posts: UL 789, FMG-approved, vertical-type, cast-iron body with operating wrench, extension rod, and adjustable cast-iron barrel of length required for depth of burial of valve.
2.6 CHECK VALVES
A. AWWA Check Valves:
1. Description: Swing-check type with resilient seat. Include interior coating according to AWWA C550 and ends to match piping.
a. Standard: AWWA C508.
b. Pressure Rating: 175 psig.
2.7 CORPORATION VALVES AND CURB VALVES
A. Manufacturers:
1. Manufacturers: Subject to compliance with requirements of City of Sallisaw.
B. Service-Saddle Assemblies: Comply with AWWA C800. Include saddle and valve compatible with tapping machine.
1. Service Saddle: Copper alloy with seal and AWWA C800, threaded outlet for corporation valve.
2. Corporation Valve: Bronze body and ground-key plug, with AWWA C800, threaded inlet and outlet matching service piping material.
3. Manifold: Copper fitting with two to four inlets as required, with ends matching corporation valves and outlet matching service piping material.
C. Curb Valves: Comply with AWWA C800. Include bronze body, ground-key plug or ball, and wide tee head, with inlet and outlet matching service piping material.
D. Service Boxes for Curb Valves: Similar to AWWA M44 requirements for cast-iron valve boxes. Include cast-iron telescoping top section of length required for depth of burial of valve, plug with lettering "WATER," and bottom section with base that fits over curb valve and with a barrel approximately 3 inches in diameter.
1. Shutoff Rods: Steel, tee-handle with one pointed end, stem of length to operate deepest buried valve, and slotted end matching curb valve.
2.8 WATER METER BOXES
1. Description: Cast-iron body and cover for disc-type water meter, with lettering "WATER METER" in cover; and with slotted, open-bottom base section of length to fit over service piping. Subject to compliance with requirements of City of Sallisaw.
PART 3 - EXECUTION
3.1 EARTHWORK
A. Refer to Division 31 Section "Earth Moving" for excavating, trenching, and backfilling.
3.2 PIPING APPLICATIONS
A. General: Use pipe, fittings, and joining methods for piping systems according to the following applications.
B. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used, unless otherwise indicated.
C. Do not use flanges or unions for underground piping.
D. Flanges, unions, grooved-end-pipe couplings, and special fittings may be used, instead of joints indicated, on aboveground piping and piping in vaults.
3.3 VALVE APPLICATIONS
A. General Application: Use mechanical-joint-end valves for NPS 3 and larger underground installation. Use threaded- or flanged-end valves for installation in vaults. Use UL/FMG, nonrising-stem gate valves for installation with indicator posts. Use corporation valves and curb valves with ends compatible with piping, for NPS 2 and smaller installation.
B. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:
1. Underground Valves, NPS 3 and Larger: AWWA, cast-iron, nonrising-stem, resilient-seated gate valves with valve box.
2. Underground Valves, NPS 4 and Larger, for Indicator Posts: UL/FMG, cast-iron, nonrising-stem gate valves with indicator post.
3. Use the following for valves in vaults and aboveground:
a. Gate Valves, NPS 2 and Smaller: Bronze, nonrising stem.
b. Gate Valves, NPS 3 and Larger: AWWA, cast iron, OS&Y rising stem, resilient seated.
c. Check Valves: AWWA C508, swing type.
4. Pressure-Reducing Valves: Use for water-service piping in vaults and aboveground to control water pressure.
5. Relief Valves: Use for water-service piping in vaults and aboveground.
a. Air-Release Valves: To release accumulated air.
b. Air/Vacuum Valves: To release or admit large volume of air during filling of piping.
c. Combination Air Valves: To release or admit air.

3.4 PIPING INSTALLATION
A. Water-Main Connection: Tap water main according to requirements of City of Sallisaw water utility company and of size and in location indicated.
B. Make connections larger than NPS 2 with tapping machine according to the following:
1. Install tapping sleeve and tapping valve according to MSS SP-60.
2. Install tapping sleeve on pipe to be tapped. Position flanged outlet for gate valve.
3. Use tapping machine compatible with valve and tapping sleeve; cut hole in main. Remove tapping machine and connect water-service piping.
4. Install gate valve onto tapping sleeve. Comply with MSS SP-60. Install valve with stem pointing up and with valve box.
C. Make connections NPS 2 and smaller with drilling machine according to the following:
1. Install service-saddle assemblies and corporation valves in size, quantity, and arrangement required by utility company standards.
2. Install service-saddle assemblies on water-service pipe to be tapped. Position outlets for corporation valves.
3. Use drilling machine compatible with service-saddle assemblies and corporation valves. Drill hole in main. Remove drilling machine and connect water-service piping.
4. Install corporation valves into service-saddle assemblies.
5. Install manifold for multiple taps in water main.
6. Install curb valve in water-service piping with head pointing up and with service box.
D. Comply with NFPA 24 for fire-service-main piping materials and installation.
E. Install PVC, AWWA pipe according to ASTM F 645 and AWWA M23.
F. Bury piping with depth of cover over top at least 36 inches, with top at least 12 inches below level of maximum frost penetration, and according to the following:
G. Install piping by tunneling by boring, under streets and other obstructions that cannot be disturbed.
H. Extend water-service piping and connect to water-supply source and building-water-piping systems at outside face of building wall in locations and pipe sizes indicated.
1. Terminate water-service piping at building wall until building-water-piping systems are installed. Terminate piping with caps, plugs, or flanges as required for piping material. Make connections to building-water-piping systems when those systems are installed.
I. Install underground piping with restrained joints at horizontal and vertical changes in direction. Use restrained-joint piping.
J. See Division 21 Section "Water-Based Fire-Suppression Systems" for fire-suppression-water piping inside the building.
K. See Division 22 Section "Domestic Water Piping" for potable-water piping inside the building.
3.5 JOINT CONSTRUCTION
A. Make pipe joints according to the following:
1. PVC Piping Gasketed Joints: Use joining materials according to AWWA C900. Construct joints with elastomeric seals and lubricant according to ASTM D 2774 or ASTM D 3139 and pipe manufacturer's written instructions.
2. Ductile-Iron Piping, Gasketed Joints for Water-Service Piping: AWWA C600 and AWWA~M41.
3. Ductile-Iron Piping, Gasketed Joints for Fire-Service-Main Piping: UL~194.
4. Dissimilar Materials Piping Joints: Use adapters compatible with both piping materials, with OD, and with system working pressure.
3.6 ANCHORAGE INSTALLATION
A. Anchorage, General: Install water-distribution piping with restrained joints. Anchorages and restrained-joint types that may be used include the following:
1. Locking mechanical joints.
2. Set-screw mechanical retainer glands.
3. Bolted flanged joints.
4. Heat-fused joints.
5. Pipe clamps and tie rods.
B. Install anchorages for tees, plugs and caps, bends, crosses, valves, and hydrant branches. Include anchorages for the following piping systems:
1. Gasketed-Joint, Ductile-Iron, Water-Service Piping: According to AWWA C600.
2. Gasketed-Joint, PVC Water-Service Piping: According to AWWA M23.
3. Bonded-Joint Fiberglass, Water-Service Piping: According to AWWA M45.
4. Fire-Service-Main Piping: According to NFPA 24.
C. Apply full coat of asphalt or other acceptable corrosion-resistant material to surfaces of installed ferrous anchorage devices.
3.7 VALVE INSTALLATION
A. AWWA Gate Valves: Comply with AWWA C600 and AWWA M44. Install each underground valve with stem pointing up and with valve box.
B. AWWA Valves Other Than Gate Valves: Comply with AWWA C600 and AWWA M44.
C. Corporation Valves and Curb Valves: Install each underground curb valve with head pointed up and with service box.
3.8 WATER METER INSTALLATION
A. Install water meters, piping, and specialties according requirements of City of Sallisaw.
3.9 ROUGHING-IN FOR WATER METERS
A. Rough-in piping and specialties for water meter installation according to utility company's written instructions.
3.10 WATER METER BOX INSTALLATION
A. Install water meter boxes in paved areas flush with surface.
B. Install water meter boxes in grass or earth areas with top 2 inches above surface.
3.11 PROTECTIVE ENCLOSURE INSTALLATION
A. Install concrete base level and with top approximately 2 inches above grade.
B. Install protective enclosure over valves and equipment.
C. Anchor protective enclosure to concrete base.
3.12 FIRE HYDRANT INSTALLATION
A. General: Install each fire hydrant with separate gate valve in supply pipe, anchor with restrained joints or thrust blocks, and support in upright position.
B. AWWA Fire Hydrants: Comply with AWWA M17.
3.13 CONNECTIONS
A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
B. Connect water-distribution piping to utility water main. Use tapping sleeve and tapping valve.
C. Connect water-distribution piping to interior domestic water piping.
D. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."
E. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."
3.14 FIELD QUALITY CONTROL
A. Piping Tests: Conduct piping tests before joints are covered. Fill pipeline 24 hours before testing and apply test pressure to stabilize system. Use only potable water.
B. Hydrostatic Tests: Test the installed pipe for leakage in accordance with AWWA standard specifications. Leakage must not exceed 10gal/inch diameter per mile of pipe per 24 hours at 150 psi testing pressure.
C. Prepare reports of testing activities.
3.15 IDENTIFICATION
A. Install continuous underground warning tape during backfilling of trench for underground water-distribution piping. Locate below finished grade, directly over piping. Underground warning tapes are specified in Division 31 Section "Earth Moving."
B. Permanently attach equipment nameplate or marker indicating plastic water-service piping, on main electrical meter panel.
3.16 CLEANING
A. Disinfect all waterlines according to AWWA standard specifications. Obtain safe bacteriological samples on two consecutive days before placing waterline into service.
B. Prepare reports of purging and disinfecting activities.
END OF SECTION 22 - 1113

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JOB NUMBER: 25-08.68
DATE: 05/29/25
SHEET NUMBER: **C9.00**
SHEET TITLE: SPECIFICATIONS

SECTION 31 1000 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Protecting existing trees, vegetation to remain.
   2. Removing existing trees, vegetation.
   3. Clearing and grubbing.
   4. Stripping and stockpiling topsoil.
   5. Removing above- and below-grade site improvements.
   6. Disconnecting, capping or sealing, and removing site utilities.
   7. Temporary erosion and sedimentation control measures.

B. Related Sections include the following:
   1. Division 1 Section "Temporary Facilities and Controls" for temporary utilities, temporary construction and support facilities, temporary security and protection facilities.
   2. Division 1 Section "Temporary Tree and Plant Protection" for protecting trees remaining on-site that are affected by site operations.
   3. Division 1 Section "Execution" for verifying utility locations and for recording field measurements.
   4. Division 31 Section "Earth Moving" for soil materials, excavating, backfilling, and site grading.

1.3 DEFINITIONS

A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.

B. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.4 MATERIAL OWNERSHIP

A. Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 SUBMITTALS

A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.

B. Record drawings, according to Division 01 Section "Project Record Documents," identifying and accurately locating capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.6 QUALITY ASSURANCE

A. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.7 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
   1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
   2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

C. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 31 Section "Earth Moving."
   1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly flag trees and vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.
   1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways. Refer to Stormwater Pollution Prevention Plan.

B. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE PROTECTION

A. Do not excavate within tree protection zones, unless otherwise indicated.

B. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Architect.

3.4 UTILITIES

A. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.
   1. Arrange with utility companies to shut off indicated utilities.
   2. Owner will arrange to shut off indicated utilities when requested by Contractor.

B. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
   1. Notify Architect not less than two days in advance of proposed utility interruptions.
   2. Do not proceed with utility interruptions without Architect's written permission.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction.
   1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
   2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
   3. Grind stumps and remove roots, obstructions, and debris extending to a depth of 12 inches below exposed subgrade.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
   1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
   1. Remove subsoil and nonsoil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
   1. Limit height of topsoil stockpiles to 72 inches.
   2. Do not stockpile topsoil within tree protection zones.
   3. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
   1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.
   2. Paint cut ends of steel reinforcement in concrete to remain to prevent corrosion.

3.8 DISPOSAL

A. Disposal: Remove unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 31 1000

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CN REDBIRD HEALTH CENTER
GENERATOR

301 SOUTH J T STITES STREET, SALLISAW, OK 74955

KEY PLAN:

PROJECT PHASE:
FINAL CONSTRUCTION DOCUMENTS

REVISIONS

JOB NUMBER: 25-08.68

DATE: 05/29/25

SHEET NUMBER: **C9.01**

SHEET TITLE: SPECIFICATIONS

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CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Preparing subgrades for areas outside the building perimeter.
   2. Excavating and backfilling for buildings and structures.
   3. Subbase and base course for paving.
   4. Subsurface drainage backfill for walls and trenches.
   5. Excavating and backfilling for utility trenches.

B. Related Sections include the following:
   1. Division 01 Section "Unit Prices" for unit-price rock excavation and authorized additional excavation provisions.
   2. Division 01 Section "Temporary Facilities and Controls" for temporary controls, utilities, and support facilities.
   3. Division 03 Section "Cast-in-Place Concrete" for granular course if placed over vapor retarder and beneath the slab-on-grade.
   4. Division 31 Section "Site Clearing" for temporary erosion and sedimentation control measures, site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.
   5. Division 32 Section "Turf and Grasses" for finish grading, including preparing and placing topsoil and planting soil for lawns.

