

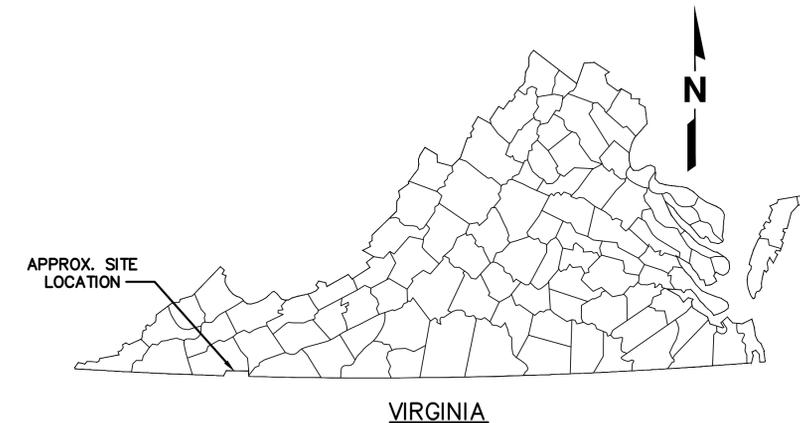
BRISTOL, VIRGINIA INTEGRATED SOLID WASTE MANAGEMENT FACILITY

STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION

CONSTRUCTION PLANS

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PREPARED FOR:

CITY OF BRISTOL, VIRGINIA
300 LEE STREET
BRISTOL, VIRGINIA 24201

INTEGRATED SOLID WASTE MANAGEMENT FACILITY
2655 VALLEY DRIVE
BRISTOL, VIRGINIA 24201

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STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
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SCS PROJECT NO. 02218208.14

FEBRUARY 18, 2025



NO.	REVISION	DATE

SHEET TITLE: COVER
PROJECT TITLE: STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION

CLIENT: CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY
2655 VALLEY DRIVE
BRISTOL, VA 24201

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PROJECT NO. 02218208.14
DATE: 02/18/25
DRAWN BY: TRW/LLH
CHECKED BY: DBK/TRW
APPROVED BY: C.J.W.

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DRAWING NO.

Project: 02218208.05 Drawings: 2024 New Flare Design

LEGEND:

- EW-89 HC-89 EXISTING WELLHEAD (HC FOR HORIZONTAL COLLECTOR WELLHEADS)
- SW-89 EXISTING EXTRACTION WELL WITH REMOTE WELLHEAD
- SP-89 EXISTING SETTLEMENT PLATE
- TP-89 EXISTING TEMPERATURE PROBE
- ★ BM-# EXISTING BENCHMARK
- EXISTING LEACHATE CLEANOUT RISER
- VS-# EXISTING ISOLATION VALVE STATION; LFG, AIR, AND FORCEMAIN ISOLATION VALVES
- EXISTING FORCEMAIN ISOLATION VALVE
- EXISTING AIRLINE ISOLATION VALVE
- EXISTING LFG ISOLATION VALVE
- EXISTING FORCEMAIN TOTALIZER
- GP-5 EXISTING GAS PROBE
- MW-# EXISTING GROUND WATER MONITORING WELL
- EXISTING MANHOLE
- CS-# EXISTING CONDENSATE SUMP
- EXISTING ROAD CROSSING
- EXISTING SIDEWALL ODOR MITIGATION SYSTEM (APPROX.)
- EXISTING 2" AIRLINE
- EXISTING 4" FORCEMAIN
- EXISTING 4" LFG HEADER
- EXISTING 8" LFG HEADER
- EXISTING 12" LFG HEADER
- EXISTING SIDEWALL SYSTEM UPPER HORIZONTAL COLLECTOR
- EXISTING SIDEWALL SYSTEM LOWER HORIZONTAL COLLECTOR
- EXISTING HORIZONTAL COLLECTOR
- EXISTING BUILDING
- EXISTING ROAD OUTLINE
- EXISTING OVERHEAD POWER LINES
- EXISTING STOCKPILE
- CS-# PROPOSED CONDENSATE SUMP
- PROPOSED 4" LFG HEADER
- PROPOSED 12" LFG HEADER
- PROPOSED 18" LFG HEADER
- PROPOSED 4" DRAIN LINE
- PROPOSED LFG ISOLATION VALVE
- ARV # PROPOSED AIR RELEASE VALVE
- PROPOSED FORCEMAIN BYPASS ISOLATION VALVE
- PROPOSED ROAD CROSSING
- PROPOSED FORCEMAIN CLEANOUT
- WASTE MANAGEMENT UNIT BOUNDARIES
- PROPOSED FENCE
- SAFETY FENCE

GENERAL NOTES:

1. OWNER/DEVELOPER: CITY OF BRISTOL, VIRGINIA
2. CONSULTING ENGINEER: SCS ENGINEERS, 15521 MIDLOTHIAN TURNPIKE #305, MIDLOTHIAN, VA 23113
3. THE LOCATION OF EXISTING SEWER, WATER, OR GAS LINES, CONDUITS, OR OTHER STRUCTURES ACROSS, UNDERNEATH, OR OTHERWISE ALONG THE LINE OF PROPOSED WORK ARE NOT NECESSARILY SHOWN ON THE PLANS, AND IF SHOWN ARE ONLY APPROXIMATELY CORRECT. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF UNDERGROUND UTILITIES SHOWN ON THE PLANS IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTACT ENGINEER IMMEDIATELY IF LOCATION OF ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLANS, IF THERE APPEARS TO BE A CONFLICT, OR UPON DISCOVERY OF A UTILITY NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL OBTAIN FIELD UTILITY LOCATIONS BY CALLING "MISS UTILITY" FORTY EIGHT (48) HOURS PRIOR TO WORKING IN THE VICINITY OF EXISTING UTILITIES.
4. BOUNDARY INFORMATION TAKEN FROM OTHERS.
5. HORIZONTAL DATA IS BASED ON US STATE PLANE NAD 1983 VIRGINIA SOUTH ZONE. VERTICAL DATA BASED ON NAVD 88.
6. THE LOCATIONS OF THE EXISTING GAS PROBES AND EXISTING MANHOLES SHOWN ARE APPROXIMATE BASED ON DATA PROVIDED BY OTHERS. THE EXACT LOCATIONS OF THESE EXISTING WELLFIELD COMPONENTS MAY NEED IN-FIELD VERIFICATION.
7. THESE DRAWINGS ARE INTENDED TO BE PLOTTED IN COLOR.
8. THERE ARE EXISTING OVERHEAD ELECTRICAL LINES LOCATED ON AND NEAR THE SITE. THE EXISTING LOCATIONS OF ELECTRICAL LINES AND POLES SHOWN IN THE DRAWINGS ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION. CONTRACTOR TO EXERCISE CAUTION NEAR OVERHEAD ELECTRICAL LINES AND CONTACT THE BVU AUTHORITY IN ACCORDANCE WITH APPLICABLE REGULATIONS IF WORK IS REQUIRED NEAR THE OVERHEAD ELECTRICAL LINES.
9. THE EXISTING QUARRY TOPOGRAPHY IS FROM AN SCS DRONE FLYOVER DATED JULY 17, 2024. THE REMAINING SITE EXISTING TOPOGRAPHY IS BASED UPON A 2022 SURVEY. THE EXISTING QUARRY TOPOGRAPHY MAY DEVIATE FROM THE GRADES SHOWN DUE TO ONGOING SETTLEMENT. THE CONTRACTOR WILL COORDINATE WITH ENGINEER TO ACCOMMODATE GRADE CHANGES.
10. REQUIRED ELECTRICAL WORK IS DESCRIBED BY THE ELECTRICAL DRAWINGS, DESIGNATED AS SHEETS E1 THROUGH E7.

LANDFILL GAS PROJECT DESCRIPTION:

THIS PROJECT INCLUDES THE INSTALLATION OF A LANDFILL GAS BLOWER/FLARE SYSTEM, NEW LANDFILL GAS HEADER, NEW CONDENSATE SUMPS, A NEW ACCESS ROAD, NEW ISOLATION VALVE, NEW CONNECTION TO LEACHATE CLEANOUTS, NEW FORCE MAIN CLEANOUTS, AND OTHER VARIOUS FEATURES.

LANDFILL GAS GENERAL NOTES:

