New Outdoor Firing Range
Missouri State Highway Patrol
Jefferson City, Missouri

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OWNER: STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR
DEPARTMENT OF PUBLIC SAFETY
MISSOURI STATE HIGHWAY PATROL

PROJECT MANAGEMENT: OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DESIGNERS: GREDELL Engineering Resources, Inc.
The Architect's Alliance, Inc.
Allstate Consultants LLC
Midwest Engineering and Design, L.L.C.
The Schematic Connection, Inc.

PROJECT NUMBER: R1806-01
SITE NUMBER: 6026
ASSET NUMBER: 8136026001

DEPARTMENT OF PUBLIC SAFETY
MISSOURI STATE HIGHWAY PATROL
NOTES:
1. SITE VICINITY MAP FROM MISSOURI GENERAL HIGHWAY MAP.
2. SITE LOCATION MAP FROM GOOGLE EARTH.

NOTES TO THE CONTRACTOR:
UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS AND THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS AT PRESENT NOT KNOWN. VERIFICATION OF THE LOCATIONS OF UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, WILL BE THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR.

THE CONTRACTOR SHALL MAKE SUITABLE AND TIMELY REQUESTS TO ALL UTILITY OWNERS, PIPELINE OWNERS, OR OTHER PARTIES AFFECTED TO MAKE ALL NECESSARY ADJUSTMENTS OF PUBLIC OR PRIVATE UTILITIES, PIPE LINES, OR OTHER APPURTENANCES WITHIN, OR ADJACENT TO THE LIMITS OF CONSTRUCTION, AS SOON AS PRACTICAL OR POSSIBLE.

MISSOURI ONE CALL SYSTEM (DIG-RITE) 1-800-344-7483
NOTES:

1. EXISTING SURFACE FEATURES AND TOPOGRAPHY BASED ON A MARCH 2019 IN-FIELD SURVEY BY CENTRAL MISSOURI PROFESSIONAL SERVICES.

2. TREES REMOVED WITHIN BOUNDARY OF PROPOSED ONSITE WASTEWATER TREATMENT SYSTEM SHALL BE REMOVED WITH ROOT BALLS LEFT IN PLACE IN ORDER TO MINIMIZE SOIL DISTURBANCE.


4. 40" OAK TREE TO REMAIN; DO NOT DISTURB

NOTES TO THE CONTRACTOR:

1. UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS AND THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS AT PRESENT NOT KNOWN. VERIFICATION OF THE LOCATIONS OF UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, WILL BE THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR.

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MISSOURI ONE CALL SYSTEM (DIG-RITE) 1-800-344-7483

PROPOSED ONSITE WASTEWATER TREATMENT SYSTEM AREA. (SEE NOTE 2)

30" WALNUT TREE TO REMAIN; DO NOT DISTURB
MISSOURI STATE HIGHWAY PATROL

NEW OUTDOOR FIRING RANGE

MISSOURI STATE HIGHWAY PATROL
JEFFERSON CITY, MISSOURI

PROJECT # R108-01
SITE # 6026
ASSISTANT # R105020001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:

LEGEND

TOP REINFORCEMENT MAT
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
BARRIER FENCE

C-105

THE INFORMATION AND DOCUMENTS IN THIS DRAWING ARE PROPRIETARY AND CONFIDENTIAL TO THE STATE OF MISSOURI, THE MISSOURI STATE HIGHWAY PATROL, AND ITS CONTRACTOR. THE INFORMATION AND DOCUMENTS MAY NOT BE SHARED, OR DISCLOSED TO ANY THIRD PARTY WITHOUT THE AUTHORIZATION OF THE MISSOURI STATE HIGHWAY PATROL.
ACCESS ROAD 1 & 2
PLAN AND PROFILE

NOTES:
1. REFER TO SHEET C-501 FOR JOINT SPACING, DRIVEWAY GEOMETRY, AND PAVEMENT SECTION DETAILS.
LEGEND

1. CONSTRUCT DRAINAGE CHANNEL 1 WITH 2’ WIDE FLAT BOTTOM AND SIDE SLOPES NO STEEPER THAN 3:1.

2. PERMANENT TURF REINFORCEMENT MATTING SHALL BE INSTALLED IN DRAINAGE CHANNEL 1 FROM STA. 4+14.00 TO STA. 6+58.00 AND BETWEEN THE TOPS OF THE CHANNEL. REFER TO SPECIFICATIONS FOR INSTALLATION AND PERFORMANCE REQUIREMENTS.