1.3 UNIT PRICES

A. Unit prices for earthwork are included in Division 01 Section "Unit Prices."

1.4 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
   1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
   2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subgrade and hot-mix asphalt or concrete paving.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Soil imported from off-site for use as fill or backfill.

E. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
   1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.
   2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Initial Backfill: Fill free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit and as defined by utility trench detail on the plans.

I. Mass Rock Excavation: Consists of the removal and stisfactory disposal off-site per applicable unit price of bedrock, rock in lenses, or boulders 1 cunic yard or larger composed on hard granit or similar material requiring the use of rock drills and specialized equipment for removal, and that is measured, in-place, prior to removal. In the event rock as defined above is encountered, the Contractor shall immediately notify Geotech Engineer and the Architect. If requested, the Contractor shall demonstrate that meterial cannot be removed by ripping with a D6T dozer or equal with a minimum of 210 HP and a minimum operating weight of 41,200 lbs, equipped with a single shank ripper with a minimum penetration force of 15,000 pounds, with a pry out force of 20,000 pounds, pulling a single-tooth ripper, with ripping performed in a crisscross pattern or against the natural bedding plane. The Contractor may be required to provide equipment specification data verifying the above minimum-rated equipment will be used for demonstration purposes. The equipment is to be in good repair and in proper working condition.
   1. If rock is encountered, the contract sum shall be adjusted in accordance with the unit prices submitted by the contractor and per agreed cost proposal provided by the Contractor in bank form.
   2. Upon encountering rock, the Contractor shall remove all overburden from the material and notify the Geotech Engineer and Architect that the material is ready for measurement. The Geotech Engineer will then determine if the material is qualified rock. Once the material is judged as qualified mass rock, the Contractor's registered land surveyor shall survey, by cross section, the rock in-place and submit the cross sections and calculations to the Owner, Architect, Civil Engineer, and Geotechnical Engineer for Approval. All parties must agree on mass rock and confirm quantities prior to removal of rock.
   3. Any material moved or removed without the measurement and approval will be considered as earth excavation.
   4. Limit of payment shall be from top of rock to excavation requirements per specifications.

J. Trench Rock Excavation: consists of the removal and satisfactory disposal off-site of material composed of hard granite or similar material in trenches less than 10 feet wide that cannot be effectively removed using a 125-hp excavator with a pull of 36,500 pounds at the rate of 6 inches per 10 minutes or more or a backhoe equipped with a minimum ½ cubic yard heavy-duty trenching bucket placed on a machine capable of a lifting capacity of 7,500 pounds at a trench depth of 10 feet at a rate of 6 inches per 10 minutes or more, and that is measured, in place, prior to removal. In the event rock as defined above is encountered, the Contractor shall immediately notify the Geotech Engineer and the Architect. The Contractor may be required to provide equipment specification data verifying that the above minimum-rated equipment will be used for demonstration purposes. The equipment is to be in good repair and in proper working condition.
   1. If rock is encountered, the contract sum shall be adjusted in accordance with the unit prices submitted by the contractor and per agreed cost proposal provided by the Contractor in bank form.
   2. Any material moved or removed without the measurement and approval will be considered as earth excavation
   3. Upon encountering rock, the Contractor shall remove all overburden from the material and notify the Geotech Engineer and Architect that the material is ready for measurement. The Geotech Engineer will then determine if the material is qualified rock. Once the material is judged as qualified mass rock, the Contractor's registered land surveyor shall survey, by cross section, the rock in-place and submit the cross sections and calculations to the Owner, Architect, Civil Engineer, and Geotechnical Engineer for Approval. All parties must agree on mass rock and confirm quantities prior to removal of rock..
   4. The trench rock payment limit shall generally be per excavation requirements shown in specifications and plans.
   5. For rock excavation, a trench shall be defined as a linear excavation that is 5 feet or less in width and 2 feet or greater in depth. All other rock excavation shall be considered general mass rock excavation.
   6. Trenches that are located within the limits of mass rock removal shall be classified as mass rock.

K. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

L. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below base course, drainage fill, or topsoil materials.

M. Utilities: Underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.5 SUBMITTALS

A. Product Data: For the following:
   1. Each type of plastic warning tape.
   2. Geotextile.
   3. Controlled low-strength material, including design mixture.

B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
   1. Classification according to ASTM D 2487 of each soil material proposed for fill and backfill.
   2. Laboratory compaction curve according to ASTM D 698 for each soil material proposed for fill and backfill.

C. Preexcavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins.

1.6 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.

B. Preexcavation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient on site materials do not match the Geotech report for engineered fill.

B. Base Course: Naturally graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; conforming to ODOT Type “A” aggregate base.

C. Engineered Fill (Structural Fill):
   1. Imported Low Volume Change Cohesive Soils:
      a. USCS Classification CL or SC approved, low plasticity, material with having a Plasticity Index (PI) < 18 and a Liquid Limit (LL) < 40.
      b. Containing at least 35 percent fines (material passing the No.200, based on dry weight)
      c. Shall not contain rock fragments greater than 1.5 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
      d. Prior to any filling operations, samples will need to be tested by and approved by Geotech Engineer.
   2. On-Site Clay Soils:
      a. USCS Classification CL material.
      b. Shall not be placed within 36 inches of the final building subgrade, unless modified with lime.
      c. Shall not be placed within upper 8 inches of the final pavement subgrade, unless lime stabilized as recommended in the geotech report.
      d. Shall not contain rock fragments greater than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
      e. Prior to any filling operations, samples will need to be tested by and approved by Geotech Engineer.
      f. May be used in grass areas of the site.
   3. Engineered Fill at Pavement Areas
      a. Shall have a USCS Classification of CL or SC. Soils classified as ML, CL-ML, or SC-SM shall not be used. An approved crushed aggregate base, crushed limestone screenings, or broken shale may be considered as the engineered fill material and, if used, may warrant a slight reduction in the thickness of engineered fill required.

D. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve. Or as defined by the utility trench details.

E. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.

F. Sand: ASTM C 33; fine aggregate, natural, or manufactured sand.

G. Provide 18" of select fill under proposed building floor slab.

2.2 GEOTEXTILES

A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:
   1. Survivability: Class 2; AASHTO M 288.
   2. Grab Tensile Strength: 157 lbf; ASTM D 4632.
   3. Sewn Seam Strength: 142 lbf; ASTM D 4632.
   4. Tear Strength: 56 lbf; ASTM D 4533.
   5. Puncture Strength: 56 lbf; ASTM D 4833.
   6. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

B. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:
   1. Survivability: Class 2; AASHTO M 288.
   2. Grab Tensile Strength: 247 lbf; ASTM D 4632.
   3. Sewn Seam Strength: 222 lbf; ASTM D 4632.
   4. Tear Strength: 90 lbf; ASTM D 4533.
   5. Puncture Strength: 90 lbf; ASTM D 4833.
   6. Apparent Opening Size: No. 60 sieve, maximum; ASTM D 4751.
   7. Permittivity: 0.02 per second, minimum; ASTM D 4491.
   8. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

2.3 CONTROLLED LOW-STRENGTH MATERIAL

A. Controlled Low-Strength Material: Low-density, self-compacting, flowable concrete material as follows:
   1. Portland Cement: ASTM C 150, Type I, II or III.
   2. Fly Ash: ASTM C 618, Class C or F.
   3. Normal-Weight Aggregate: ASTM C 33, 3/8-inch nominal maximum aggregate size.
   4. Foaming Agent: ASTM C 869.
   5. Water: ASTM C 94/C 94M.
   6. Air-Entraining Admixture: ASTM C 260.

B. Produce conventional-weight, controlled low-strength material with 80-psi compressive strength when tested according to ASTM C 495.

2.4 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
   1. Red: Electric.
   2. Yellow: Gas, oil, steam, and dangerous materials.
   3. Orange: Telephone and other communications.
   4. Blue: Water systems.
   5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing." Excavations resulting from demolition activities should be backfilled with properly placed and compacted engineered fill.

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing," during earthwork operations.

D. Provide protective insulating materials to protect subgrades and foundation soils against freezing temperatures or frost.

E. After stripping and completing all cuts, the building area should be undercut to allow at least 18 inches of LVC fill layer. the undercut to construct the recommended thickness of LVC zone should extend at least 5 feet laterally beyond the outside edge of perimeter building foundations.

F. After stripping and completing all cuts, proof-roll the exposed subgrade with a fully-loaded, pneumatic-tired, 10-wheeled tandem-axle dump truck weighing not less than 25 tons. Overexcavate and replace soft, unstable or unsuitable materials with approved engineered fill if they cannot be stabilized in place.

G. After completing proof-rolling and before placing any fill, scarify the exposed subgrade to a minimum depth of 9 inches, moisture condition to a level +/-2 percentage points of the material's optimum moisture content, and compact to at least 95 percent of its maximum standard Proctor dry density, ASTM D-698.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
   1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
   2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.3 EXPLOSIVES

A. Explosives: No explosives are allowed.

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
   1. If excavated materials intended for fill and backfill include unsuitable soil materials and rock, replace with approved engineered fill materials.
   2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:
      a. 24 inches outside of concrete forms other than at footings.
      b. 12 inches outside of concrete forms at footings.
      c. 6 inches outside of minimum required dimensions of concrete cast against grade.
      d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
      e. 6 inches beneath bottom of concrete slabs on grade.
      f. 6 inches beneath pipe in trenches.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch m). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
   1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
   2. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.
   3. Excavation for Building Slabs: The subgrade shall be maintained in a relatively moist condition until the floor slab is constructed. If the subgrade should become excessively wetted or dried, or disturbed prior to construction of the floor slab, the affected material should be removed or the materials scarified, moistened, and recompacted. Upon completion of grading operations in the building area, care should be taken to mainatain the recommended subgrade moisture content and density prior to construction of the building floor slab.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.
   1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

3.8 SUBGRADE INSPECTION

A. Notify Engineer when excavations have reached required subgrade.

B. If Engineer determines that unsuitable soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. After stripping and completing all cuts, the building area should be undercut to allow at least 18 inches of LVC fill layer. the undercut to construct the recommended thickness of LVC zone should extend at least 5 feet laterally beyond the outside edge of perimeter building foundations.

D. After stripping and completing any cuts, the subgrade shall be proofrolled. Proof-roll subgrade under the observation of the geotechnical engineer, with a loaded, tandem-axle dump truck weighing at least 25 tons, to locate any zones that are soft or unstable. The Proofrolling should involve overlapping passes in mutually perpendicular directions. Where rutting or pumping is observed during proof-rolling, the unstable soils shall be over-excavated and replaced with structural fill.

E. After completing the proof-rolling and required over-excavations and before placing any fill, the exposed subgrade shall be scarified to a depth of at least nine (9) inches and moisture conditioned to a level +/-2 percentage points of the material's optimum moisture content. The scarified zone shall be compacted to at least 95 percent of the material's standard Proctor maximum dry density, per ASTM D-698.

F. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Engineer.
   1. Fill unauthorized excavations under other construction or utility pipe as directed by Engineer.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated on-site suitable soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
   1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.11 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:
   1. Construction below finish grade including, where applicable, sub-drainage, damp-proofing, waterproofing, and perimeter insulation.
   2. Surveying locations of underground utilities for Record Documents.
   3. Testing and inspecting underground utilities.
   4. Removing concrete formwork.
   5. Removing trash and debris.
   6. Removing temporary shoring and bracing, and sheeting.
   7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.12 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Place and compact initial backfill of , free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.
   1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

D. Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of 12 inches over the utility pipe or conduit.

E. Backfill voids while installing and removing shoring and bracing.

F. Place and compact final backfill to final subgrade elevation.

G. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

H. Construct clay “trench plug” that extends at least 5 feet out from the face of the building exterior. The plug material shall consist of clay compacted at a water content at or above the soils optimum water content. The clay fill shall be placed to completely surround the utility line and be compacted to at least 95% standard proctor density.

3.13 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:
   1. Under grass and planted areas, use on-site soils.
   2. Under walks and pavements, use engineered fill.
   3. Under steps and ramps, use engineered fill.
   4. Under building slabs, use engineered fill.
   5. Under footings and foundations, use engineered fill.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

D. Place 18 inches of Low Volume Change Fill below building floor slabs.

E. Prior to placing fill, the exposed subgrade shall be scarified to a depth of at least 9 inches, moisture conditioned to a level +/-2 percentage points of the material's optimum moisture content and recompacted to at least 95 percent of the material's standard proctor maximum dry density, determined in accordance with ASTM D-698, the standard proctor procedure.

3.14 SOIL MOISTURE CONTROL

Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to a level within +/-2% of the material’s optimum moisture content, determined in accordance with ASTM D-698, (standard Proctor procedure).

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

CAUTION
NOTICE TO CONTRACTOR

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Sept. 6, 1839

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GENERATOR
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KEY PLAN:

PROJECT PHASE:
FINAL CONSTRUCTION DOCUMENTS

REVISIONS

JOB NUMBER: 25-08.68
DATE: 05/29/25
SHEET NUMBER: **C9.02**
SHEET TITLE: SPECIFICATIONS

3.15 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers of 9 inches or less in loose depth for material compacted by heavy compaction equipment, and not more than 4-6 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698 :

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 8 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 8 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent.
3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches in unpaved areas, compact each layer of initial and final backfill soil material at 85 percent. In paved areas, compact utility trench backfill at 95 percent.