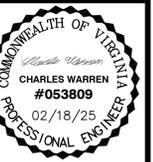
1. THE WORK TO BE PERFORMED INVOLVES, BUT IS NOT LIMITED TO, THE CONSTRUCTION AND INSTALLATION OF THE LANDFILL GAS SYSTEM COMPONENTS DEPICTED ON THESE CONSTRUCTION DRAWINGS. WORK SHALL INCLUDE THE INSTALLATION OF THE NEW LANDFILL GAS BLOWER/FLARE SYSTEM, LANDFILL GAS HEADER, VALVES, CONDENSATE SUMPS, AND ANY OTHER ITEMS NEEDED TO MAKE THE PROPOSED LFG SYSTEM COMPONENTS CONNECT TO THE EXISTING LFG SYSTEM AND OPERATE PROPERLY.
2. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, TESTING, TOOLS, EQUIPMENT, SUPERVISION AND INSTALLATION SERVICES REQUIRED TO CONSTRUCT THE LFG COLLECTION SYSTEM DEPICTED ON THESE CONSTRUCTION DRAWINGS.
3. CONTRACTOR SHALL RECOGNIZE THAT MULTIPLE PROJECTS ARE UNDERWAY AT THE SOLID WASTE MANAGEMENT FACILITY AND SHALL COORDINATE HIS ACTIVITIES WITH OWNER AND OTHER CONTRACTORS SO AS TO NOT HINDER OR OBSTRUCT WORKING ACTIVITIES ASSOCIATED WITH LANDFILL PROJECTS.
4. CONTRACTOR SHALL MINIMIZE LAND DISTURBANCE RELATED TO CONSTRUCTION ACTIVITIES TO THE GREATEST EXTENT POSSIBLE. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS INSIDE AND OUTSIDE THE LANDFILL FOOTPRINT TO ITS ORIGINAL CONDITION OR SPECIFIED FINAL CONDITION.
5. CONTRACTOR SHALL PROPERLY STORE ALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS IN AREAS DESIGNATED BY OWNER.
6. IF LANDFILL WASTE IS FOUND DURING CONSTRUCTION IT SHALL BE HAULED BY THE CONTRACTOR TO AN ACTIVE SOLID WASTE DISPOSAL FACILITY. WASTE MUST BE COVERED AT THE END OF EACH WORKING DAY. NO EXPOSED REFUSE WILL REMAIN OVERNIGHT.
7. THE CONTRACTOR WILL PREPARE A WRITTEN SITE-SPECIFIC HEALTH AND SAFETY PLAN THAT ADDRESSES THE POTENTIAL HAZARDS ASSOCIATED WITH LANDFILL GAS CONSTRUCTION ACTIVITIES AT SOLID WASTE MANAGEMENT FACILITIES AND IMPLEMENT THE PROCEDURES AND PROTOCOLS NECESSARY TO MAINTAIN A SAFE WORK ENVIRONMENT. CONTRACTOR WILL ALSO ADDRESS ENVIRONMENTAL CONCERNS IN A WRITTEN PLAN, INCLUDING ITEMS SUCH AS SPILL PREVENTION, WASTE HANDLING AND DISPOSAL, FUELING PROCEDURES, FUGITIVE EMISSIONS, STORMWATER CONTROL, CONCRETE WASTEWATER, AND OTHER RELEVANT ENVIRONMENTAL CONCERNS.
8. THE CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION AND SEDIMENT CONTROLS DOWNSTREAM OF THE DISTURBED AREAS AS REQUIRED BY THE FACILITY'S EROSION AND SEDIMENT CONTROL PLAN, AND APPLICABLE STATE REGULATIONS.
9. IF FIELD CONDITIONS DIFFER FROM NOTES AND DETAILS SHOWN ON THESE DRAWINGS, CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER AND OWNER FOR CLARIFICATION.

LANDFILL GAS PIPE REQUIREMENTS:

1. ALL LFG SYSTEM HEADER AND LATERAL PIPING SHALL BE HIGH DENSITY POLYETHYLENE (HDPE), SDR-17, PE 4710, UNLESS OTHERWISE NOTED.
2. ALL PNEUMATIC SUPPLY PIPING SHALL BE HDPE SDR-9, PE4710.
3. ALL LIQUID FORCEMAIN PIPING SHALL BE HDPE SDR-11, PE4710.
4. FLANGES FOR THE HDPE SHALL BE CONVOLUTED DUCTILE IRON BACK-UP RINGS FINISHED WITH AN IRON OXIDE PRIMER. FLANGE NUTS AND BOLTS SHALL BE GALVANIZED STEEL AND COATED WITH ANTI-SIEZE COMPOUND. BURIED FLANGES SHALL BE WRAPPED IN 5-MIL POLYETHYLENE SHEETING PRIOR TO BACKFILLING TO HELP PREVENT CORROSION.
5. PIPE INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF ASTM D-2321, PPI TR-31/9-79, AND THE MANUFACTURER'S RECOMMENDATIONS.
6. ALL HEADER AND LATERAL PIPING SHALL BE SUBJECTED TO AN AIR TEST TO DETECT ANY LEAKS. TESTING SHALL BE CONDUCTED WITH THE PIPE IN THE TRENCHES. CONTRACTOR SHALL TEST THE PIPE AT 5 PSIG FOR A PERIOD OF NOT LESS THAN 1 HOUR. PRESSURE DROP DURING THE TEST SHALL NOT EXCEED ONE-PERCENT OF THE TESTING PRESSURE.
7. ALL PNEUMATIC SUPPLY AND LIQUID FORCEMAIN PIPING SHALL BE SUBJECTED TO AN AIR TEST TO DETECT ANY LEAKS. TESTING SHALL BE CONDUCTED WITH THE PIPE IN THE TRENCHES. CONTRACTOR SHALL TEST THE PIPE AT 10 PSIG FOR A PERIOD OF NOT LESS THAN 1 HOUR. PRESSURE DROP DURING THE TEST SHALL NOT EXCEED TEN-PERCENT OF THE TESTING PRESSURE.
8. MAINTAIN A MINIMUM 2% SLOPE FOR LANDFILL GAS HEADER INSTALLED OUTSIDE LINER LIMITS AND 4% MINIMUM SLOPE FOR LANDFILL GAS HEADER WITHIN THE LINER LIMITS.
9. LFG SYSTEM HEADER, PNEUMATIC SUPPLY, AND LIQUID FORCE MAIN ISOLATION VALVES ARE CLUSTERED TOGETHER AT ALL PERTINENT INTERSECTIONS, UNLESS OTHERWISE SHOWN ON THE DRAWING.
10. LFG SYSTEM HEADER ISOLATION VALVES SHALL BE BUTTERFLY ISOLATION VALVES WITH VITON SEAL AND STEM EXTENSION WITH GEAR BOX NO LESS THAN 3 FEET ABOVE FINAL GRADE. EITHER SIDE OF THE VALVE SHALL HAVE A STAINLESS STEEL BRAIDED SAMPLING PORT INSTALLED ON THE LFG HEADER.
11. THE PNEUMATIC SUPPLY AND LIQUID FORCE MAIN ISOLATION VALVES SHALL BE HDPE TIMESAVER VALVES OR EQUIVALENT ABOVE GRADE OPERATING VALVES. THE AIR AND FORCE MAIN VALVES SHALL BE EQUIPPED WITH AIR BLEED OFF VALVES.

BLOWER FLARE STATION

1. BLOWER FLARE STATION WILL RECEIVE POWER FROM BRISTOL VIRGINIA UTILITY (BVU) PER ELECTRICAL DRAWINGS. CITY TO COORDINATE EFFORTS WITH BVU FOR 3 PHASE 480 V SERVICE. CONTRACTOR MUST INSTALL ELECTRICAL RUNS AND ELECTRICAL EQUIPMENT, INCLUDING NEW BACKUP GENERATOR, FOR NEW BLOWER/FLARE STATION PER ELECTRICAL DRAWINGS.
2. LOCATION OF THE BLOWER FLARE STATION IS SUBJECT TO CHANGE BASED ON FIELD CONDITIONS AND REQUIREMENTS.
3. CHAIN LINK FENCE WILL SURROUND THE BLOWER FLARE STATION.
4. THE BLOWER/FLARE STATION EQUIPMENT IS DRAWN TO AN APPROXIMATE SCALE IN THE DRAWINGS. MANUFACTURER TO PROVIDE FINAL DIMENSIONS SUBJECT TO APPROVAL BY ENGINEER.



NO.	REVISION	DATE

SHEET TITLE	NOTES AND LEGEND
PROJECT TITLE	STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION

CLIENT	CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2655 VALLEY DRIVE BRISTOL, VA 24201
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SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC. 1822 MIDLOTHIAN TURNPIKE PH: (804) 376-7440 FAX: (804) 376-7435	D/W: RW/BJW C/L: CJW APP: BJW
PROJ. NO.: 02218208.14 DATE: 02/18/2025	D/W: LH/TRW C/L: DEB/TRW APP: BJW

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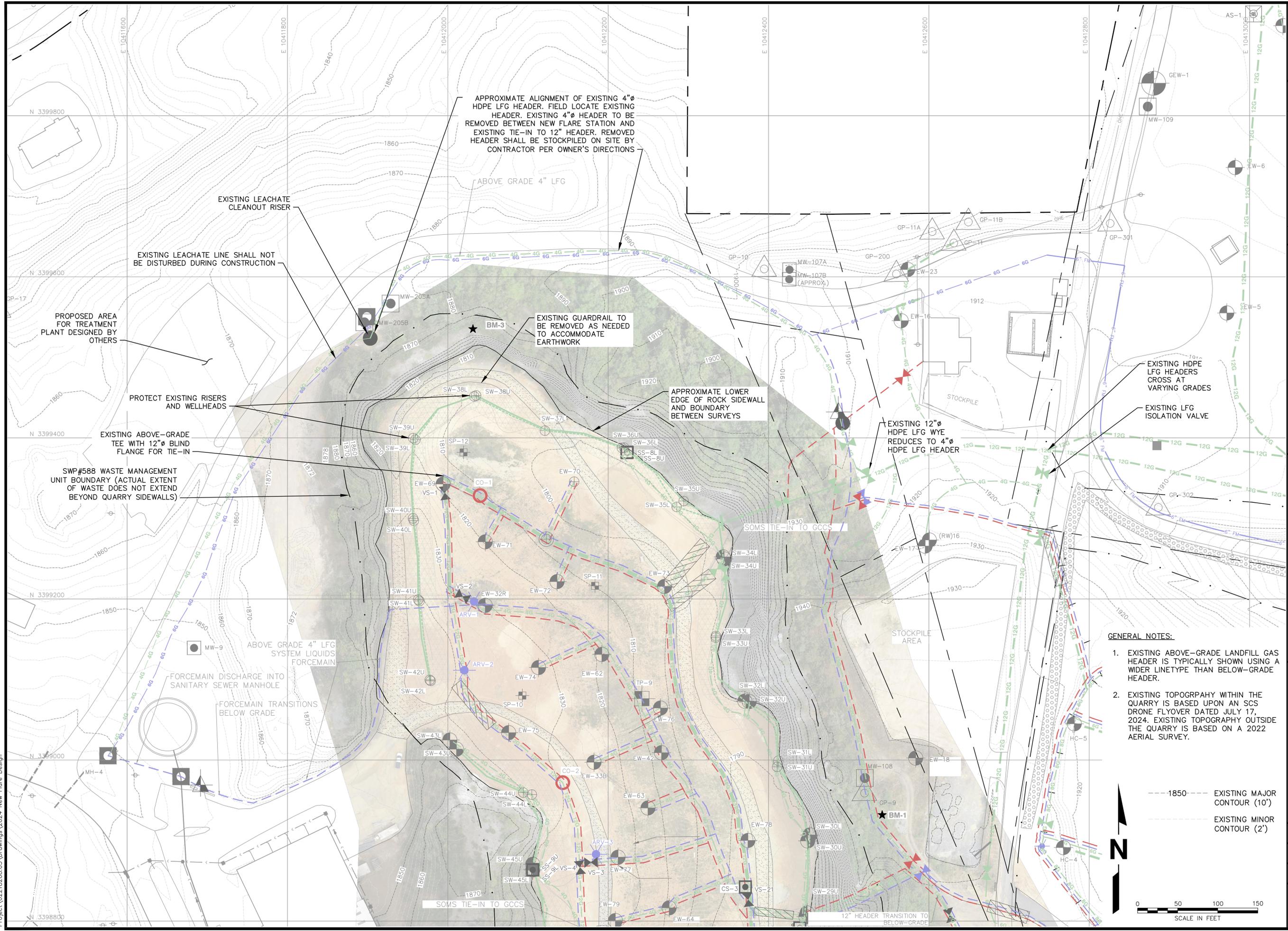
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SHEET TITLE: **EXISTING CONDITIONS**
 PROJECT TITLE: **STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION**