3. SINGLE NET TEMPORARY EROSION CONTROL BLANKET SHALL BE INSTALLED IN DRAINAGE CHANNEL 1 FROM STA. 0+00 TO STA. 4+14.00 AND BETWEEN THE TOPS OF THE CHANNEL. REFER TO SPECIFICATIONS FOR INSTALLATION AND PERFORMANCE REQUIREMENTS.

KEYED NOTES:
GRAVITY SEWER NOTES:
1. ELEVATIONS PROVIDED IN THE OWTS DESIGN ARE APPROXIMATE. ACTUAL ELEVATIONS MUST BE MEASURED AND DETERMINED DURING OWTS CONSTRUCTION TO ASSURE
2. A CLEANOUT SHALL BE INSTALLED AT BENDS AND GRADE CHANGES WHERE INDICATED ON THE DRAWINGS.
3. ALL GRAVITY SEWER LINES, INCLUDING THE SEWER LINE CONNECTIONS BETWEEN ALL TANKS, SHOULD BE INSTALLED ON A MINIMUM 1% SLOPE.
4. THE PUMP TANK DESIGN MAY REQUIRE SPECIALIZED CONSTRUCTION BY THE MANUFACTURER.
5. SUPPLY LINES MUST BE INSTALLED TO ALLOW GRAVITY DRAINAGE BACK TO THE PUMP TANK AND INSTALLED AT LEAST 3 INCHES BELOW GRADE OF THE LOWEST ELEVATION LOW PRESSURE PIPE ABSORPTION LINE.

PRODUCT REQUIREMENTS:
1. INSPECT AND ADDRESS PIPING DEFECTS ACCORDING TO THE SPECIFICATIONS.
2. INSPECTION AND CLEANING OF THE SEPTIC TANK EFFLUENT GRAVITY FILTER.
3. INSPECTION AND CLEANING OF THE SEWAGE EFFLUENT PUMP (AS NECESSARY), EFFLUENT PRESSURE FILTER, AND FLOATS TO VERIFY THEY ARE VOID OF DEBRIS AND ARE OPERATING PROPERLY.
4. FLUSH THE LOW PRESSURE PIPE ABSORPTION LINES (AS NECESSARY, AS DETERMINED BY OPERATING HEAD).
5. FILL ANY DEPRESSIONS OR RILLS IN THE SOIL TREATMENT AREA THAT ALLOW SURFACE WATER TO COLLECT.
6. ONE OUTDOOR, TIMED-DOSING SIMPLEX CONTROL PANEL WITH AUDIBLE/VISUAL ALARM, TIMER OVERRIDE, ELAPSED TIMER METER, EVENT COUNTER, AUXILIARY CONTACTS, IN SITU ELECTRICAL SYSTEM NETWORK (TYP).
7. ONE OUTDOOR REMOTE ALARM BEACON WITH AUDIBLE/VISUAL ALARM TO BE INSTALLED ON SAME ELECTRICAL CIRCUIT WITH CONTROL PANEL ON CLASSROOM BUILDING IN AREA REPLACEMENT.
8. ONE FLOAT TREE BRACKET & FLOAT HOLDERS AND WIRE ORGANIZER.
9. IMMEDIATELY REPAIR ANY DAMAGED COMPONENTS OF THE OWTS.