3.16 SUBGRADE/FILL STABILIZATION

A. Stabilization

1. Subgrade improvement can be accomplished by treating the upper 8 inches of pavement subgrade with lime.
   a. Hydrated lime stabilization shall be performed in accordance with Oklahoma Department of Transportation Standard Specifications for Highway Construction.
   b. Estimated 4 to 6 percent hydrated lime, based on the material's compacted dry unit weight.

3.17 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch.
2. Walks and Pavements: minus 1/2 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.18 BASE COURSES

A. Place base course on subgrade free of mud, frost, snow, or ice.

B. On prepared subgrade, place base course under pavements and walks as follows:

1. Where indicated, install separation geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Shape base course to required crown elevations and cross-slope grades.
3. Place base course in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
4. Compact base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D-698.

3.19 DRAINAGE COURSE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

3.20 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Contact Engineer for subgrade proofrolling.

D. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

E. Perform Atterberg limits tests on fly ash and cement kiln dust treated fill/backfill materials placed in the building area for the low volume change fill layer at frequency of at least 1 test per 5,000 SF of area with at least 2 test per lift. Intent or Atterberg limits testing is to determine if the soil has been effectively treated.

F. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least 1 test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than 3 tests.
2. Foundation Wall Backfill: At each compacted backfill layer, at least 1 test for each 100 feet or less of wall length, but no fewer than 2 tests.
3. Trench Backfill: At each compacted initial and final backfill layer, at least 1 test for each 150 feet or less of trench length, but no fewer than 2 tests.

G. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.21 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion prior to placement of subsequent base course, paving, or foundations above. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.22 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove waste material, including unsuitable soil, trash, and debris, and legally dispose of it off Owner's property.

B. Transport surplus engineered fill to designated storage areas on Owner's property.

END OF SECTION 312000

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SECTION 32 1313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes exterior cement concrete pavement for the following:
1. Driveways and roadways.
2. Parking lots.
3. Curbs and gutters.
4. Walkways.

B. Related Sections include the following:
1. Division 03 Section "Cast-in-Place Concrete" for general building applications of concrete.
2. Division 31 Section "Earth Moving" for subgrade preparation, grading, and subbase course.
3. Division 32 Section "Concrete Paving Joint Sealants" for joint sealants of joints in concrete pavement and at isolation joints of concrete pavement with adjacent construction.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, and ground granulated blast-furnace slag.

1.4 SUBMITTALS

A. Product Data: For each type of manufactured material and product indicated.

B. Design Mixtures: For each concrete pavement mixture. Include alternate mixture designs when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

C. Qualification Data: For manufacturer.

D. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated, based on comprehensive testing of current materials:
1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.

E. Material Certificates: Signed by manufacturers certifying that each of the following materials complies with requirements:
1. Cementitious materials.
2. Steel reinforcement and reinforcement accessories.
3. Fiber reinforcement.
4. Admixtures.
5. Curing compounds.
6. Applied finish materials.
7. Bonding agent or epoxy adhesive.
8. Joint fillers.

F. Minutes of preinstallation conference.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.

C. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

D. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

1.6 PROJECT CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces.
1. Use flexible or curved forms for curves with a radius 100 feet or less.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.2 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

C. Epoxy-Coated Welded Wire Fabric: ASTM A 884/A 884M, Class A, plain steel.

D. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

E. Galvanized Reinforcing Bars: ASTM A 767/A 767M, Class II zinc coated, hot-dip galvanized after fabrication and bending; with ASTM A 615/A 615M, Grade 60 deformed bars.

F. Epoxy-Coated Reinforcing Bars: ASTM A 775/A 775M or ASTM A 934/A 934M; with ASTM A 615/A 615M, Grade 60 deformed bars.

G. Steel Bar Mats: ASTM A 184/A 184M; with ASTM A 615/A 615M, Grade 60, deformed bars; assembled with clips.

H. Plain Steel Wire: ASTM A 82.

I. Deformed-Steel Wire: ASTM A 496.

J. Epoxy-Coated-Steel Wire: ASTM A 884/A 884M, Class A coated, deformed.

K. Joint Dowel Bars: Plain steel bars, ASTM A 615/A 615M, Grade 60. Cut bars true to length with ends square and free of burrs.

L. Epoxy-Coated Joint Dowel Bars: ASTM A 775/A 775M; with ASTM A 615/A 615M, Grade 60, plain steel bars.

M. Tie Bars: ASTM A 615/A 615M, Grade 60, deformed.

N. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete, and as follows:
1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.

O. Epoxy Repair Coating: Liquid two-part epoxy repair coating, compatible with epoxy coating on reinforcement.

P. Zinc Repair Material: ASTM A 780.

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use one of cementitious materials, of the same type, brand, and source throughout the Project:
1. Portland Cement

B. Normal-Weight Aggregates: ASTM C 33, Class coarse aggregate, uniformly graded. Conform to ODOT specifications for highway construction. Provide aggregates from a single source.

C. Water: ASTM C 94/C 94M.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: Provide admixtures as allowed by ODOT specifications for highway construction.

2.4 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Reducer: Monomolecular film
1. Representative Products:
a. Confilm, Masterbuilders, Inc.
b. E-con evaporation control, L& MConstruction Chemicals, Inc.

E. Clear Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
1. Products: Conform to ODOT.

F. White Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B.
1. Products: Conform to ODOT.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.

1. Color: As indicated by manufacturer's designation Match Architect's sample As selected by Architect from manufacturer's full range.

B. Slip-Resistive Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery with emery aggregate containing not less than 50 percent aluminum oxide and not less than 20 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.

C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to requirements, and as follows:

1. Types I and II, non-load bearing IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

E. Chemical Surface Retarder: Water-soluble, liquid-set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a depth of 1/8 to 1/4 inch.

1. Products: Conform to ODOT.

2.6 PAVEMENT MARKINGS

A. Pavement-Marking Paint: Latex, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952E, Type II, with drying time of less than 45 minutes.

1. Color: As indicated.

2.7 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete determined by either laboratory trial mixes or field experience.

1. Use a qualified independent testing agency for preparing and reporting proposed concrete mixture designs for the trial batch method.

B. Proportion mixtures to provide normal-weight concrete with the following properties:

1. Compressive Strength (28 Days): 4000 psi

2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.

3. Slump Limit: 4 inches.

a. Slump Limit for Concrete Containing High-Range Water-Reducing Admixture: Not more than 8 inches after adding admixture to plant- or site-verified, 2- to 3-inch slump.

4. Air Content: 5 percent plus or minus 1.5 percent for 3/4-inch (19-mm) nominal maximum aggregate size

C. Calcium Chloride shall not be permitted in concrete mixtures.

D. Chemical Admixtures: Conform to ODOT specifications for highway construction.

1. Use water-reducing admixture high-range, water-reducing admixture high-range, water-reducing and retarding admixture plasticizing and retarding admixture in concrete, as required, for placement and workability.

2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

E. Cementitious Materials: Conform to the ODOT specifications for highway construction Limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 requirements.

1. Fly Ash or Pozzolan: 15 percent.

2. Ground Granulated Blast-Furnace Slag: 50 percent.

3. Combined Fly Ash or Pozzolan, and Ground Granulated Blast-Furnace Slag: 50 percent, with fly ash or pozzolan not exceeding 15 percent.

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.

1. When air temperature is between 85 deg F and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For concrete mixes of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.

2. For concrete mixes larger than 1 cu. yd, increase mixing time by 15 seconds for each additional 1 cu. yd.

3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixing time, quantity, and amount of water added.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

B. Proof-roll prepared subbase surface below concrete pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding.

1. Completely proof-roll subbase in one direction and repeat in perpendicular direction. Limit vehicle speed to 3 mph.

2. Proof-roll with a loaded 10-wheel tandem-axle dump truck weighing not less than 50 tons.

3. Subbase with soft spots and areas of pumping or rutting exceeding depth of 1/4 inch require correction according to requirements in Division 31 Section "Earth Moving."

C. Proceed with concrete pavement operations only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.

3.2 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

B. Precautions to protect fresh concrete from developing plastic shrinkage cracks must be taken in advance of concrete placement when evaporation rate due to any combination of temperature, humidity, and wind velocity is expected to approach 0.2 lb./sq. ft./hr. as determined by Figure 2.1.5 of ACI 305. Acceptable precautions to reduce the rate of evaporation include use of wind breaks, monomolecular film evaporation retarders, fog spray, covering with polyethylene sheeting, or wet cover.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
1. Locate expansion joints at intervals of 50 feet, unless otherwise indicated.
2. Extend joint fillers full width and depth of joint.
3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
6. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 3/8-inch radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade (within 12 hours of concrete pour), or otherwise damage surface and before developing random contraction cracks.
3. Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated and at construction joints. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

E. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 3/8-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.6 CONCRETE PLACEMENT

A. Inspection: Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast in. Notify other trades to permit installation of their work.

B. Remove snow, ice, or frost from subbase surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.

C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

E. Do not add water to fresh concrete after testing.

F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.

H. Place concrete in two operations; strike off initial pour for entire width of placement and to the required depth below finish surface. Lay welded wire fabric or fabricated bar mats immediately in final position. Place top layer of concrete, strike off, and screed.
1. Remove and replace concrete that has been placed for more than 15 minutes without being covered by top layer, or use bonding agent if approved by Architect.

I. Screed pavement surfaces with a straightedge and strike off.

J. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

K. Curbs and Gutters: When automatic machine placement is used for curb and gutter placement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing as specified for formed concrete. If results are not approved, remove and replace with formed concrete.

L. Slip-Form Pavers: When automatic machine placement is used for pavement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce pavement to required thickness, lines, grades, finish, and jointing as required for formed pavement.
1. Compact subbase and prepare subgrade of sufficient width to prevent displacement of paver machine during operations.

M. When adjoining pavement lanes are placed in separate pours, do not operate equipment on concrete until pavement has attained 85 percent of its 28-day compressive strength.

N. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When air temperature has fallen to or is expected to fall below 40 deg F , uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
2. Do not use frozen materials or materials containing ice or snow.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mix designs.

O. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.
4. Take precautions to prevent development of plastic shrinkage cracks.

P. Wind:
1. Take precautions to prevent development of plastic shrinkage cracks.

3.7 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
2. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.
3. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch deep with a stiff-bristled broom, perpendicular to line of traffic.

3.8 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:
1. Moist Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
a. Water.
b. Continuous water-fog spray.
c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

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DATE: 05/29/25
SHEET NUMBER: **C9.04**
SHEET TITLE: SPECIFICATIONS

SECTION 32 1313 - CONCRETE PAVING (CONTINUED)

3.9 PAVEMENT TOLERANCES

A. Comply with tolerances of ACI 117 and as follows:

1. Elevation: 1/4 inch.
2. Thickness: Plus 3/8 inch, minus 1/4 inch.
3. Surface: Gap below 10-foot- long, unleveled straightedge not to exceed 1/4 inch.
4. Lateral Alignment and Spacing of Tie Bars and Dowels: 1 inch.
5. Vertical Alignment of Tie Bars and Dowels: 1/4 inch.
6. Alignment of Tie-Bar End Relative to Line Perpendicular to Pavement Edge: 1/2 inch.
7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: Length of dowel 1/4 inch per 12 inches.
8. Joint Spacing: 3 inches.
9. Contraction Joint Depth: Plus 1/4 inch, no minus.
10. Joint Width: Plus 1/8 inch, no minus.

3.10 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
B. Allow concrete pavement to cure for 21 days and be dry before starting pavement marking.
C. Sweep and clean surface to eliminate loose material and dust.
D. Apply paint with mechanical equipment to produce pavement markings of dimensions indicated with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

3.11 FIELD QUALITY CONTROL

A. Testing Agency: a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
   1. Testing Frequency: Obtain at least 1 composite sample for each 100 cu. yd. or fraction thereof of each concrete mix placed each day.
      a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
   2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
   3. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
   4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
   5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
   6. Compressive-Strength Tests: ASTM C 39/C 39M; test 1 specimen at 7 days and 2 specimens at 28 days.
      a. A compressive-strength test shall be the average compressive strength from 2 specimens obtained from same composite sample and tested at 28 days.
C. Strength of each concrete mix will be satisfactory if average of any 3 consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
D. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.
G. Remove and replace concrete pavement where test results indicate that it does not comply with specified requirements.
H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.12 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.
B. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy adhesive.
C. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 32 1313

SECTION 32 1373 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Expansion and contraction joints within cement concrete pavement.
   2. Joints between cement concrete and asphalt pavement.
B. Related Sections include the following:
   1. Division 07 Section "Joint Sealants" for sealing nontraffic and traffic joints in locations not specified in this Section.
   2. Division 32 Section "Asphalt Paving" for constructing joints between concrete and asphalt pavement.
   3. Division 32 Section "Concrete Paving" for constructing joints in concrete pavement.