CLIENT: **CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

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 DRAWING NO. **3** of 16



APPROXIMATE ALIGNMENT OF EXISTING 4" HDPE LFG HEADER. FIELD LOCATE EXISTING HEADER. EXISTING 4" HEADER TO BE REMOVED BETWEEN NEW FLARE STATION AND EXISTING TIE-IN TO 12" HEADER. REMOVED HEADER SHALL BE STOCKPILED ON SITE BY CONTRACTOR PER OWNER'S DIRECTIONS

EXISTING LEACHATE CLEANOUT RISER

EXISTING LEACHATE LINE SHALL NOT BE DISTURBED DURING CONSTRUCTION

PROPOSED AREA FOR TREATMENT PLANT DESIGNED BY OTHERS

PROTECT EXISTING RISERS AND WELLHEADS

EXISTING ABOVE-GRADE TEE WITH 12" BLIND FLANGE FOR TIE-IN

SWP#588 WASTE MANAGEMENT UNIT BOUNDARY (ACTUAL EXTENT OF WASTE DOES NOT EXTEND BEYOND QUARRY SIDEWALLS)

EXISTING GUARDRAIL TO BE REMOVED AS NEEDED TO ACCOMMODATE EARTHWORK

APPROXIMATE LOWER EDGE OF ROCK SIDEWALL AND BOUNDARY BETWEEN SURVEYS

EXISTING 12" HDPE LFG WYE REDUCES TO 4" HDPE LFG HEADER

EXISTING HDPE LFG HEADERS CROSS AT VARYING GRADES

EXISTING LFG ISOLATION VALVE

SOMS TIE-IN TO GCCS

STOCKPILE AREA

GENERAL NOTES:

- EXISTING ABOVE-GRADE LANDFILL GAS HEADER IS TYPICALLY SHOWN USING A WIDER LINETYPE THAN BELOW-GRADE HEADER.
- EXISTING TOPOGRAPHY WITHIN THE QUARRY IS BASED UPON AN SCS DRONE FLYOVER DATED JULY 17, 2024. EXISTING TOPOGRAPHY OUTSIDE THE QUARRY IS BASED ON A 2022 AERIAL SURVEY.

---1850--- EXISTING MAJOR CONTOUR (10')
 --- EXISTING MINOR CONTOUR (2')



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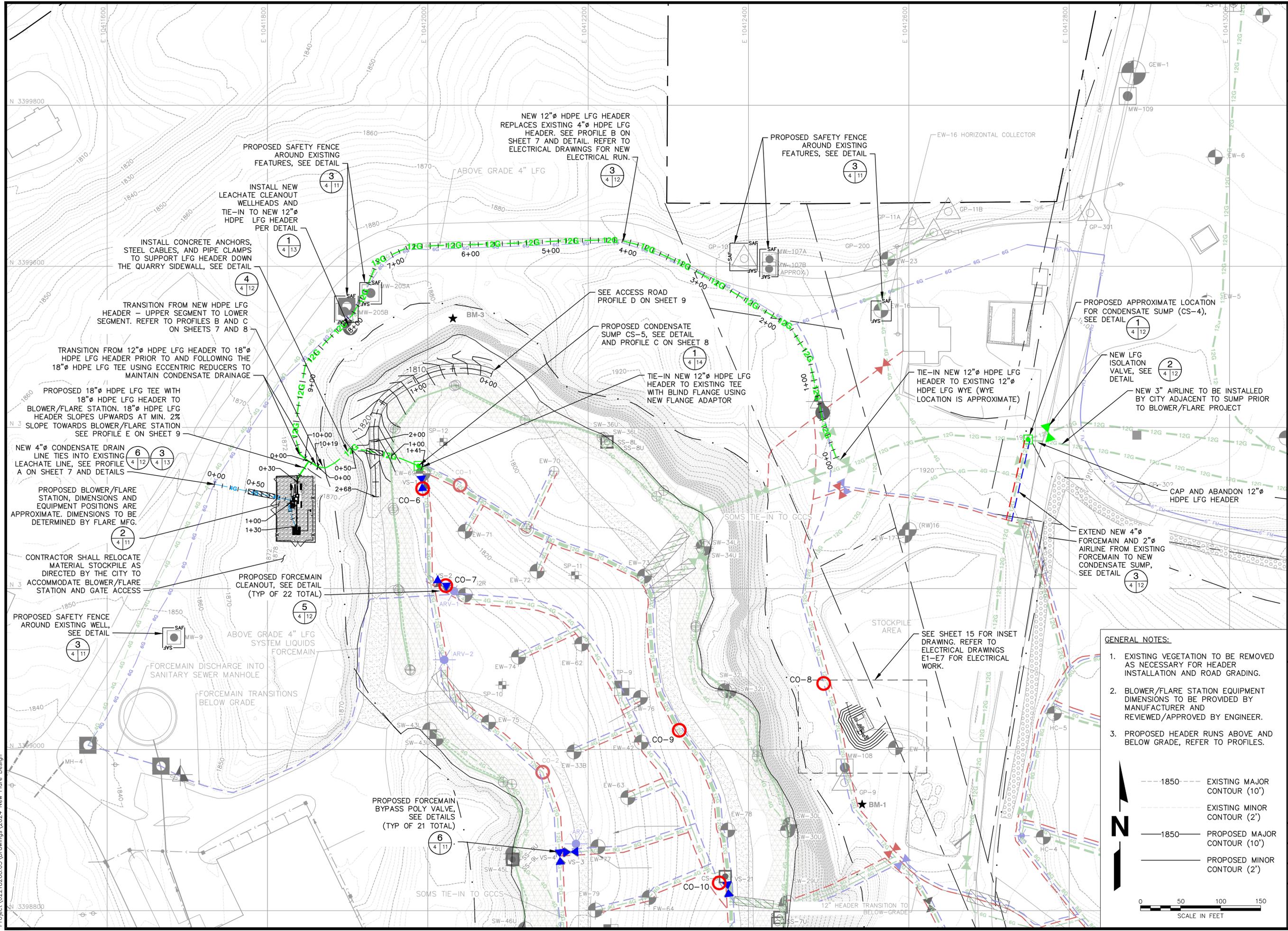
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SHEET TITLE: **PROPOSED LAYOUT - NORTH**
 PROJECT TITLE: **STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION**

CLIENT: **CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

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 DRAWING NO. **4** of 16



NEW 12" HDPE LFG HEADER REPLACES EXISTING 4" HDPE LFG HEADER. SEE PROFILE B ON SHEET 7 AND DETAIL. REFER TO ELECTRICAL DRAWINGS FOR NEW ELECTRICAL RUN.

PROPOSED SAFETY FENCE AROUND EXISTING FEATURES, SEE DETAIL

INSTALL NEW LEACHATE CLEANOUT WELLHEADS AND TIE-IN TO NEW 12" HDPE LFG HEADER PER DETAIL

INSTALL CONCRETE ANCHORS, STEEL CABLES, AND PIPE CLAMPS TO SUPPORT LFG HEADER DOWN THE QUARRY SIDEWALL, SEE DETAIL

TRANSITION FROM NEW HDPE LFG HEADER - UPPER SEGMENT TO LOWER SEGMENT. REFER TO PROFILES B AND C ON SHEETS 7 AND 8

TRANSITION FROM 12" HDPE LFG HEADER TO 18" HDPE LFG HEADER PRIOR TO AND FOLLOWING THE 18" HDPE LFG TEE USING ECCENTRIC REDUCERS TO MAINTAIN CONDENSATE DRAINAGE

PROPOSED 18" HDPE LFG TEE WITH 18" HDPE LFG HEADER TO BLOWER/FLARE STATION. 18" HDPE LFG HEADER SLOPES UPWARDS AT MIN. 2% SLOPE TOWARDS BLOWER/FLARE STATION. SEE PROFILE E ON SHEET 9

NEW 4" CONDENSATE DRAIN LINE TIES INTO EXISTING LEACHATE LINE, SEE PROFILE A ON SHEET 7 AND DETAILS

PROPOSED BLOWER/FLARE STATION, DIMENSIONS AND EQUIPMENT POSITIONS ARE APPROXIMATE. DIMENSIONS TO BE DETERMINED BY FLARE MFG.