QUALITY CONTROL NOTES:
1. TEST NEW PIPING SYSTEMS, INCLUDING AIR TESTS AND FORCE MAIN TESTS, ACCORDING TO THE SPECIFICATIONS.
2. OPERATING HEAD MUST BE ADJUSTED TO THE DESIGN SPECIFICATION FOR PROPER SYSTEM OPERATION.
3. SIX MONTHS AFTER INSTALLATION IS COMPLETE AND WASTEWATER SYSTEM IS IN USE, THE CONTRACTOR SHALL CHECK AND ADJUST THE PRESSURE HEAD WITHIN THE DESIGN SPECIFICATION FOR PROPER SYSTEM OPERATION.
4. FLUSH THE LOW PRESSURE PIPE ABSORPTION LINES (AS NECESSARY, AS DETERMINED BY OPERATING HEAD).
5. SUPPLY LINES MUST BE INSTALLED TO ALLOW GRAVITY DRAINAGE BACK TO THE PUMP TANK AND INSTALLED AT LEAST 3 INCHES BELOW GRADE OF THE LOWEST ELEVATION LOW PRESSURE PIPE ABSORPTION LINE.

STARTUP NOTES:
1. ALL PRESSURE LINES AND LOW PRESSURE PIPE ABSORPTION LINES MUST BE CLEANED Prior TO ADJUSTING OPERATING PRESSURE. OPENING NO PRESSURE IS NOT PERMITTED PRIOR TO CLEANING PRESSURE LINES.
2. OPERATING HEAD MUST BE ADJUSTED TO THE DESIGN SPECIFICATION FOR PROPER SYSTEM OPERATION.
3. TEST NEW PIPING SYSTEMS, INCLUDING AIR TESTS AND FORCE MAIN TESTS, ACCORDING TO THE SPECIFICATIONS.
4. FLUSH THE LOW PRESSURE PIPE ABSORPTION LINES (AS NECESSARY, AS DETERMINED BY OPERATING HEAD).
5. SUPPLY LINES MUST BE INSTALLED TO ALLOW GRAVITY DRAINAGE BACK TO THE PUMP TANK AND INSTALLED AT LEAST 3 INCHES BELOW GRADE OF THE LOWEST ELEVATION LOW PRESSURE PIPE ABSORPTION LINE.

OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION MISSOURI STATE HIGHWAY PATROL
MISSOURI STATE HIGHWAY PATROL JEFFERSON CITY, MISSOURI NEW OUTDOOR FIRING RANGE
PROJECT # R1506-01 SITE # 6026 ASSET # R305626001
CASSIDAN HRG-CLL BRIAN M. FOX SHEET TITLE: ON-SITE WASTEWATER TREATMENT SHEET NUMBER: C-111 3 OF 49 SHEETS 8/30/2019

JEFFERSON CITY, MISSOURI 65102
1505 East High Street                      Telephone: (573) 659-9078
MO CORP. ENGINEERING LICENSE NO. E-2001001669-D
1. THE FINAL POSITION OF ALL DOWELS AND TIE BARS
   
   **NOTES:**
   
   **AGGREGATE BASE COURSE**
   
   **MSSHC SECT 1007 TYPE 5**
   
   **PRIOR TO CONSTRUCTION.**
   
   AND PARALLEL TO EACH OTHER.
   
   SHALL BE PERPENDICULAR TO THE PLANE OF THE JOINT
   
   1. TIE BARS SHALL HAVE A MINIMUM LENGTH OF 30
   2. DO NOT TIE CONCRETE PAVEMENT TO WALLS,
   
   *FOR PAVEMENTS HAVING THICKNESS IN 1/2"
   
   HALF THE PAVEMENT THICKNESS MINUS 1/2" INCREMENTS, DOWEL BASKETS SHALL BE
   
   0.306"Ø WIRE
   
   **WIDTH 1/8")**
   
   JOINT (MAX
   
   2-2/3" OR TYPE 7
   
   **LONGITUDINAL CONSTRUCTION JOINT**
   
   IN CENTER TO CENTER.
   
   INCHES AND SHALL BE PLACED A MAXIMUM OF 30
   
   SIDEWALKS OR OTHER NON-PAVEMENT FEATURES.
   
   1. THE DOWEL SUPPORTING UNITS SHALL BE FACTORY ASSEMBLED
   
   DIRECTION.
   