1.3 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.
B. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
C. Qualification Data: For Installer.
D. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
   1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
   2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for sealants.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.
B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
C. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
   1. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
   2. Submit not fewer than four pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
   3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
   4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
   5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
D. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing of current sealant products within a 36-month period preceding the commencement of the Work.
   1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 for testing indicated, as documented according to ASTM E 548.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.
B. Store and handle materials to comply with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.6 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:
   1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
   2. When joint substrates are wet or covered with frost.
   3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
   4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

2.3 COLD-APPLIED JOINT SEALANTS

A. Type SL Silicone Sealant for Concrete and Asphalt: Single-component, low-modulus, neutral-curing, self-leveling silicone sealant complying with ASTM D 5893 for Type SL.
   1. Products:
      a. Crafco Inc.; Road Saver Silicone SL.
      b. Dow Corning Corporation; 890-SL.

2.4 JOINT-SEALANT BACKER MATERIALS

A. General: Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.
B. Round Backer Rods for Cold- and Hot-Applied Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.
C. Backer Strips for Cold- and Hot-Applied Sealants: ASTM D 5249; Type 2; of thickness and width required to control sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.
D. Round Backer Rods for Cold-Applied Sealants: ASTM D 5249, Type 3, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

2.5 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
   1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
C. Install backer materials of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
   1. Do not leave gaps between ends of backer materials.
   2. Do not stretch, twist, puncture, or tear backer materials.
   3. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.
D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
   1. Place sealants so they directly contact and fully wet joint substrates.
   2. Completely fill recesses provided for each joint configuration.
   3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
   1. Remove excess sealants from surfaces adjacent to joint.
   2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.
F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions, unless otherwise indicated.
G. Provide recessed joint configuration for silicone sealants of recess depth and at locations indicated.

3.4 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations with repaired areas are indistinguishable from the original work.

END OF SECTION 32 1373

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

CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

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PROFESSIONAL SEAL:

5/28/2025

CONSULTANT LOGO:

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918.584.5858
oklahoma ca1460
exp: 6-30-25

CLIENT:

SEAL OF THE CHEROKEE NATION, SEPT. 6, 1839

CN REDBIRD HEALTH CENTER

GENERATOR

301 SOUTH J T STITES STREET, SALLISAW, OK 74955

KEY PLAN:

PROJECT PHASE:

FINAL CONSTRUCTION DOCUMENTS

REVISIONS

JOB NUMBER: 25-08.68

DATE: 05/29/25

SHEET NUMBER: **C9.05**

SHEET TITLE: SPECIFICATIONS

ABBREVIATIONS

A

AB	ANCHOR BOLT
AD	AREA DRAIN
AC	AIR CONDITIONING
ACT	ACOUSTICAL CEILING TILE
ADD	ADDENDUM
ADD'L	ADDITIONAL
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AGGR	AGGREGATE
AL ALUM	ALUMINUM
ALT	ALTERNATE
ANOD	ANODIZED
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL

B

B.M.	BENCH MARK
BD	BOARD
BETW	BETWEEN
BF	BACKFACE
BG	BUMPER GUARD
BL	BED LOCATOR
BL	BUILDING LINE
BLDG	BUILDING
BLKG	BLOCKING
BM	BEAM
BOT	BOTTOM
BR	BUMPER RAIL
BRG	BEARING
BSMT	BASEMENT
BU ROD	BACK-UP ROD
BUR	BUILT-UP ROOF
BW	BEARING WALL

C

C	COMPACT PARKING SPACE
CC	CUBICK CURTAIN
CR	CARD READER
CEM	CEMENT
CER	CERAMIC
CG	CORNER GUARD
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CJ	CONSTRUCTION JOINT
CL	CENTER LINE
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMM	COMMUNICATIONS
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
CPE	CHLORINATED POLYETHYLENE
COOR	CORRIDOR
CR	COLD ROLLED
CR	CRASH RAIL
CSK	COUNTERSUNK
CT	CERAMIC TILE
CTD	CENTERED
CTR	CENTER
CW	CURTAIN WALL

D

D	DEPTH
DBA	DEFORMED BAR ANCHOR
DET	DETAIL
DF	DECORATIVE FILM
DIA	DIAMETER
DIAPH	DIAPHRAGM
DIM	DIMENSION
DJ	DEFLECTION JOINT
DL	DEAD LOAD
DN	DOWN
DRG	DRAWING
DS	DOWN SPOUT
DWGS	DRAWINGS
DWLS	DOWELS

E

EA	EACH
EF	EACH FACE
EFG	ENTRANCE FLOOR GRILLE
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATOR
EOS	EDGE OF SLAB
EQ	EQUAL
EQUIP	EQUIPMENT
ESC	ESCALATOR
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
EXP BLT	EXPANSION BOLT
EXT	EXTERIOR

F

FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FHC	FIRE HOSE CABINET
FIB	FIBERGLASS
FIN	FINISH
FLR	FLOOR
FS	FAR SIDE
FT	FOOT
FT	FLOOR TRANSITION
FTG	FOOTING
FV	FIELD VERIFY
FVC	FIRE VALVE CABINET

G

GA	GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
GEN	GENERAL
GFRC	GLASS-FIBER REINFORCED CONCRETE
GI	GALVANIZED IRON
GL	GLASS
GM	GLAZED MASONRY UNIT
GND	GROUND
GR	GRADE
GRG	GLASS-REINFORCED GYPSUM
GYP BD	GYPSUM BOARD

H

HB	HOSE BIB
HDW	HARDWARE
HDWD	HARDWOOD
HK	HOOK
HM	HOLLOW METAL
HOR	HORIZONTAL
HP	HIGH POINT
HR	HOUR
HS	HEADED STUD
HSKP	HOUSEKEEPING
HT	HEIGHT
HW	HAND WASH
HW	HEAD OF WALL

I

IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
INSUL	INSULATION
INT	INTERIOR

J

JT	JOINT

K

K	KIPS (1000 LB)
KO	KNOCK-OUT
KP	KICKPLATE
KPD	KEYPAD
KSF	KIPS PER SQUARE FOOT

L

L	ANGLE
LAV	LAVATORY
LG	LONG
LKB	LOCKABLE
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LP	LOW POINT
LT	LIGHT
LWC	LIGHTWEIGHT CONCRETE

M

MAS	MASONRY
MAT'L	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEMB	MEMBRANE
MEP	MECHANICAL, ELECTRICAL AND PLUMBING
MFG	MANUFACTURER
MGO	MEDICAL GAS OUTLET
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MOB	MEDICAL OFFICE BUILDING
MOD BIT	MODIFIED BITUMEN
MOD	MODIFIED
MSL	MEAN SEA LEVEL
MTL	METAL

N

NA	NOT AVAILABLE
NIC	NOT IN CONTRACT
NOA	NOTICE OF ACCEPTANCE BY FLORIDA GOVERNING AUTHORITY
NOM	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT CONCRETE

O

OA	OVER ALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OD	OVERFLOW DRAIN
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
OH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OSF	OUTSIDE FACE

P

P LAM	PLASTIC LAMINATE
PC	PRECAST CONCRETE
PCF	POUNDS PER CUBIC FOOT
PCP	PORTLAND CEMENT PLASTER
PENT	PENTHOUSE
PL	PROPERTY LINE
PL	PLATE
PLUMB	PLUMBING
PLYWD	PLYWOOD
PP	PUSH PLATE
POL	POLISHED
PORT CEM	PORTLAND CEMENT
PR	PAIR
PREFAB	PREFABRICATED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT
PT	PNEUMATIC TUBE
PTD	PAINTED

R

R	RISER
RAD	RADIUS
RAF	RUBBERIZED ASPHALT FLASHING
RAM	RUBBERIZED ASPHALT MEMBRANE
RAU	RUBBERIZED ASPHALT UNDERLAYMENT
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REBAR	REINFORCING BAR
RECP	RECEPTACLE
REF	REFER OR REFERENCE
REINF	REINFORCING
RELOC	RELOCATE/RELOCATED
REQ'D	REQUIRED
RFVC	RECESSED FIRE VALVE CABINET
RM	ROOM
RO	ROUGH OPENING

S

SAB	SOUND ATTENUATION BLANKET
SBC	STANDARD BUILDING CODE
SCHED	SCHEDULE
SDL	SUPERIMPOSED DEAD LOAD
SECT	SECTION
S/H	SINGLE HUNG
SHWR	SHOWER
SIM	SIMILAR
SO	STRUCTURAL OPENING
SOG	SLAB ON GRADE
SP	STAND PIPE
SPA	SPACE, SPACING
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
SSF	SOLID SURFACE
STA	STATION
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STIFF	STIFFENER
STIR	STIRRUP
STL	STEEL
STRUC	STRUCTURAL
SYM	SYMMETRICAL
SYS	SYSTEM

T

T	TREAD
T&B	TOP AND BOTTOM
TC	TOP OF CURB
TEL	TELEPHONE
TEMP	TEMPERATURE
THK	THICK
TLT	TOILET
TO	TOP OF
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOP	TOP OF PARAPET
TOS	TOP OF SLAB
TOSTL	TOP OF STEEL
TW	TOP OF WALL
TYP	TYPICAL

U

U/C	UNDER COUNTER
U/G	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE

V

VAR	VARIES
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VWC	VINYL WALL COVERING

W

W/	WITH
W/C	WHEEL CHAIR
W/O	WITHOUT
W	WIDTH
WP	WATERPROOF(ING)
WD	WOOD
WF	WIDE FLANGE
WL	WIND LOAD
WP	WORK POINT
WPO	WORK POINT - POINT OF ORIGIN
WP1	WORK POINT - NUMBERED
WWF	WELDED WIRE FABRIC

PROJECT INFORMATION

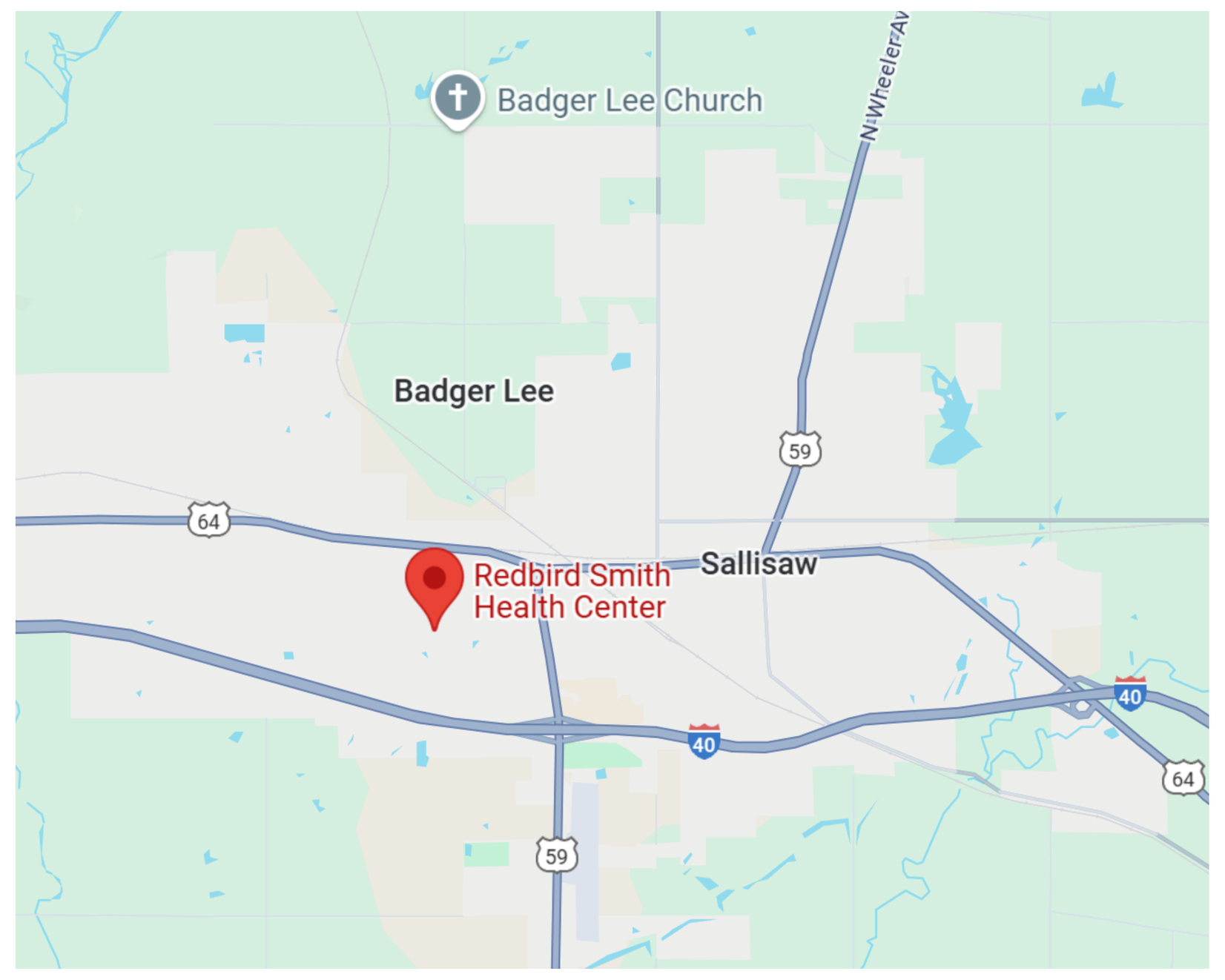
SCOPE OF WORK:

NEW FENCING FOR GENERATOR

DEPARTMENT PROGRAM

VICINITY MAP

LOCATION MAP



SHEET NUMBERING

DISCIPLINE:

- **G** GENERAL
- **C** CIVIL
- **L** LANDSCAPE
- **LS** LIFE SAFETY
- **A** ARCHITECTURE
- **S** STRUCTURAL
- **P** PLUMBING
- **M** MECHANICAL
- **E** ELECTRICAL
- **FA** FIRE ALARM
- **FP** FIRE PROTECTION
- **T** TECHNOLOGY (LV/IT)
- **EQ** EQUIPMENT
- **WF** WAYFINDING

SERIES NUMBER

SHEET NUMBER WITHIN SERIES

NUMBER OF PLAN, DETAIL, ETC. ON SHEET

A2.10/01

MATERIALS LEGEND

- CONCRETE/ PRECAST CONCRETE
- SOIL
- SAND, EIFS FINISH COAT,OR CEMENT PLASTER
- BRICK
- CMU
- STONE
- GLASS MINERAL FIBER BATT INSULATION
- GLASS MINERAL FIBER SEMI RIGID INSULATION
- MINERAL WOOL SEMI RIGID INSULATION
- EXPANDED POLYSTYRENE RIGID INSULATION
- EXTRUDED POLYSTYRENE RIGID INSULATION
- POLYISOCYANURATE RIGID INSULATION
- GYPSUM BOARD
- EXTERIOR GYPSUM SHEATHING
- EXTERIOR CEMENT BOARD
- PLYWOOD
- COVER BOARD

DRAWING SYMBOLS

Symbol	Description
ROOM NAME XXXXX	ROOM NAME/NUMBER
X	EXISTING COLUMN CENTERLINE
X	COLUMN CENTERLINE
1	DEMOLITION NUMBERED NOTES
01 A0.XX	BUILDING / WALL SECTION
A0.XX	ELEVATION
01 A0.XX	SECTION DETAIL
01 A0.XX	ENALRGED PLAN / DETAIL
9'-0"	CEILING HEIGHT
	MEDICAL GAS
	CUBICLE CURTAIN TRACK
A3	PARTITION TYPE
	BUILDING EXPANSION JOINT
	CMU WALL
	NEW WALL
	EXISTING WALL
	DEMO WALL

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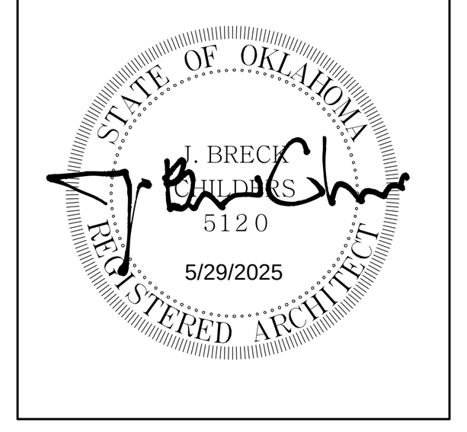
PROFESSIONAL SEAL:



CONSULTANT LOGO:

CLIENT:

CN REDBIRD HEALTH CENTER
HARDENED SPACE
GENERATOR
301 SOUTH J T STITES STREET, SALLISAW, OK 74955

KEY PLAN:

PROJECT PHASE:
FINAL CONSTRUCTION DOCUMENTS

REVISIONS

#	DATE	DESCRIPTION

JOB NUMBER: 25-08.68

DATE: 05/29/25

SHEET NUMBER: **A0.01**

SHEET TITLE: PROJECT INFORMATION

SECTION 09 91 13
EXTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

1.02 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.

B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2024.

C. CARB (SCM) - Suggested Control Measure for Architectural Coatings; California Air Resources Board; 2020.

D. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; Current Edition.

E. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition.

F. SCAQMD 1113 - Architectural Coatings; 1977, with Amendment (2016).

G. SSPC V1 (PM1) - Good Painting Practice: Painting Manual Volume 1; 2024.

H. SSPC V2 (PM2) - Systems and Specifications: Steel Structures Painting Manual Volume 2; 2021.

I. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).

J. SSPC-SP 2 - Hand Tool Cleaning; 2024.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
   2. MPI product number (e.g. MPI #47).
   3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
   4. Manufacturer's installation instructions.
   5. If proposal of substitutions is allowed under submittal procedures, explanation of substitutions proposed.

C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches (216 by 279 mm) in size, illustrating range of colors available for each finishing product specified.
   1. Where sheen is specified, submit samples in only that sheen.

D. Certification: By manufacturer that paints and finishes comply with VOC limits specified.

E. Manufacturer's Instructions: Indicate special surface preparation procedures.

F. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Paint and Finish Materials: 1 gallon (4 L) of each color; from the same product run, store where directed.
   3. Label each container with color in addition to the manufacturer's label.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 5 years experience and approved by manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.06 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the paint product manufacturer's temperature ranges.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior paint and finishes during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Minimum Application Temperatures for Latex Paints: 50 degrees F (10 degrees C) for exterior; unless required otherwise by manufacturer's instructions.

E. Provide lighting level of 80 ft candles (860 lx) measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.

B. Provide paints and finishes from the same manufacturer to the greatest extent possible.
   1. If a single manufacturer cannot provide specified products, minor exceptions will be permitted provided approval by Architect is obtained using the specified procedures for substitutions.
   2. Substitution of a different paint system using MPI-approved products by the same manufacturer will be considered.

C. Paints:
   1. Behr Paint Company: www.behr.com/#sle.
   2. Dunn-Edwards Corporation: www.dunnedwards.com/#sle.
   3. PPG Paints: www.ppgpaints.com/#sle.
   4. Sherwin-Williams Company: www.sherwin-williams.com/#sle.

D. Primer Sealers: Same manufacturer as top coats.

E. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready-mixed, unless required to be a field-catalyzed paint.

   1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
   3. Supply each paint material in quantity required to complete entire project's work from a single production run.
   4. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is described explicitly in manufacturer's product instructions.

B. Volatile Organic Compound (VOC) Content:
   1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
      b. Architectural coatings VOC limits of the State in which the Project is located.
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

C. Flammability: Comply with applicable code for surface burning characteristics.

D. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.

E. Colors: To be selected from manufacturer's full range of available colors.
   1. Selection to be made by Architect after award of contract.

2.03 PAINT SYSTEMS - EXTERIOR

A. Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including galvanized metal.
   1. Two top coats and one coat primer.

B. Galvanized Metals, Alkyd, 3 Coat:
   1. One coat galvanize primer.
   2. Semi-gloss: Two coats of alkyd enamel.

2.04 PRIMERS

A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
   1. Alkyd Primer for Galvanized Metal.

2.05 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin application of paints and finishes until substrates have been properly prepared.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

E. Test shop-applied primer for compatibility with subsequent cover materials.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Galvanized Surfaces:
   1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
   2. Prepare surface according to SSPC-SP 2.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

D. Apply each coat to uniform appearance.

E. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply additional coats until complete hide is achieved.

F. Sand metal surfaces lightly between coats to achieve required finish.

G. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

3.04 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

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CONSULTANT LOGO:

CLIENT:

CN REDBIRD HEALTH CENTER
HARDENED SPACE
GENERATOR
301 SOUTH J T STITES STREET, SALLISAW, OK 74955

KEY PLAN:

PROJECT PHASE:
FINAL CONSTRUCTION DOCUMENTS

REVISIONS

#	DATE	DESCRIPTION

JOB NUMBER: 25-08.68
DATE: 05/29/25
SHEET NUMBER: **A0.02**
SHEET TITLE: EXTERIOR PAINT SPECS

SECTION 32 31 13

PVC COATED CHAIN LINK FENCES AND GATES - PART 1 GENERAL

A. Posts, rails, and frames.
B. Wire fabric.
C. Barbed wire.
D. Concrete.
E. Manual gates and related hardware.
F. Accessories.
G. Egress gates and panic device hardware

1.02 RELATED REQUIREMENTS

A. Section 03 30 53-Landscape - Cast-in-Place Concrete: Concrete anchorage for posts.
B. Section 08 71 00 - Door Hardware: Gate locking device.

1.03 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.
B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
D. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.
E. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2015.
F. ASTM F567 - Standard Practice for Installation of Chain-Link Fence; 2011.
G. ASTM F668 - Standard Specification for Polyvinyl Chloride (PVC) and Other Organic Polymer-Coated Steel Chain-Link Fence Fabric; 2011.
H. ASTM F1043 - Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework; 2014.
I. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures; 2013.
J. CLFMI CLF-FIG0111 - Field Inspection Guide; 2014.
K. CLFMI CLF 2445 - Product Manual; 1997.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittal Procedures
B. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.
C. Manufacturer's Installation Instructions: Indicate installation requirements and other requirements.
D. Project Record Documents: Accurately record actual locations of property perimeter posts relative to property lines and easements.
E. Fence Installer Qualification Statement.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.
B. Fence Installer: Company with demonstrated successful experience installing similar projects and products, with not less than five years of documented experience.
C. Tolerances: ASTM current specification and tolerances apply and supersede any conflicting tolerance.
D. Single source: Obtain the chain link system, framework, fabric, fittings, gates and accessories from a single source.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Chain Link Fences and Manual and Egress Gates
   1. Basis of Design: Master-Halco, Permafused II
   2. Acceptable Manufacturers for Chain Link Fences and Gates:
      a. Master-Halco, Inc: https://www.masterhalco.com.
      b. Merchants Metals: www.merchantsmetals.com.
      c. Ameristar; www.ameristarfence.com.
      d. Southwestern Wire, Inc; www.southwesternwire.com
   3. Substitutions: See Section 01 62 13 - Product Substitution Procedures
B. Egress Gate Hardware
   1. Basis of Design:

2.02 MATERIALS AND COMPONENTS

A. Materials and Components: Conform to CLFMI Product Manual.
B. Intermediate Posts: Cold formed electric resistance welded steel pipe complying with ASTM F1043 Group IC having minimum steel yield strength of 50,000 psi (344 MPa)
   1. Protective Coating: External protective coating F1043 Type B, 0.9 oz/ft² (270 g/m²) minimum hot-dip zinc coating plus a chromate conversion and a clear polymer coating, plus a minimum 10 mil (0,254 mm) thermally fused PVC color coating in accordance with F1043
   2. Minimum Size: 1.9 inches outside diameter, 0.120-inch wall thickness (2.28 lbs./ft)
C. Terminal, Corner, Rail, Brace, and Gate Posts: ASTM 1043 Group IA, ASTM F1083 standard weight schedule 40.
   1. Protective Coating: Hot-dip galvanized pipe having a zinc coating of 1.8 oz/ft² (550 g/m²) on the outside and 1.8 oz/ft² (550 g/m²) on the inside surface. Exterior of pipe to have F1043 PVC thermally fused color coating, minimum thickness 10 mils (0.254 mm)
   2. Posts, Minimum Size: 2.375 inches outside diameter, 0.226-inch wall thickness (3.65 lbs/ft)
   3. Rails & Braces: 1.660 inches outside diameter, .0140-inch wall thickness (2.27 lbs/ft).
   4. Provide top and bottom rail.
D. Formed steel "C" sections: Roll formed steel shapes complying with ASTM F1043, Group II, 50,000 psi (344 MPa) minimum steel yield strength.
   1. Protective coating: ASTM F1043 Type A, minimum average zinc coating of 2.0 oz/ft² (610 g/m²) in accordance with ASTM A 123. The complete surface area of the rolled formed C post shall have a minimum 10 mil (0,254 mm) thermally fused PVC color coating in accordance with F1043.
E. Fabric: 2" Mesh, 9-Gauge, Poly Vinyl Chloride (PVC) color coated steel chain link fabric per ASTM F668 Class Class 2b, Fused and adhered to metallic coated steel wire.
   1. Provide knuckled selvage at top and bottom.
   2. Color: To be selected from manufacturer's standard color line.