CONTRACTOR SHALL RELOCATE MATERIAL STOCKPILE AS DIRECTED BY THE CITY TO ACCOMMODATE BLOWER/FLARE STATION AND GATE ACCESS

PROPOSED SAFETY FENCE AROUND EXISTING WELL, SEE DETAIL

ABOVE GRADE 4" LFG SYSTEM LIQUIDS FORCEMAIN

FORCEMAIN DISCHARGE INTO SANITARY SEWER MANHOLE

FORCEMAIN TRANSITIONS BELOW GRADE

PROPOSED FORCEMAIN CLEANOUT, SEE DETAIL (TYP OF 22 TOTAL)

PROPOSED SAFETY FENCE AROUND EXISTING WELL, SEE DETAIL

ABOVE GRADE 4" LFG SYSTEM LIQUIDS FORCEMAIN

PROPOSED FORCEMAIN BYPASS POLY VALVE, SEE DETAILS (TYP OF 21 TOTAL)

SOMS TIE-IN TO GCCS

NEW 12" HDPE LFG HEADER REPLACES EXISTING 4" HDPE LFG HEADER. SEE PROFILE B ON SHEET 7 AND DETAIL. REFER TO ELECTRICAL DRAWINGS FOR NEW ELECTRICAL RUN.

PROPOSED SAFETY FENCE AROUND EXISTING FEATURES, SEE DETAIL

EW-16 HORIZONTAL COLLECTOR

SEE ACCESS ROAD PROFILE D ON SHEET 9

PROPOSED CONDENSATE SUMP CS-5, SEE DETAIL AND PROFILE C ON SHEET 8

TIE-IN NEW 12" HDPE LFG HEADER TO EXISTING TEE WITH BLIND FLANGE USING NEW FLANGE ADAPTOR

TIE-IN NEW 12" HDPE LFG HEADER TO EXISTING 12" HDPE LFG WYE (WYE LOCATION IS APPROXIMATE)

PROPOSED APPROXIMATE LOCATION FOR CONDENSATE SUMP (CS-4), SEE DETAIL

NEW LFG ISOLATION VALVE, SEE DETAIL

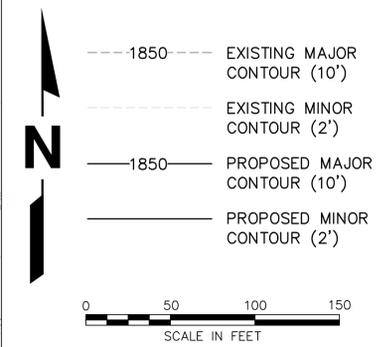
NEW 3" AIRLINE TO BE INSTALLED BY CITY ADJACENT TO SUMP PRIOR TO BLOWER/FLARE PROJECT

CAP AND ABANDON 12" HDPE LFG HEADER

EXTEND NEW 4" FORCEMAIN AND 2" AIRLINE FROM EXISTING FORCEMAIN TO NEW CONDENSATE SUMP, SEE DETAIL

SEE SHEET 15 FOR INSET DRAWING. REFER TO ELECTRICAL DRAWINGS E1-E7 FOR ELECTRICAL WORK.

- GENERAL NOTES:**
- EXISTING VEGETATION TO BE REMOVED AS NECESSARY FOR HEADER INSTALLATION AND ROAD GRADING.
 - BLOWER/FLARE STATION EQUIPMENT DIMENSIONS TO BE PROVIDED BY MANUFACTURER AND REVIEWED/APPROVED BY ENGINEER.
 - PROPOSED HEADER RUNS ABOVE AND BELOW GRADE, REFER TO PROFILES.



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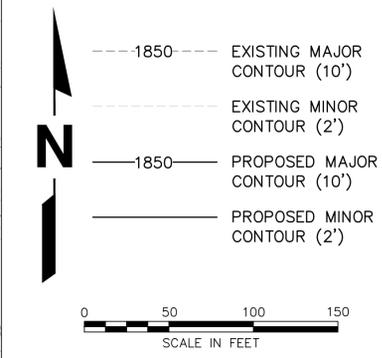
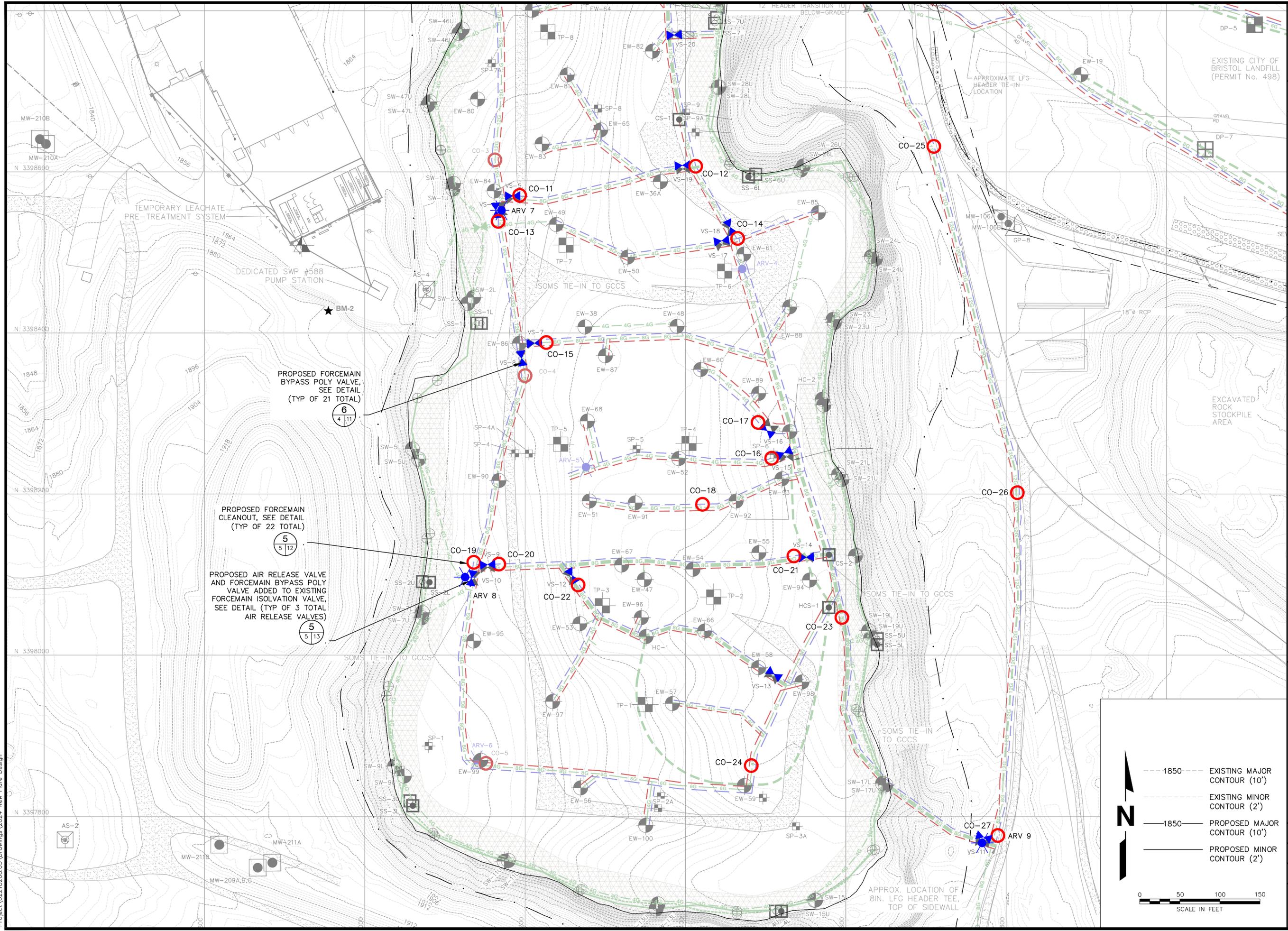
DATE	REVISION	NO.

PROPOSED LAYOUT - SOUTH
STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION

CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

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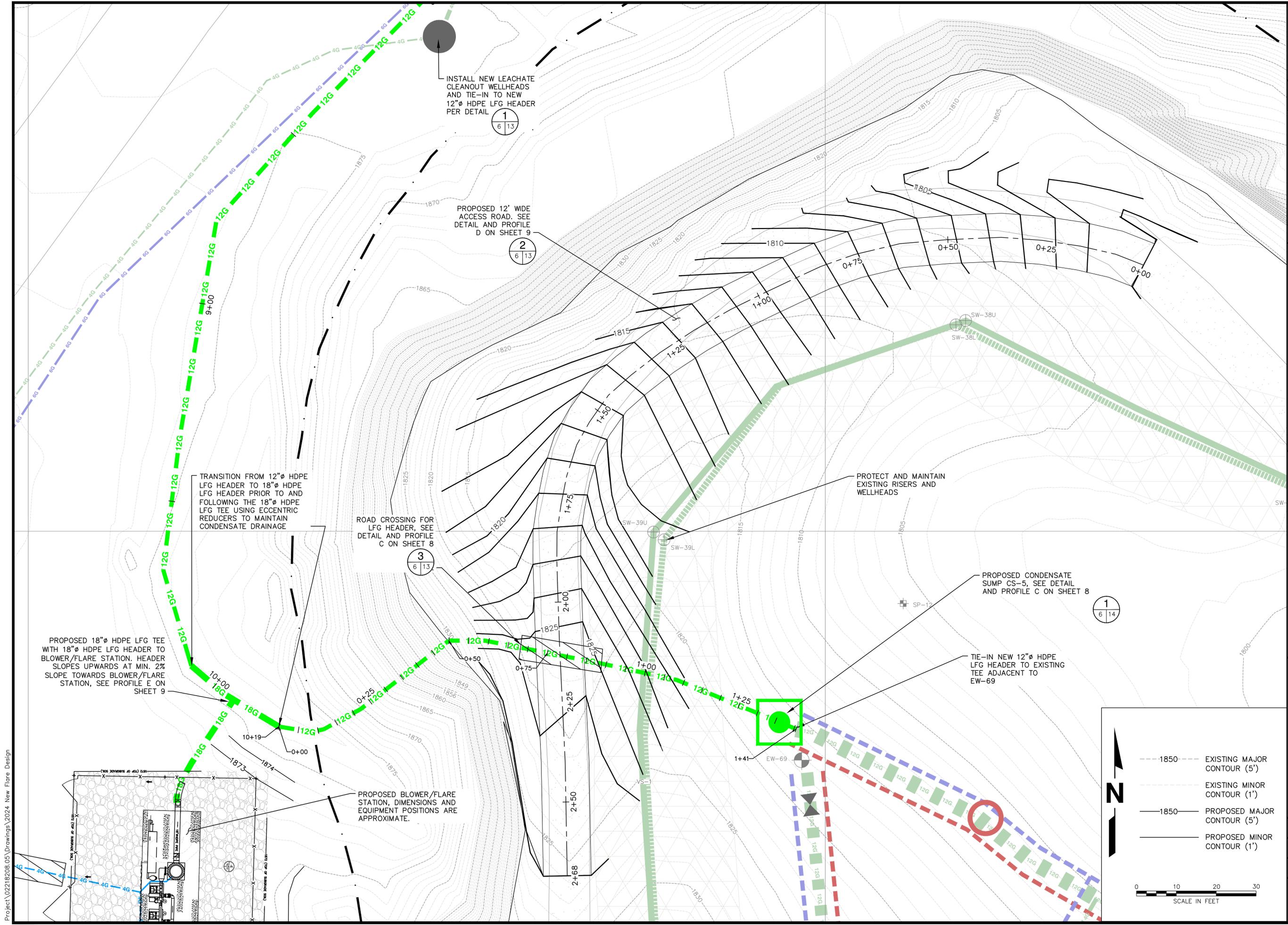
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SHEET TITLE: ROAD GRADING
 PROJECT TITLE: STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION

CLIENT: CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY
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 BRISTOL, VA 24201

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INSTALL NEW LEACHATE CLEANOUT WELLHEADS AND TIE-IN TO NEW 12" HDPE LFG HEADER PER DETAIL
 1
 6 13

PROPOSED 12' WIDE ACCESS ROAD. SEE DETAIL AND PROFILE D ON SHEET 9
 2
 6 13

TRANSITION FROM 12" HDPE LFG HEADER TO 18" HDPE LFG HEADER PRIOR TO AND FOLLOWING THE 18" HDPE LFG TEE USING ECCENTRIC REDUCERS TO MAINTAIN CONDENSATE DRAINAGE

ROAD CROSSING FOR LFG HEADER, SEE DETAIL AND PROFILE C ON SHEET 8
 3
 6 13

PROPOSED 18" HDPE LFG TEE WITH 18" HDPE LFG HEADER TO BLOWER/FLARE STATION. HEADER SLOPES UPWARDS AT MIN. 2% SLOPE TOWARDS BLOWER/FLARE STATION, SEE PROFILE E ON SHEET 9

PROTECT AND MAINTAIN EXISTING RISERS AND WELLHEADS

PROPOSED CONDENSATE SUMP CS-5, SEE DETAIL AND PROFILE C ON SHEET 8
 1
 6 14

TIE-IN NEW 12" HDPE LFG HEADER TO EXISTING TEE ADJACENT TO EW-69

PROPOSED BLOWER/FLARE STATION, DIMENSIONS AND EQUIPMENT POSITIONS ARE APPROXIMATE.

Legend:

- 1850 --- EXISTING MAJOR CONTOUR (5')
- 1850 --- EXISTING MINOR CONTOUR (1')
- 1850 --- PROPOSED MAJOR CONTOUR (5')
- 1850 --- PROPOSED MINOR CONTOUR (1')

Scale: 0 10 20 30
 SCALE IN FEET

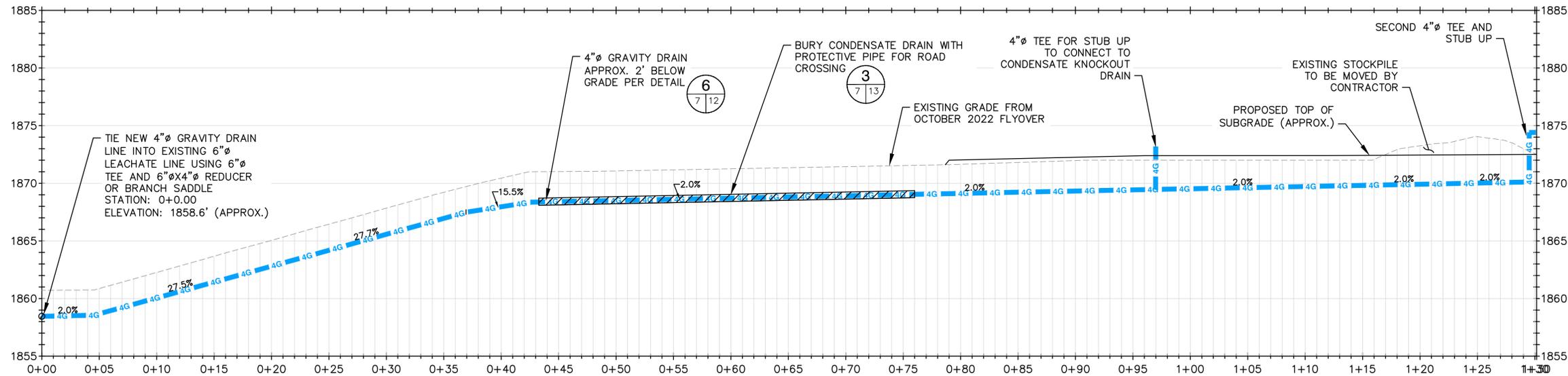
Project: 02218208.05 Drawings: 2024 New Flare Design

GENERAL NOTES:

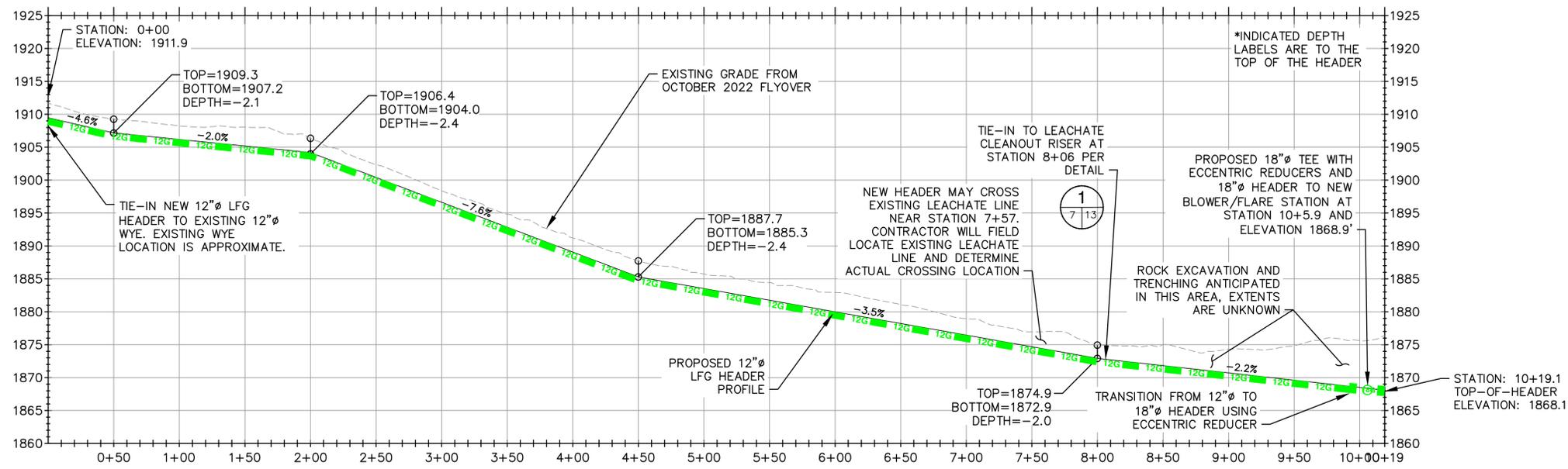
1. THE WRITTEN SCALES INDICATED UNDERNEATH THE PROFILE VIEW TITLES WILL VARY DEPENDING UPON PLOT SIZE. DRAWINGS ARE INTENDED TO BE PLOTTED FULL SIZE ON 24" X 36" SHEETS.



DATE	REVISION	NO.