   7. STAKING PINS SHALL BE FABRICATED FROM 0.306" DIAMETER
   
   5. THE DIAMETER OF THE SPACER WIRE SHALL NOT EXCEED 0.200".
   
   4. WIRES, BARS OR CLIPS SHALL BE USED AS NECESSARY TO
   
   3. WIRE SIZES SHOWN ARE MINIMUM REQUIRED.
   
   HAVE A MINIMUM LENGTH OF 12" FOR DOWEL ASSEMBLIES
   
   MIN. 28 DAY
   
   COMPR. STRENGTH, 4" MAX. SLUMP, 5-7% ENTRAINED AIR CONTENT
   
   **SECTION A-A**
   
   **SCALE: 1" = 1'**
   
   **NOTE:**
   
   **CONCRETE DOWEL DETAIL**
   
   **CONCRETE PAD**
   
   **LONGITUDINAL JOINT**
   
   **TRANSVERSE JOINT**
   
   **CONTROL JOINT (TYP)**
   
   **ISOLATION JOINT**
   
   **CONCRETE PAVING DETAILS**
   
   **TYPICAL ACCESS ROAD A**
   
   **PAVEMENT SECTION**
   
   **DRIVEWAY DETAIL**
   
   **NEW OUTDOOR FIRING RANGE**
   
   **MISSOURI STATE HIGHWAY PATROL**
   
   **JEFFERSON CITY, MISSOURI**
   
   **PROJECT #: R1008-01**
   
   **SITE #: 6026**
   
   **ASSET #: 8136026001**
   
   **REVISION DATE:** 8/30/2019
   
   **ISSUE DATE:** 9/10/2019
   
   **CAD DESIGN BY:** GREDELL Engineering Resources, Inc.
   
   **ISSUED FOR:** OUTDOOR FIRING RANGE
   
   **NOTE:**
   
   **SCALE: N.T.S.**
   
   **SCALE: 1" = 3'**
   
   **SCALE: 1" = 4'**
   
   **SCALE: 1" = 5'**
   
   **SCALE: 1" = 6'**
   
   **SCALE: 1" = 8'**
   
   **SCALE: 1" = 10'**
   
   **SCALE: 1" = 12'**
   
   **SCALE: 1" = 14'**
   
   **SCALE: 1" = 16'**
   
   **SCALE: 1" = 20'**
   
   **SCALE: 1" = 25'**
   
   **SCALE: 1" = 30'**
   
   **SCALE: 1" = 40'**
   
   **SCALE: 1" = 50'**
   
   **SCALE: 1" = 60'**
   
   **SCALE: 1" = 75'**
   
   **SCALE: 1" = 100'**
BACKFILL AND COMPACT THE SOIL
EMBED GEOTEXTILE A MINIMUM OF 8"

2. Cut fabric from a continuous roll to eliminate joints. If joints are needed, they will be overlapped to the next stake.

3. Stakes will be standard 2" x 4" wood or equivalent. Metal with a vertically into the ground.

4. Place tied bales on contour.

5. Fabric shall be embedded 8" inches minimum below ground, backfilled, and driven staple center to center.

6. Straw bale barriers shall be keyed into the soil 6".

7. Fore stability the base of the dam shall be keyed into the soil 6".

ROCK CHECK DAM NOTES:

1. Rock check dams shall be constructed of 20.0' R (MIN) of crushed aggregate greater than 4".

2. Sediment shall be removed when it reaches one half of the original grade.

3. Regular inspections are to be made to ensure that the center of the dam is lower than the edges. Erosion caused by high flows or overtopping of the dam is the responsibility of the owner of the property.

4. Silt fence inlets protection shall be provided for every 100' of silt fence to prevent erosion of the soil into the dam.

5. Remove any existing ground flow drain pipes into an approved sediment trapping device.

6. Removal of material used to trap sediment. All sediment which will prevent tracking or flowing of sediment onto public rights of way shall be done on an area stabilized with stone and which will prevent tracking or flowing of sediment onto public rights of way.

7. Washout of any measures used to trap sediment. All sediment shall be done on an area stabilized with stone and which will prevent tracking or flowing of sediment onto public rights of way.