F. Gates: Double and single leaf, width as indicated, match height of fence.
   1. Fabrication and Finish" Fabricate chain link swing gates in accordance with ASTM F900. Gate frame to be of welded construction. Weld areas to be protected with zinc-rich paint per ASTM A780 then over coated with liquid PVC to match frame.
   2. Frame: Exterior members to be 1.900" (48.3 mm) OD pipe, interior members when required shall be 1.660" (42.2 mm) OD pipe. PVC coated pipe to be Grade 1 ASTM F1083.
   3. Fabric: Chain link fabric to match specification of fence system. Fabric to be stretched tightly and secured to vertical outer frame members using tension bar and tension bands spaced 12" (304.8 mm) on center and tied to the horizontal and interior members 12" (304.8 mm) on center using 9-gauge galvanized steel ties
   4. Hinges: Hot dip galvanized pressed steel or malleable iron, structurally capable of supporting gate leaf and allow opening and closing without binding. Non-lift-off type hinge design shall permit gate to swing 180°. Clamp type hinges are not permitted unless positively secured to post to prevent slippage. Provide three hinges per gate leaf, minimum. Pedestrian Gates shall have self-closing hinges.
      a. Self-Closing Hinge: Hoover Fence Company, Spring Hinge Model CL-1022-16 or approved equal.
   5. Latch: Galvanized forked type capable of retaining gate in closed position and have provision for padlock. Latch shall permit operation from either side of gate. Finish latch to match gate framing. At double leaf gates provide galvanized drop rod with center gate stop pipe or receiver to secure inactive leaf in the closed position. Provide galvanized pressed steel locking latch, requiring one padlock for locking both gate leaves, accessible from either side. Pedestrian gates shall be self-latching. Latch shall be out of the reach of children.
      a. Self-Latching Hardware: Hoover Fence Company, Automatic Swing Gate Latch Model CL-ASWL-3, or approved equal
   6. Egress Gates: Provide manufacturers push-bar style egress gates. Gates shall allow exiting with a single push of the panic device. Public side of gate shall be locked. Provide solid metal panel prevents activation of the panic bar from the public side. Solid panel shall extend a minimum of 24" above and below panic device.
      a. Provide all-weather audio alarm that provides a loud audible signal upon opening of gate.
      b. Provide gate manufacturer's pneumatic automatic closer that ensures gate closes and latches
   7. Gate Posts: PVC color coated Grade 1 pipe ASTM F1083
      a. Provide Post sizes as follows:
         1) Up to 4' wide leaf: 3" diameter
         2) Over 4' up to 10' wide leaf: 3" diameter
         3) Over 10' to 18' wide leaf: 4.00" diameter
G. Tension Wire: 6 gage thick steel, single strand
H. Concrete: Ready-mixed, complying with ASTM C94, Portland Cement; 3,000 psi strength at 28 days, 3/4" aggregate nominal.

2.03 MANUAL AND EGRESS GATES AND RELATED HARDWARE

A. Hardware for Manual Single Swinging Gates: Self-closing hinges, 2 for gates up to 60 inches (1525 mm) high, 3 for taller gates; latching shall be automatic and have capability of locking.
B. Hardware for Egress Gates: A minimum of three Self-closing hinges, Push bar panic device configured for use on fence and rated for exterior exposure. Panic device shall have alarm and delayed exit feature. Provide 36" tall solid mounting and blocking plate for hardware.
   1. Panic Device Basis of Design: Detex V40 series. Provide with alarm, delayed egress option, and keyed lever on exterior of fence.
   2. Provide power supply necessary for function of panic device.

   3. Provide all trim, mounting devices, and accessories necessary for function of hardware.
C. Hardware for Double Swinging Gates: 180-degree hinges, 2 for gates up to 60 inches (1525 mm) high, 3 for taller gates; drop bolt on inactive leaf engaging socket stop set in concrete, active leaf latched to inactive leaf preventing raising of drop bolt, padlock hasp; keepers to hold gate in fully open position.

2.04 ACCESSORIES

A. Caps: Cast steel galvanized; sized to post diameter, set screw retain, finished to match fence.
B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel, finished to match fence.
C. Privacy Slats: HDPE strips, sized to fit fabric weave. Provide at perimeter fencing
   1. Material: Double-wall HDPE, 3,700 psi tensile strength
   2. Color: to be selected from Manufacturers full range.
   3. Height: Match fence height
   4. Slat Width: 1-3/32", for approximate 75% blockage
   5. Lock Location: Top
   6. Warranty: 25 years
   7. Basis of Design: 4000T Series by Fence Screen, www.fencescreen.com

2.05 FINISHES

A. Components and Fabric: Vinyl coated over coating of 1.8 oz/sq ft galvanizing (over coating of 550 g/sq m galvanizing).
B. Accessories: Same finish as framing.
C. Color(s): Black.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Conditions: Verify that areas are clear of obstructions or debris.
B. Verify locations of underground utilities prior to installation.

3.02 PREPARATION

A. Removal: Obstructions or debris.
B. Ground Preparation:
   1. Grading prepare final grading prior to fence installation. If fence is installed prior to sod placement, take sod thickness into consideration when extablishing fence elevation..

3.03 INSTALLATION

A. Install framework, fabric, accessories and gates in accordance with ASTM F567.
B. Place fabric on outside of posts and rails.
C. Set intermediate posts plumb, in concrete footings with top of footing 6 inches below finish grade. Slope top of concrete for water runoff.
D. Line Post Footing Depth Below Finish Grade: ASTM F567.
E. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: ASTM F567.
F. Brace each gate and corner post to adjacent line post with horizontal center brace rail_____. Install brace rail one bay from end and gate posts.
G. Provide top rail through line post tops and splice with 6 inch (150 mm) long rail sleeves.
H. Install center and bottom brace rail on gate leaves.
I. Provide and install bottom rail.
J. Do not stretch fabric until concrete foundation has cured 28 days.

K. Stretch fabric between terminal posts or at intervals of 100 feet (30 m) maximum, whichever is less.
L. Position bottom of fabric no more than 1/2" above finished grade. Gaps between fabric and grade greater than 1/2" shall be reworked to comply with the 1/2" requirement.
M. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches (380 mm) on centers.
N. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.
O. Install bottom tension wire stretched taut between terminal posts.
P. Do not attach the hinged side of gate to building wall; provide gate posts.
Q. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.
R. Head of bolt shall be inside or towards playground area, all bolt ends shall be away from playground area. Cut bolt end flush with nut and remove any and all burs.
S. Perform three random field inspections confirming proper installation.

3.04 TOLERANCES

A. Maximum Variation from Plumb: 1/4 inch (6 mm).
B. Maximum Offset from True Position: 1 inch (25 mm).
C. Do not infringe on adjacent property lines.
D. Maximum gap between bottom of fence fabric and grade: 1/2 inch.

3.05 FIELD QUALITY CONTROL

A. Layout: Verify that fence installation markings are accurate to design, paying attention to gate locations, underground utilities, and property lines.
B. Post Settings: Randomly inspect three locations against design for:
   1. Hole diameter.
   2. Hole depth.
   3. Hole spacing.
C. Fence Height: Randomly measure fence height at three locations or at areas that appear out of conformance against design.
D. Gates: Inspect for level, plumb, and alignment.
E. Workmanship: Verify neat installation free of defects. See CLFMI CLF-FIG0111 for field inspection guidance.

END OF SECTION

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CN REDBIRD HEALTH CENTER HARDENED SPACE GENERATOR

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KEY PLAN:

PROJECT PHASE:
FINAL CONSTRUCTION DOCUMENTS

REVISIONS

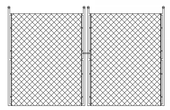
#	DATE	DESCRIPTION

JOB NUMBER: 25-08.68
DATE: 05/29/25
SHEET NUMBER: **A0.03**
SHEET TITLE: FENCE SPECS

GATE SCHEDULE

GATE REVISION	GATE NUMBER	WIDTH	HEIGHT	GATE TYPE	FRAME TYPE	MATERIALS AND FINISHES				VISION PANEL & LOUVER TYPE	CONTROLS				FIRE RATING	HARDWARE	COMMENTS
						GATE MATERIAL	GATE FINISH	FRAME MATERIAL	FRAME FINISH		POWER OPERATOR	HOLD OPEN	GATE CONTROL A	GATE CONTROL B			
LEVEL 01																	
	01-100	10' - 0"	6' - 0"	F1	STL	STL	STL	STL	VINYL	-	-	-	-	-	-	F715	
	01-102	3' - 6"	6' - 0"	F2	STL	STL	STL	STL	VINYL	-	-	-	-	-	-	F715	PANIC DEVICE - SEE NOTES

GATE TYPES



F1

CHAIN LINK FENCE
GATE DOUBLE
(CL01)

F2

CHAIN LINK FENCE
WITH PANIC DEVICE
(CL01)

GATE HARDWARE SET

HARDWARE GROUP NO. F715

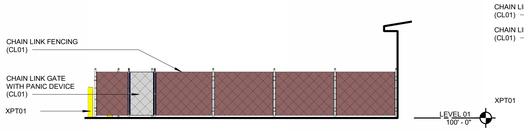
FOR USE ON DOOR #(S):
GATE

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

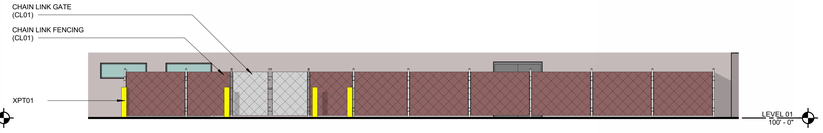
QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4 EA	SPRING HINGES WELD ON	BY GATE FABRICATOR		VON
1 EA	PANIC HARDWARE	LD-OUT-99-NL-WH	626	SCH
1 EA	SFIC RIM CYLINDER	80-159 X ICX	626	SCH
1 EA	SFIC EVEREST CORE	MATCH EXISTING KEYING	626	SCH

-HARDWARE SET IS A GUIDELINE. GENERAL CONTRACTOR SHOULD CONDUCT A COORDINATION MEETING WITH THE GATE FABRICATOR AND HARDWARE SUPPLIER BEFORE EITHER THE GATE IS FABRICATED, OR THE HARDWARE ORDERED.
GATE FABRICATOR TO PROVIDE MOUNTING PLATE AND ACCESSORIES TO MOUNT PANIC HARDWARE TO GATE.

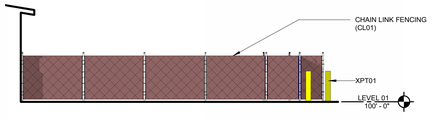
DESIGN SELECTIONS - EXTERIOR										
REVISION	SPEC SECTION	FINISH CODE	DESCRIPTION	MANUFACTURER	PRODUCT / PATTERN / STYLE	COLOR	FINISH	SIZE	INSTALLATION METHOD	NOTES
	32 31 13	CL01	CHAIN LINK FENCE	MASTER-HALCO	PERMAFUSED II	BLACK	VINYL COATED STEEL CHAIN WITH VINYL SLATS	6' HEIGHT	PER MANUFACTURER STANDARDS	PROVIDE APPROPRIATE HARDWARE FOR GATE OPERATIONS
	09 91 00	XPT01	EXTERIOR PAINT	SHERWIN WILLIAMS	SEE SHEET SPECIFICATIONS	SAFETY YELLOW	SEE SHEET SPECIFICATIONS	N/A	PER MANUFACTURER STANDARDS	BOLLARDS



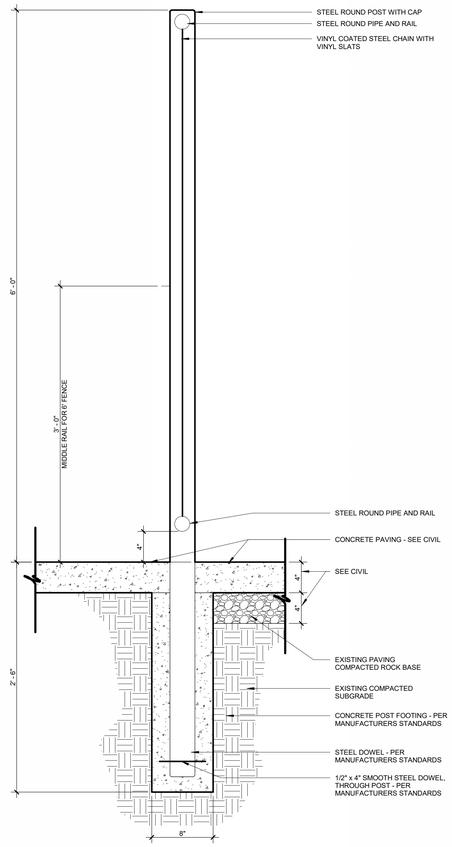
01 WEST ELEVATION
1/8" = 1'-0"



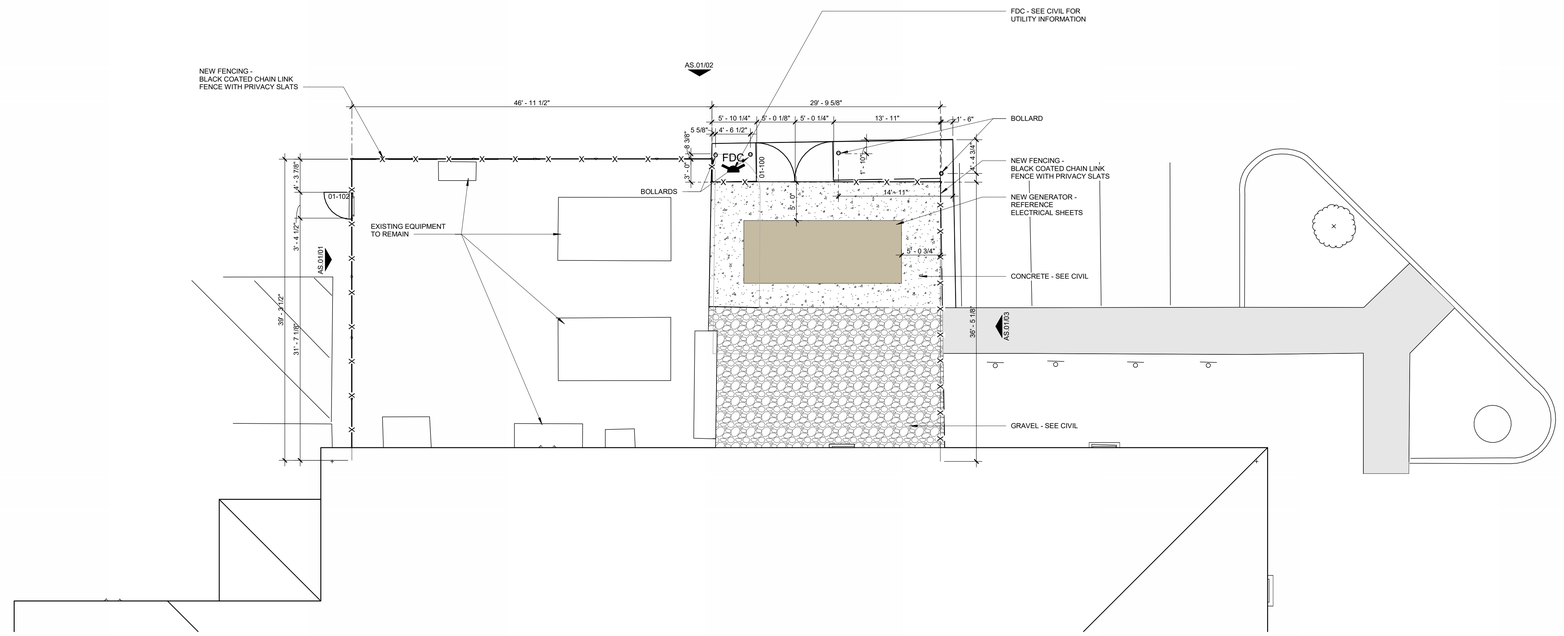
02 NORTH ELEVATION
1/8" = 1'-0"