A 4 INCH CONDENSATE DRAIN PROFILE
 H: 1" = 5'
 V: 1" = 5'



B 12 INCH LFG HEADER NORTH QUARRY RIM
 H: 1" = 50'
 V: 1" = 10'

SHEET TITLE: **PROFILES 1**
 PROJECT TITLE: **STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION**

CLIENT: **CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

SCS ENGINEERS
 STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
 16521 MIDLOTHIAN TPK - MIDLOTHIAN, VA 23113
 PH. (804) 378-7440 FAX. (804) 378-7433

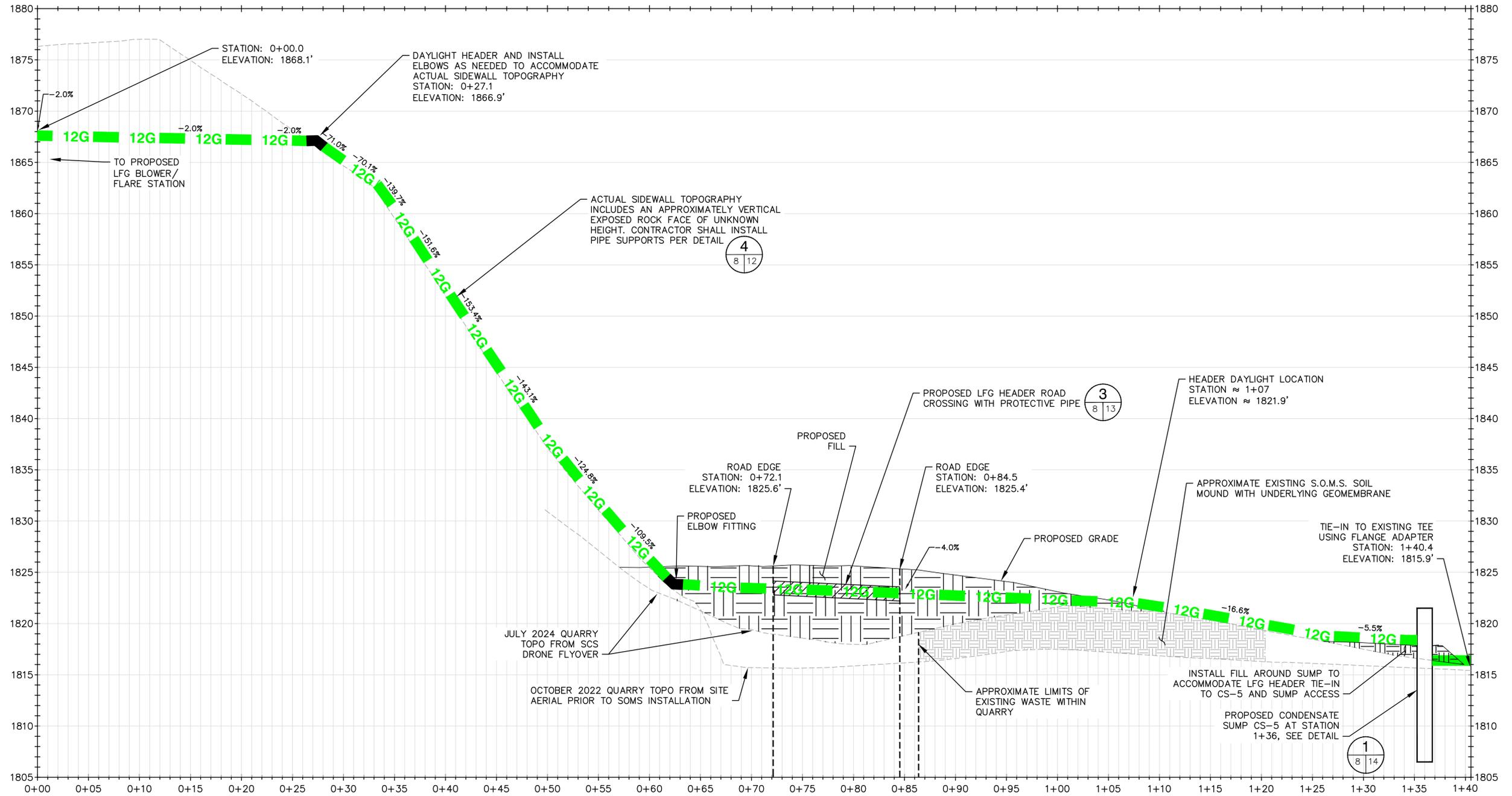
PROJ. NO. 02218208.14
 DWG. BY: C.J.W.
 CHK. BY: TRW
 APP. BY: C.J.W.
 TRW/LLH DBK/TRW

CADD FILE: 02218208.14
 DATE: 02/18/2025
 SCALE: AS SHOWN
 DRAWING NO.

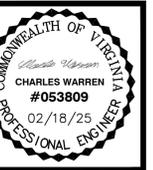
Project: 02218208.05 Drawings: 2024 New Flare Design

GENERAL NOTES:

1. THE WRITTEN SCALES INDICATED UNDERNEATH THE PROFILE VIEW TITLES WILL VARY DEPENDING UPON PLOT SIZE. DRAWINGS ARE INTENDED TO BE PLOTTED FULL SIZE ON 24" X 36" SHEETS.
2. EXISTING GRADES ARE APPROXIMATIONS BASED ON AERIAL FLYOVERS. CONTRACTOR SHALL MEASURE ACTUAL ELEVATIONS AT TOP AND BASE OF SIDEWALL ALONG THE HEADER ALIGNMENT AND COORDINATE WITH THE ENGINEER TO ESTABLISH CONSTRUCTION TARGET SLOPES AND ELEVATIONS.
3. INDICATED DESIGN LFG HEADER SLOPES ARE APPROXIMATE. ACTUAL INSTALLED HEADER SLOPES SUBJECT TO APPROVAL BY ENGINEER.



C 12 INCH LFG HEADER – LOWER SEGMENT
 H: 1" = 5'
 V: 1" = 5'



DATE	REVISION	NO.
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SHEET TITLE: **PROFILES 2**
 PROJECT TITLE: **STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION**

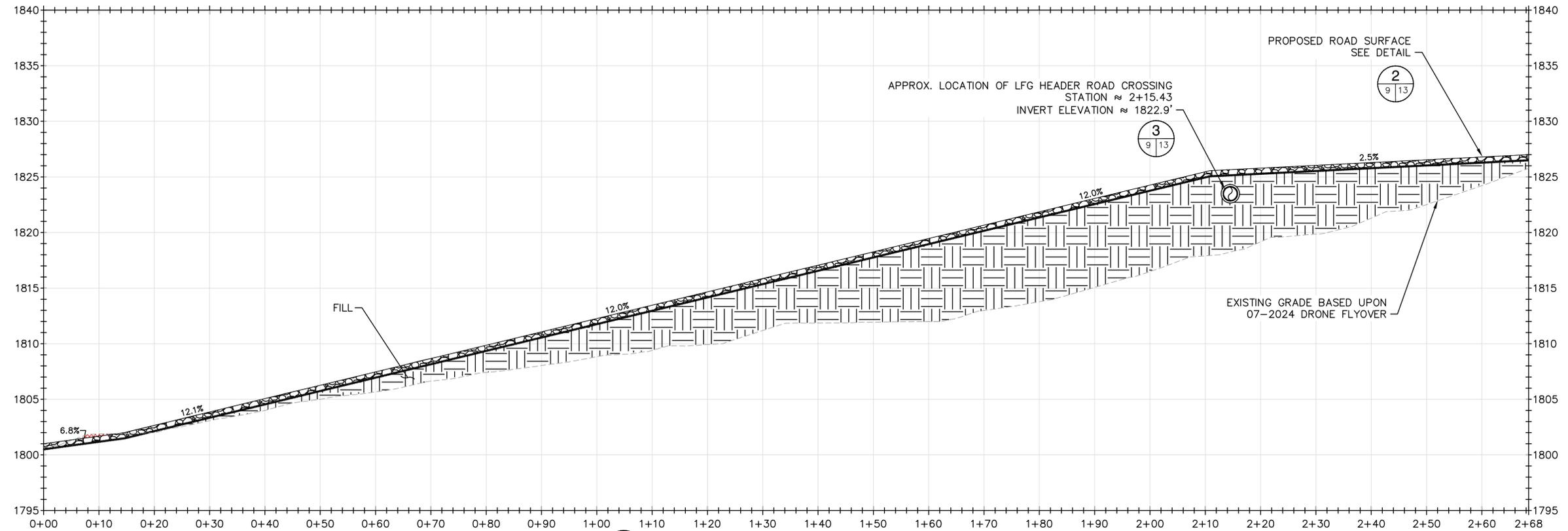
CLIENT: **CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
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DATE: 02/18/25
 DWG. BY: TRW
 CHK. BY: DBK
 APP. BY: CJW
 TRW/LLH

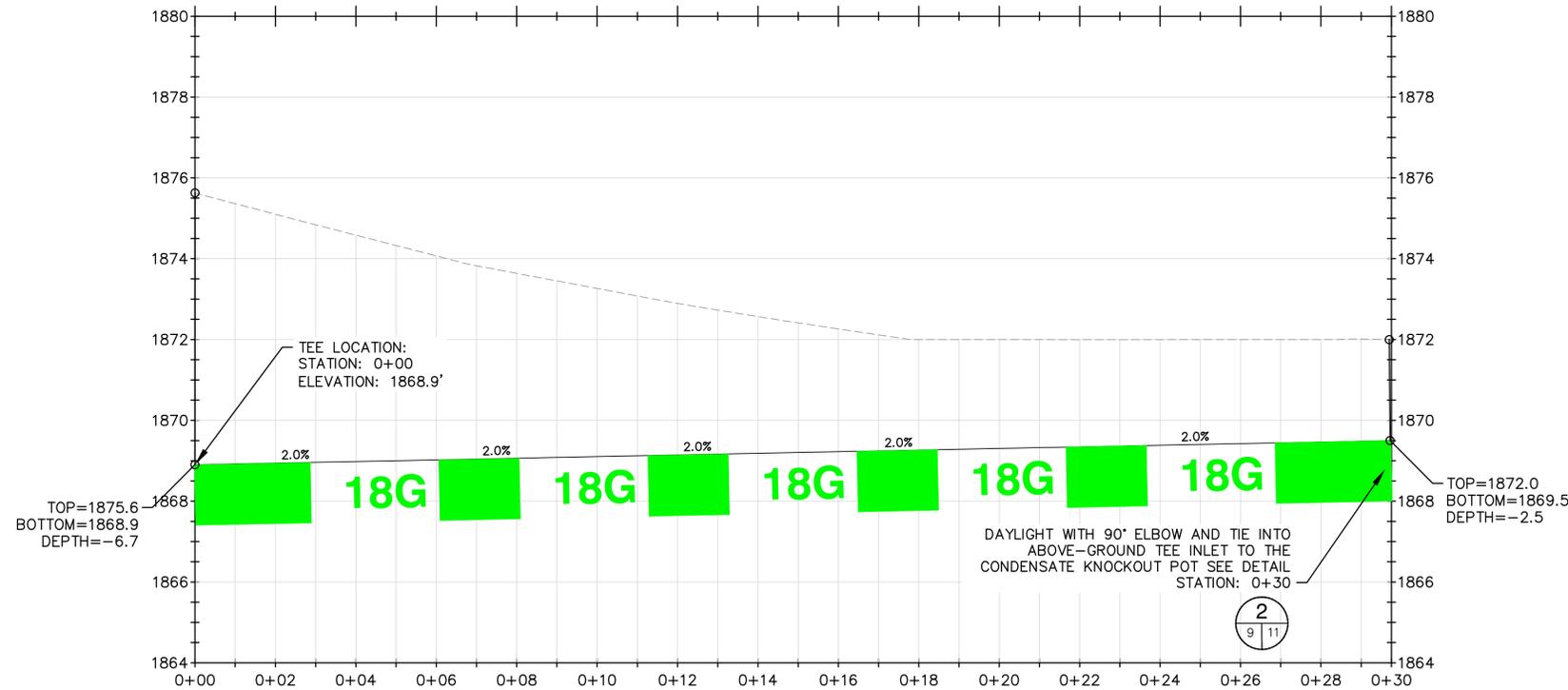
CADD FILE: 02218208.14
 DATE: 02/18/2025
 SCALE: AS SHOWN
 DRAWING NO.