8. Concrete handrail parking stalls detail.


11. Land - air - water.
**LPP Aborption Field Zone Layout**

- **Flow**
- **1 1/4" SCH 40 PVC Pipe Section with Turn Up**
- **5/32" Orifice @ 8' On Center (Typ)**
- **10" Gravel-Less Bundle (Typ)**
- **6" Valve Box (Typ)**

**Details:**
- All Orifices Facing Upward Except First and Last Orifice of Each Lateral Facing Downwards

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**Additional Notes:**
- Two of Four Zones and Sixteen of Thirty-Two Laterals Depicted in This Detail.
CONCRETE WASH AREA
100' SETBACK RADIUS FROM WELL
NEW DRINKING WATER WELL (BY OTHERS)
2" Ø PVC PRESSURE LINE
67' OF 2" Ø PVC PRESSURE LINE
2,000 GALLON SEPTIC TANK
5' ON CENTER (MIN)
4" Ø PVC SWEEP 45°
2" Ø PVC TO 1.25" Ø PVC REDUCER TEE (TYP)
4" Ø PVC CLEANOUT
2,000 GALLON PUMP TANK
4" Ø PVC
4" Ø PVC CLEANOUT
2" Ø PVC SWEEP 45°
2" Ø PVC TO 1.25" Ø PVC REDUCER ELBOW
OWTS REMOTE ALARM BEACON
OWTS DIVERSION SWALE
SOIL TREATMENT AREA OPTION 2: LPP OR DRIP IRRIGATION
10' (MIN)
LOCATION APPROXIMATE; CONTRACTOR TO VERIFY
MISSOURI HIGHWAY 179
OWTS CONTROL PANEL/ALARM
112' OF 4" Ø PVC GRAVITY SEWER
22" DEEP BY 12" WIDE MODIFIED LPP ABSORPTION LATERAL INSTALLED ON CONTOUR (TYP)
1.25" Ø PVC PRESSURE LINE, INSTALLED IN 10" Ø GRAVELESS PIPE (TYP)
SANITARY SEWER DRAINFIELD SIGN (TYP)
1.25" Ø PVC ELBOW WITH RISER, 1.25" PVC Ø THREADED CAP, AND 6" Ø VALVE VAULT (TYP)
6" Ø PVC ACCESS RISER OR LAWN VAULT HOUSING BALL VALVE AND THREADED TEE (TYP)
300' SETBACK RADIUS FROM WELL
OF SHEETS OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION ISSUE DATE:
SHEET NUMBER:
CHECKED BY:
DRAWN BY:
DESIGNED BY:
DATE:
REVISION:
SHEET TITLE:
REVISION:
DATE:
CAD DWG FILE:
P-100
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NEW OUTDOOR FIRING RANGE
MISSOURI STATE
HIGHWAY PATROL
JEFFERSON CITY, MISSOURI

MISSOURI STATE
HIGHWAY PATROL

PROJECT # R106-01
SITE # 6026
ASSET # 8136026001

P-101
CLASSROOM PLUMBING PLAN

P-101
CLASSROOM PLUMBING PLAN
1. All lighting and electrical wiring shall be placed or properly covered and protected from physical injury. All work to be in accordance with local electrical codes and approved by the State Board of Equalization. All electrical fixtures, switches, and outlets shall be protected from physical injury.

2. All circuit voltage shall be type of switch or outlet as specified on drawings. All switches and outlets shall be of the type not likely to be damaged by a live cirquit conductor.

3. All work shall be done in strict conformity with the local building codes and all work shall be carried out in a neat and professional manner. All work shall be performed in accordance with local authority on erection instructions.

4. All switches and electrical conductors shall be insulated and protected from physical injury. All electrical fixtures, switches, and outlets shall be protected from physical injury.

5. All electrical components, switches, and outlets shall be insulated and protected from physical injury. All work shall be performed in accordance with local authority on erection instructions.

6. Screen doors on all entries shall be provided. All switches shall be of the type not likely to be damaged by a live circuit conductor.

7. All switches and electrical conductors shall be insulated and protected from physical injury. All work shall be performed in accordance with local authority on erection instructions.

8. The switches for all lights shall be connected to the main circuit for all lights. The electrical equipment shall be as specified on the electrical drawings. All work shall be performed in accordance with local authority on erection instructions.