03 EAST ELEVATION
1/8" = 1'-0"



04 CHAIN LINK FENCE IN CONCRETE PAVING EDGE
1 1/2" = 1'-0"



PLAN NORTH / TRUE NORTH

05 SITE PLAN
1/8" = 1'-0"

ENCLOSURE GATE HARDWARE

CASTERS: CASTER CITY MODEL 50

CANE BOLT: 3/4" DIA x 36" STAINLESS STEEL CANE BOLT HARDWARE SOURCE

HINGES: 4" X 72" STAINLESS STEEL HINGE, HEAVY DUTY MONROE HINGE AND STAMPING # CS 1254 0072

GATES AND RELATED HARDWARE

1. PROVIDE ALL TRIM, MOUNTING DEVICES, AND ACCESSORIES NECESSARY FOR FUNCTION OF HARDWARE FOR FENCE.
2. HARDWARE FOR DOUBLE SWINGING GATES: 180-DEGREE HINGES, DROP BOLT ON INACTIVE LEAF ENGAGING SOCKET STOP SET IN CONCRETE, ACTIVE LEAF LATCHED TO INACTIVE LEAF PREVENTING RAISING OF DROP BOLT, PADLOCK HASP; KEEPERS TO HOLD GATE IN FULLY OPEN POSITION.

TYPICAL NOTES

- SEE CIVIL FOR DEMOLITION
- SEE CIVIL FOR PAVEMENT DESIGN
- SEE CIVIL FOR UTILITY INFORMATION
- SPECIFICATIONS ARE AS SHOWN IN THE DRAWINGS
- SEE ELECTRICAL FOR LIGHTING INFORMATION

EXTERIOR MATERIALS LEGEND

FORMED METAL PANEL
XPT01

CHAIN LINK FENCE

CHAIN LINK GATE

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CN REDBIRD HEALTH CENTER HARDENED SPACE GENERATOR

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KEY PLAN:

PROJECT PHASE:
FINAL CONSTRUCTION DOCUMENTS

REVISIONS		
#	DATE	DESCRIPTION

JOB NUMBER: 25-08.68

DATE: 05/29/25

SHEET NUMBER: **AS.01**

SHEET TITLE: ARCHITECTURAL SITE PLAN/ELEVATIONS/DETAILS

GENERAL ELECTRICAL NOTES:

1. CARRY CODE SIZE GROUND WIRE IN ALL FEEDER AND BRANCH CONDUITS AND ATTACH TO ALL DEVICES, FIXTURES AND EQUIPMENT.
2. FURNISH AND INSTALL PLASTIC BUSHINGS ON THE ENDS OF ALL CONDUITS ABOVE CEILINGS FOR LOW VOLTAGE SYSTEMS.
3. NO CONDUITS SHALL BE IN CONCRETE FLOORS, NOR UNDER SLAB ON GRADE UNLESS SPECIFICALLY CALLED FOR ON DRAWINGS.
4. PROVIDE A PULLSTRING IN ALL EMPTY CONDUITS AND INNERDUCTS WITH LENGTH MARKINGS.
5. BEFORE PURCHASING ANY FUSES, CONFIRM FUSE SIZE WITH ACTUAL EQUIPMENT SUPPLIED.
6. DO NOT INSTALL HORIZONTAL CONDUIT RUNS ON TOP OF ROOF DECK.
7. RACEWAYS CONTAINING #10 OR SMALLER PHASE CONDUCTORS: DO NOT INSTALL MORE THAN FOUR PHASE CONDUCTORS WITH FOUR NEUTRALS MAXIMUM IN A 3/4" OR LARGER RACEWAY UNLESS SO INDICATED ON PLAN. WHERE 1/2" CONDUIT IS ALLOWED, DO NOT INSTALL MORE THAN TWO PHASE CONDUCTORS AND TWO NEUTRALS IN A RACEWAY UNLESS SO INDICATED ON PLAN.
8. JUNCTION BOX SHALL BE PROVIDED WITHIN 4' OF EVERY LIGHT FIXTURE AND CONNECTED TO FIXTURE USING 6' MAXIMUM 1/2" GREENFIELD FLEXIBLE CONDUIT. J-BOXES AND EMT SHALL BE STRAPPED TIGHT TO STRUCTURE AND SHALL NOT BE SUPPORTED FROM CEILING GRID OR CEILING SUPPORT WIRES. FIXTURES MAY BE REQUIRED TO BE MOVED 2'-0" IN ANY DIRECTION UNDER SUPERVISION OF ENGINEER FOR COORDINATION WITH OTHER TRADES AT NO ADDITIONAL COST.
9. INSTALL BLANK PLATES OVER UNUSED DATA/TELEPHONE OUTLETS.
10. MOUNT SWITCHES WHICH ARE BETWEEN UPPER AND LOWER CABINETS AT 4" TO CENTER ABOVE COUNTERTOP OR BACKSPLASH.
11. LABEL GANGED OR GROUPED SWITCHES AS TO FUNCTION. LABEL SWITCHES WHERE FUNCTION IS NOT OBVIOUS.
12. INDIVIDUAL BRANCH CIRCUITS SHALL NOT SHARE NEUTRALS WITH OTHER PHASE CIRCUITS.
13. DO NOT ROUTE CONDUIT HORIZONTALLY IN WALLS. HORIZONTAL CONDUIT RUNS SHALL BE ABOVE CEILING SECURED TO STRUCTURE. DO NOT ROUTE CONDUITS, RACEWAY, OR BUS ON WALL "TOP PLATE" CHANNEL.
14. RECEPTACLES SHALL BE ORIENTED WITH GROUND PIN "UP" OR "DOWN" TO MATCH EXISTING FACILITY DEVICES.
15. MC CABLE IS NOT ALLOWED ON THIS PROJECT.
16. FURNISH AND INSTALL NEW TYPED PANELBOARD SCHEDULES FOR ANY PANELS MODIFIED AS PART OF THIS PROJECT.

ABBREVIATIONS LIST

A	AMPERE(S)
ATS	AUTOMATIC TRANSFER SWITCH
AFF	ABOVE FINISHED FLOOR
C	CONDUIT
EXIST	EXISTING
F	FUSE
G	GROUND
GF	GROUND FAULT INTERRUPTER
HP	HORSEPOWER
LSI	ELECTRONIC CIRCUIT BREAKER WITH ADJUSTABLE LONG TIME PICKUP, LONG TIME DELAY, SHORT TIME PICKUP,SHORT TIME DELAY, AND INSTANTANEOUS PICKUP
LSIG	ELECTRONIC CIRCUIT BREAKER WITH ADJUSTABLE LONG TIME PICKUP, LONG TIME DELAY, SHORT TIME PICKUP,SHORT TIME DELAY, GROUND FAULT PICKUP, GROUND FAULT DELAY, AND INSTANTANEOUS PICKUP
MCS	MOLDED CASE SWITCH
NL	NIGHT LIGHT CIRCUIT
P	POLE
PH	PHASE
R	REMOVE
REC	RECEPTACLE
RE	REFERENCE
TYP	TYPICAL
V	VOLT(S)
W	WIRE(S)
*	EXISTING ITEM TO REMAIN
◆	INDICATES WORK TO BE RELOCATED
AF	CIRCUIT BREAKER AMPERE FRAME SIZE OR FUSE SIZE
AT	CIRCUIT BREAKER TRIP UNIT AMPERE RATING
AS	CIRCUIT BREAKER TRIP UNIT LONGTIME PICKUP SETTING
F.B.O	FURNISHED BY OTHERS

SCHEMATIC LEGEND

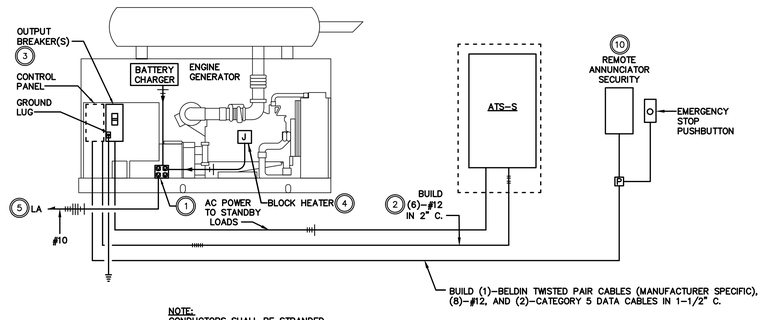
- MOLDED CASE CIRCUIT BREAKER
- FUSED SWITCH
- SWITCH
- CONTACTOR NORMALLY OPEN
- CAP CONDUIT
- FUSED DISCONNECT SWITCH
- NON-FUSED DISCONNECT SWITCH
- PULLBOX
- CONNECTION POINT
- ELECTRIC MOTOR
- ENGINE GENERATOR
- TRANSFORMER
- CABLE TO BUS TRANSITION
- GROUND
- AUTOMATIC TRANSFER SWITCH
- PANELBOARD WITH MAIN BREAKER
- MAIN LUGS ONLY PANELBOARD
- PANELBOARD GROUND BUS
- SURGE PROTECTION DEVICE
- GENERATOR

LEGEND:

- FUSED DISCONNECT SWITCH
- NON-FUSED DISCONNECT SWITCH
- CIRCUIT BREAKER DISCONNECT SWITCH
- JUNCTION BOX
- PULL BOX
- DUPLEX RECEPTACLE
- +72" DUPLEX RECEPTACLE MOUNTED AT OTHER THAN STANDARD HEIGHT (+72" AFF INDICATED). MOUNT +44" AFF WHERE HEIGHT IS NOT INDICATED. FIELD COORDINATE WITH MILLWORK SHOP DRAWINGS.
- +72" (2) DUPLEX RECEPTACLES IN (1) 2-GANG BOX MOUNTED AT OTHER THAN STANDARD HEIGHT (+72" AFF INDICATED). MOUNT +44" AFF WHERE HEIGHT IS NOT INDICATED. FIELD COORDINATE WITH MILLWORK SHOP DRAWINGS.
- (2) DUPLEX RECEPTACLES IN (1) 2-GANG BOX
- GF WP (GF) INDICATES GROUND FAULT INTERRUPTER (WP) INDICATES WEATHER PROOF.
- D (D) INDICATES DUAL 3.0 AMP USB 2.0 CHARGING PORTS, HUBBELL #USB-20X2
- S (S) INDICATES SAFETY-SHUTTER TAMPER RESISTANT TYPE RECEPTACLE
- SPECIAL RECEPTACLE (SEE NOTE FOR TYPE)
- +44" SPECIAL RECEPTACLE AT OTHER STANDARD HEIGHT (+44" AFF INDICATED)
- CONDUIT WITH WIRE COUNT (|) NEUTRAL LEG, (~) SWITCHED LEG, (.) HOT LEG
- UNDERFLOOR OR UNDERGROUND CONDUIT WITH SAME WIRE COUNT AS ABOVE
- HOMERUN TO PANELBOARD WITH WIRE COUNT
- CONDUIT UP
- CONDUIT DOWN
- 120/208 VOLT OR 120/240 VOLT THREE PHASE OR SINGLE PHASE PANELBOARD
- 277/480 VOLT OR 480 VOLT THREE PHASE PANELBOARD
- TRANSFORMER
- (#) NOTE REFERENCE NUMBER
- * EXISTING ITEM TO REMAIN
- (X) FEEDER REFERENCE NUMBER
- $ SINGLE POLE TOGGLE SWITCH
- $3 3-WAY TOGGLE SWITCH
- $D SINGLE POLE DIMMABLE TOGGLE SWITCH
- EXIT LIGHT WITH DIRECTIONAL ARROWS. SHADED SIDE(S) INDICATE LIGHTED FACE(S) OF UNIT.
- BATTERY PACK WITH EMERGENCY LIGHTS
- M ELECTRIC METER
- (1) ELECTRIC MOTOR (HP INSERTED)
- ◆ EXISTING ITEM TO BE REMOVED AND REINSTALLED AS INDICATED
- LIC LAY-IN CEILING
- OTS OPEN TO STRUCTURE