Project: 02218208.05 Drawings: 2024 New Flare Design



D ACCESS ROAD PROFILE
 SCALE: H: 1"=10', V: 1"=5'

NOTE: INDICATED SCALE MAY VARY DEPENDING ON PLOT SIZE



E 18 INCH HEADER TO FLARE PROFILE
 SCALE: H: 1"=2', V: 1"=2'

- GENERAL NOTES:**
1. THE WRITTEN SCALES INDICATED UNDERNEATH THE PROFILE VIEW TITLES WILL VARY DEPENDING UPON PLOT SIZE. DRAWINGS ARE INTENDED TO BE PLOTTED FULL SIZE ON 24" X 36" SHEETS.

DATE	REVISION	NO.

SHEET TITLE: **PROFILES 3**
 PROJECT TITLE: **STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION**

CLIENT: **CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

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 DATE: 02/18/2025
 SCALE: AS SHOWN

Project: 02218208.05 Drawings: 2024 New Flare Design

NOTES:

- GRADE THE BLOWER/FLARE STATION AREAS TO PROVIDE A LEVEL SURFACE FOR CONCRETE PADS AND EQUIPMENT INSTALLATION.
- MAINTAIN GRADES TO PROVIDE POSITIVE DRAINAGE AWAY FROM EQUIPMENT.
- CONTRACTOR SHALL CONDUCT DRIVE-CYLINDER TESTING (ASTM D2937, MINIMUM OF TWO SAMPLES) AND STANDARD PROCTOR TESTING (ASTM D698) OF IN-PLACE SOIL TO ASSESS THE EXISTING IN-PLACE DRY DENSITY AT THE NEW FLARE LOCATION AS A PERCENTAGE OF THE MAXIMUM DRY DENSITY. IF THE IN-PLACE PERCENT COMPACTION IS LESS THAN 95% OF THE MAXIMUM, CONTRACTOR SHALL UNDERCUT THE BLOWER-FLARE STATION FOOTPRINT BY 3' AND BACKFILL USING 6-IN COMPACTED LIFTS, COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY. BACKFILL SHALL BE INORGANIC SOIL THAT IS NOT EXCESSIVELY WET OR SATURATED, FREE OF STONE, ROCK, OR GRAVEL LARGER THAN (3) INCHES IN ANY DIMENSION, AND FREE OF DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION, ORGANIC MATERIALS, ROOTS, AND OTHER DELETERIOUS MATTER. THE BACKFILL SHALL HAVE A CLASSIFICATION OF SC, ML, CL, MH, OR CH AS DEFINED IN THE UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487), OR OTHERWISE APPROVED BY THE ENGINEER.
- PROVIDE VEHICLE ACCESS TO BLOWER STATION VIA GRAVEL DRIVEWAY FROM EXISTING ACCESS ROAD.
- THE BLOWER CONTROL PANEL, FLARE CONTROL PANEL, DIGITAL DATA RECORDER, AND CONDENSATE SUMP CONTROL PANEL SHALL BE HOUSED IN ONE WEATHERPROOF MASTER CONTROL PANEL (MCP) ENCLOSURE SIZED FOR TWO BLOWERS. ADEQUATE SPACE SHALL BE PROVIDED FOR PLACEMENT OF A LAPTOP.
- BLOWER, MCP, AND CONDENSATE KNOCKOUT POT TO BE MOUNTED ON A STEEL SKID, SIZE SKID FOR FUTURE BLOWERS. INSTALL BLANK FLANGES IN LIEU OF VALVES AT FUTURE BLOWER CONNECTIONS. SLAB DIMENSIONS ARE APPROXIMATE, ADJUST FOR ACTUAL SKID SIZE. PROVIDE 1' CLEAR ALL AROUND.
- CONDENSATE KNOCKOUT POT SHALL BE LEAK-TESTED BY FABRICATOR PRIOR TO SHIPPING.
- INSULATE AND HEAT-TRACE THE ABOVE GRADE KNOCKOUT POT AND DRAIN PIPING.
- PROVIDE FENCED ENCLOSURE FOR BLOWER/FLARE STATION AND 6" GRAVEL BASE OVER SURFACE OF ENCLOSED AREA. PROVIDE 14' WIDE DOUBLE SWING GATE FOR ACCESS INTO ENCLOSED AREA.
- CONTRACTOR SHALL INSTALL ROOF OVER THE MCP TO SHIELD FROM SUN.
- CONTRACTOR MAY MODIFY ORIENTATION OF PIPING AND BLOWER(S) SUBJECT TO ENGINEER'S APPROVAL. DIMENSIONS ARE APPROXIMATE AND MAY BE ADJUSTED AS NECESSARY TO INSTALL THE SPECIFIED EQUIPMENT.
- CONTRACTOR SHALL INSTALL CONDUIT SEALS ON ALL ELECTRICAL PANEL CONNECTIONS TO UNDERGROUND CONDUITS.
- THE FLARE STACK SHALL INCLUDE CONTROL LOUVERS (DAMPERS) FOR ADJUSTING FLOW.