KEYNOTES:

1. FURNISH AND INSTALL 800A, 480V, 3-POLE AUTOMATIC TRANSFER SWITCH IN NEMA 1 ENCLOSURE. SEE SPECIFICATION FOR FUNCTIONS AND FEATURES.
2. BUILD 1-1/2" C FOR GENERATOR CONTROL WIRING. INSTALL WIRING AS DIRECTED BY GENERATOR MANUFACTURER.
3. BUILD #4/0 BARE, STRANDED, COPPER, MINIMUM 18" BELOW GRADE WHERE UNDERGROUND.
4. FURNISH AND INSTALL 3/4"X10' LONG COPPERCLAD STEEL DRIVEN GROUND ROD WITH TOP OF ROD 18" BELOW GRADE. FURNISH AND INSTALL ERITECH T416E INSPECTION WELL AND COVER WITH TOP FLUSH WITH GRADE OR PAVING. BOND CONDUCTOR TO ROD WITH EXOTHERMIC WELD.
5. FEED GENERATOR AUXILIARY CIRCUITS FROM (4) NEXT AVAILABLE SINGLE POLE 20A SPARE BREAKERS IN PANEL LA LOCATED IN ADMIN BUILDING. IF NO SPARES ARE AVAILABLE, FURNISH AND INSTALL (4) SINGLE POLE, 20A BREAKERS IN AVAILABLE SPACE.
6. REFER TO STRUCTURAL PLANS FOR GENERATOR CONCRETE PAD. PAD SHALL EXTEND 6" BEYOND EQUIPMENT SKID SIZE.
7. CONFIRM EXISTING COMMERCIAL DISCONNECT SWITCH HAS A NEUTRAL-GROUND BOND. IF BOND IS NOT PRESENT, FURNISH AND INSTALL BONDING JUMPER.
8. BUILD (1) 1-1/2" C FOR GENERATOR CONTROL WIRING TO REMOTE ANNUNCIATOR. INSTALL REMOTE ANNUNCIATOR AND ASSOCIATED WIRING AS DIRECTED BY MANUFACTURER.
9. FURNISH AND INSTALL PULLBOX ON BUILDING EXTERIOR TO TRANSITION CONDUIT TO INSIDE BUILDING. PENETRATE EXTERIOR WALL AT CEILING HEIGHT TO BUILD POWER TO NEW ATS LOCATED IN MAIN ELECTRIC ROOM. FIRE STOP ALL EXTERIOR WALL PENETRATIONS PER OWNERS SPECIFICATIONS.
10. INSTALL REMOTE ANNUCIATOR SUPPLIED BY GENERATOR MANUFACTURER. REFER TO MANUFACTURER INSTALLATION INSTRUCTIONS. MOUNT PANEL IN SECURITY OFFICE, COORDINATE EXACT LOCATION WITH OWNER. SECURITY OFFICE LOCATED ROUGHLY 100' SOUTH AND 50' EAST FROM MAIN ELECTRIC ROOM.
11. BUILD (4)-#10, (1)-#10 GROUND IN 2" CONDUIT FROM PANEL TO SERVE GENERATOR ACCESSORY LOADS. ROUTE CONDUIT TO ABOVE CEILING AND OUT TO BUILDING EXTERIOR. PENETRATE EXTERIOR WALL AND BUILD PULLBOX TO TRANSITION TO UNDERGROUND. SEAL ALL WALL PENETRATIONS.
12. BOND NEUTRAL TO GROUND AT GENERATOR. GENERATOR SHALL BE SEPARATELY DERIVED SOURCE.
13. COORDINATE CONTROL AND POWER STUB-UP AREA(S) WITH GENERATOR SUPPLIER. COORDINATE CONCRETE PAD BLOCKOUT AREA(S) ACCORDINGLY.
14. BUILD NEW SECONDARY CONDUCTORS FROM SECONDARY SIDE TERMINALS OF COMMERCIAL POWER DISCONNECT TO NEW ATS. PENETRATE EXTERIOR WALL AND ROUTE CONDUIT ABOVE CEILING. FIRESTOP/SEAL ALL PENETRATIONS PER OWNERS REQUIREMENTS
15. REFEED EXISTING MAIN SWITCH BOARD FROM NEW ATS. SHUTDOWN OF COMMERCIAL/NORMAL POWER TO OCCUR DURING WEEKEND/OVERNIGHT HOURS SO NOT DISRUPT NORMAL OPERATION. COORDINATE ALL SHUT DOWN WITH OWNER.



NOTE:
CONDUCTORS SHALL BE STRANDED.

1 GENERATOR WIRING DIAGRAM

NO SCALE:

KEYNOTES: (APPLIES TO DETAIL #1)

1. BUILD (2)-DUPLEX GROUND FAULT RECEPTACLES IN GENERATOR ENCLOSURE. LOCATE AS INSTRUCTED BY GENERATOR TECHNICIAN IN FIELD. RECEPTACLES WILL BE USED FOR GENERAL POWER. EACH DUPLEX SHALL BE A DEDICATED CIRCUIT.
2. BUILD CONDUCTORS AND CABLES AS INSTRUCTED BY GENERATOR MANUFACTURER. BUILD 2" C.
3. GENERATOR OUTPUT CIRCUIT BREAKERS FURNISHED WITH GENERATOR, FACTORY MOUNTED.
4. VERIFY BLOCK HEATER WIRING REQUIREMENTS WITH SHOP DRAWINGS AND ADJUST WIRE SIZE/CIRCUIT BREAKER.

ENGINE GENERATOR ALARMS SCHEDULE

CONDITION	ENGINE GENERATOR SHUTDOWN UPON ALARM	INDIVIDUAL VISUAL ALARM/ INDICATION AT ENGINE GENERATOR	REMOTE ANNUNCIATOR #1	
			INDIVIDUAL VISUAL ALARM/INDICATION AT REMOTE ANNUNCIATOR	COMMON AUDIBLE ALARM AT REMOTE ANNUNCIATOR
HIGH ENGINE COOLANT TEMPERATURE ALARM/SHUTDOWN	X	X	X	X
HIGH ENGINE COOLANT TEMPERATURE PREALARM		X	X	X
LOW ENGINE OIL PRESSURE ALARM/SHUTDOWN	X	X	X	X
LOW ENGINE OIL PRESSURE PREALARM		X	X	X
LOW ENGINE COOLANT LEVEL		X	X	X
LOW ENGINE COOLANT TEMPERATURE ALARM		X	X	X
OVERCRANK/FAIL TO START	X	X	X	X
OVERSPEED	X	X	X	X
UTILITY SUPPLYING LOAD/NORMAL OPERATION			X	
ENGINE GENERATOR SUPPLYING LOAD/IN USE		X	X	
NOT IN AUTO		X	X	X
HIGH BATTERY VOLTAGE		X		
LOW BATTERY VOLTAGE		X		
BATTERY CHARGER MALFUNCTION (COMMON ALARM)		X	X	
LOW FUEL TANK LEVEL		X	X	X
RUPTURE BASIN ALARM			X	X
AUTOMATIC TRANSFER SWITCH IN NORMAL POSITION		X	X	
AUTOMATIC TRANSFER SWITCH IN NEUTRAL/LOAD SHED POSITION		X	X	
AUTOMATIC TRANSFER SWITCH IN EMERGENCY POSITION		X	X	

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100% CONSTRUCTION DOCUMENTS

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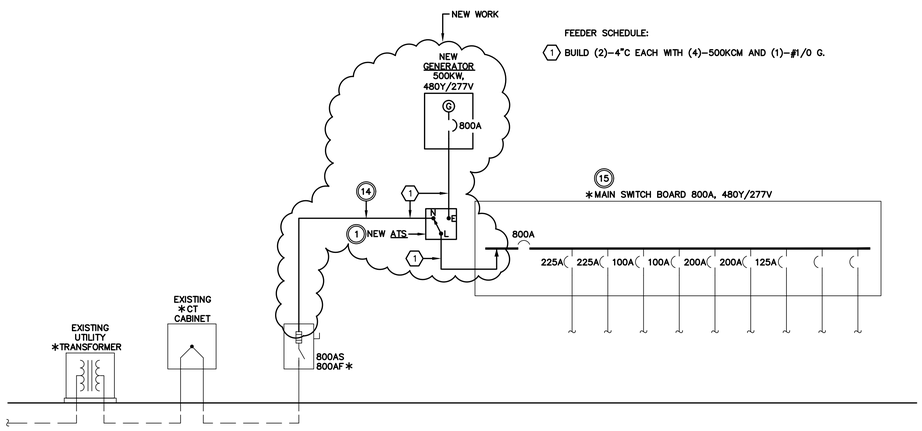
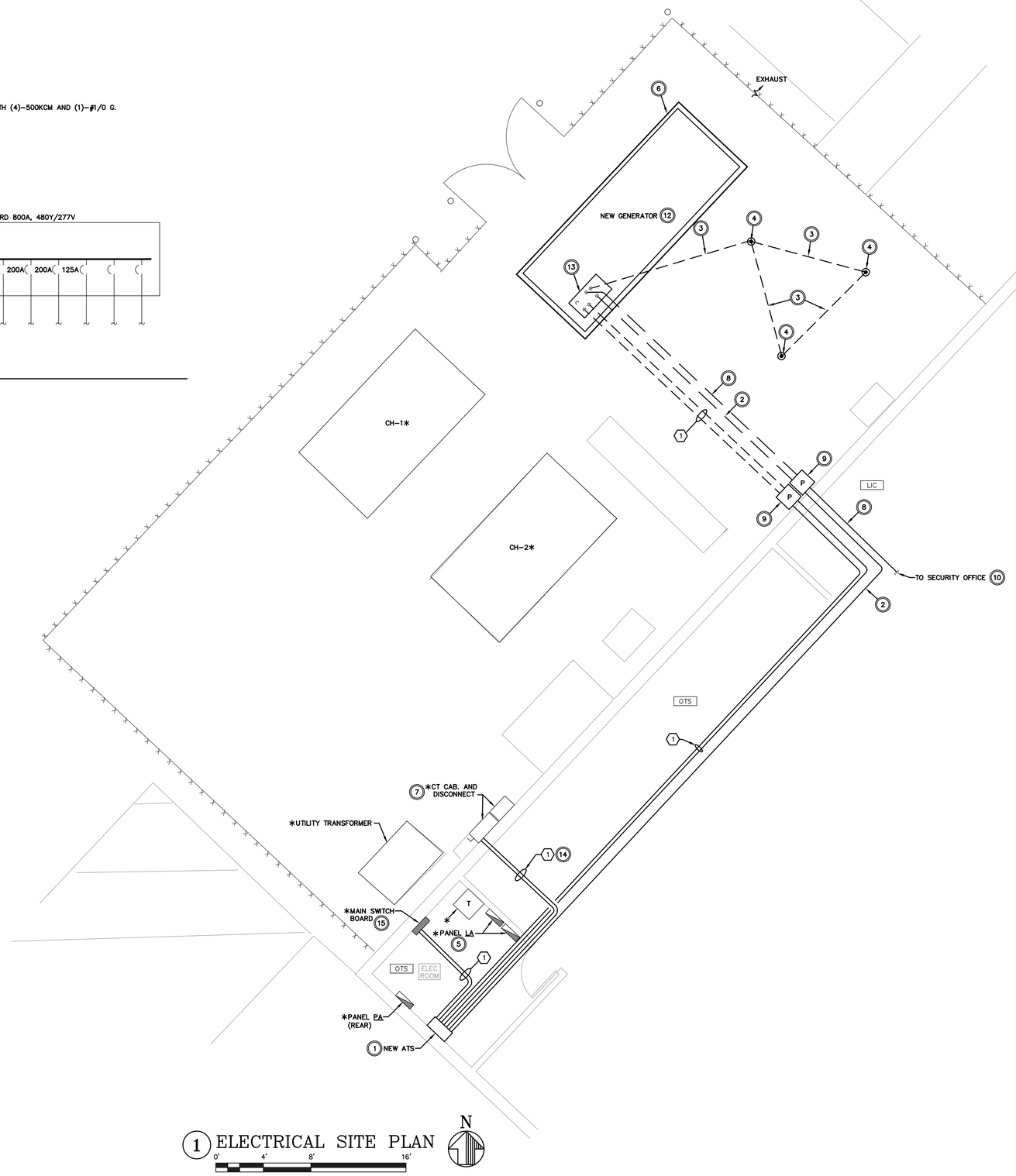
JOB NUMBER: 25-08.68
DATE: 05/29/25
SHEET NUMBER: **E0.01**
SHEET TITLE: ELECTRICAL DETAILS AND SCHEDULES

L&B PROJ #3510 CAD#38507 E0.01 MAY-15-25



2 ELECTRICAL ONE-LINE DIAGRAM
NO SCALE



1 ELECTRICAL SITE PLAN

REFER TO SHEET E0.01 FOR KEYNOTES (#).

L&B PROJ #0310 CAD#38508 E1.01 APR-28-25

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JOB NUMBER: 25-08.68
DATE: 05/29/25
SHEET NUMBER: E1.01
SHEET TITLE: ELECTRICAL SITE PLAN