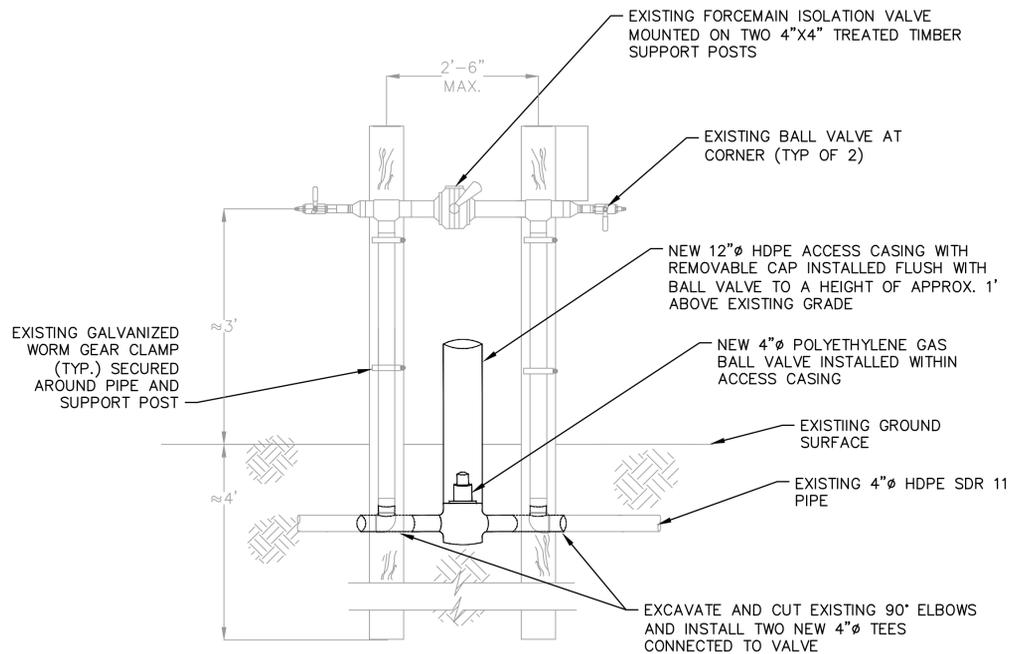
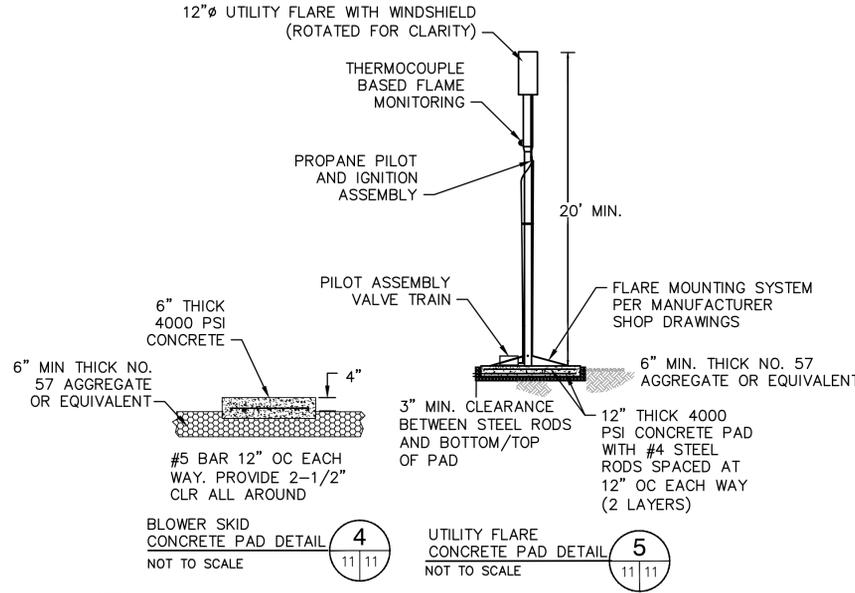
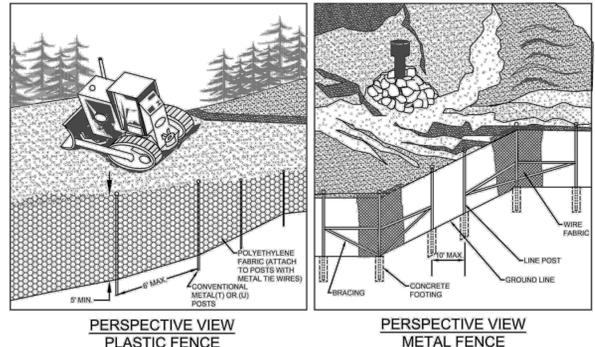
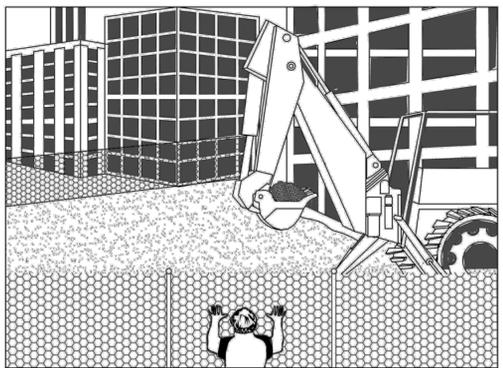
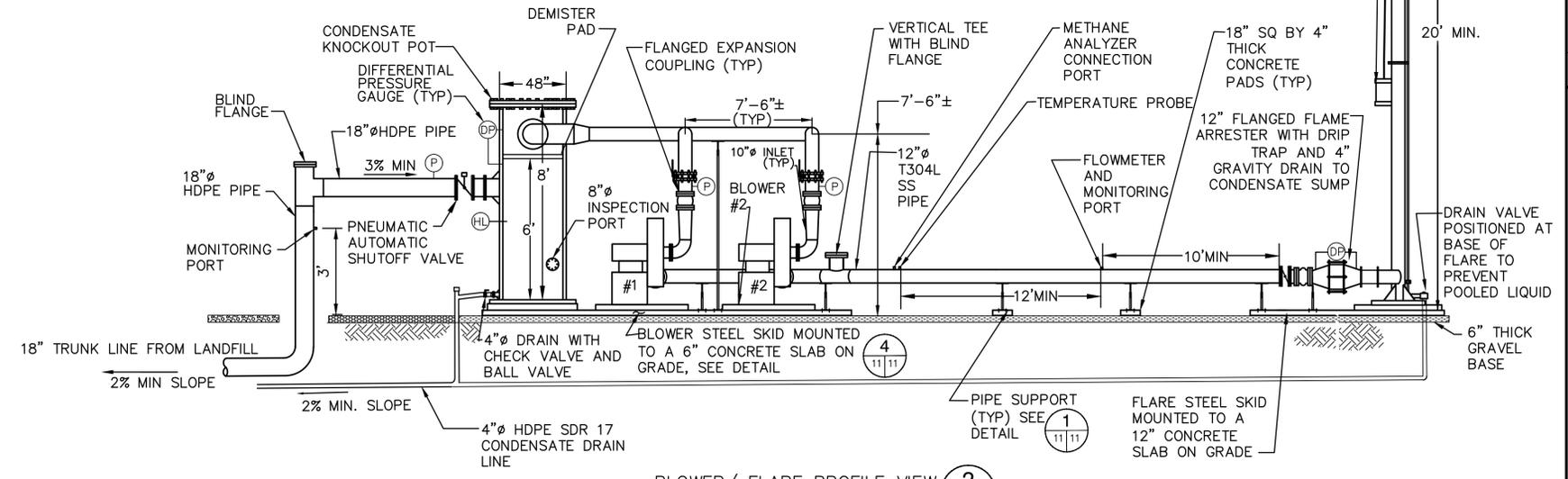
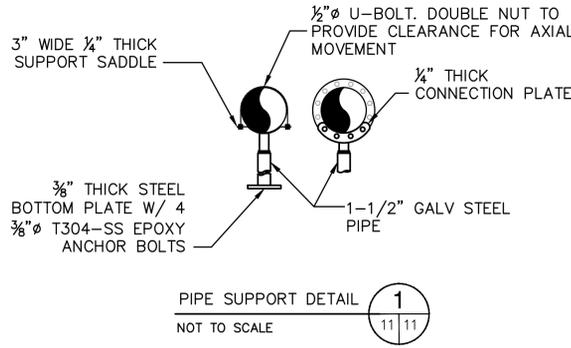
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REVISION	
NO.	

DETAILS 1
STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION

CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

SCS ENGINEERS
 STEARNS, CONRAD AND SCHMIDT
 CONSULTING ENGINEERS, INC.
 16521 MIDLOTHIAN TPK - MIDLOTHIAN, VA 23113
 PH. (804) 378-7440 FAX. (804) 378-7433

CADD FILE: 02218208.14
 DATE: 02/18/2025
 SCALE: AS SHOWN
 DRAWING NO.



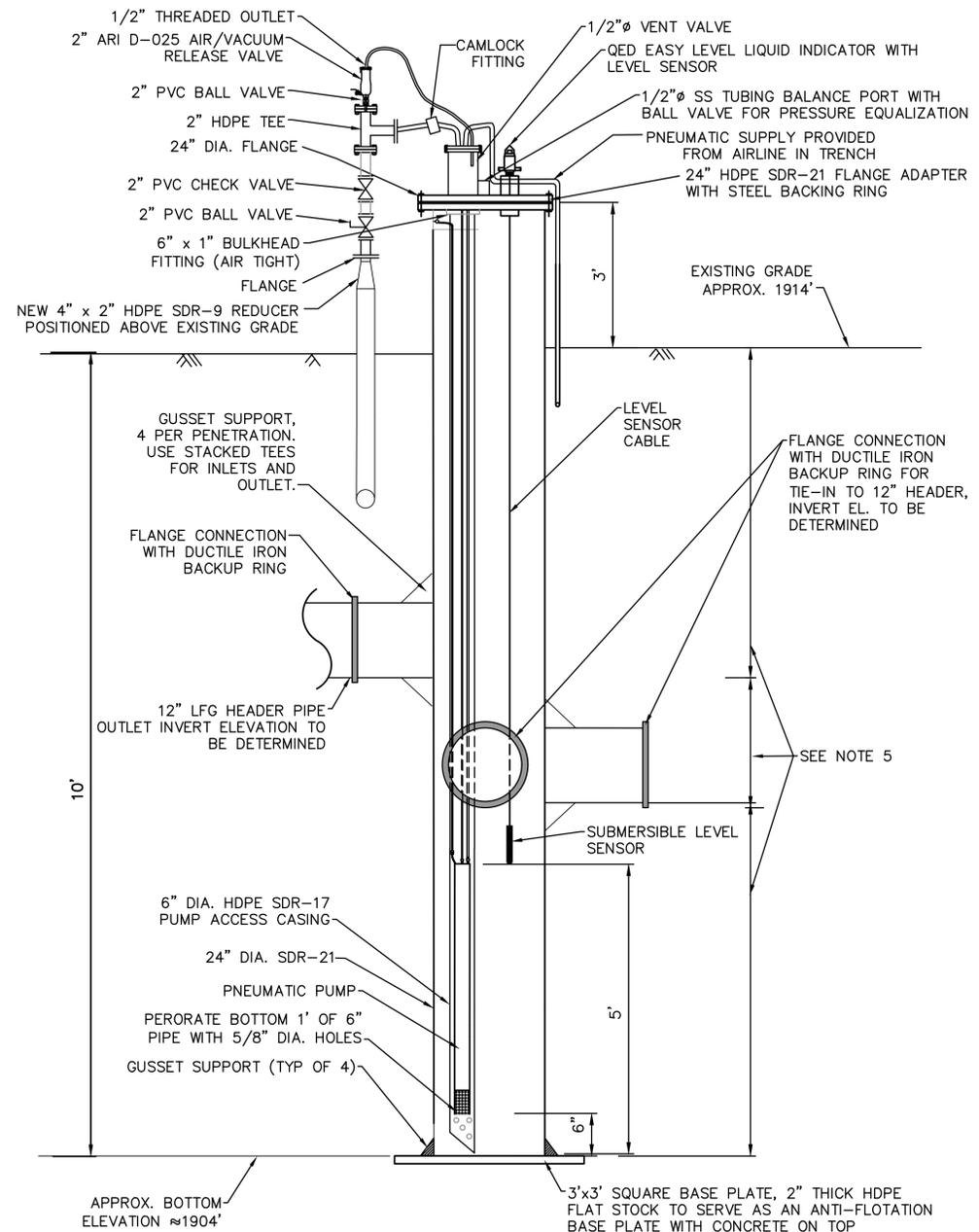
DEQ
 VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
 SOURCE: VDOT STDS., VA DSWG, CONWED PLASTICS
C-PCM-01-1



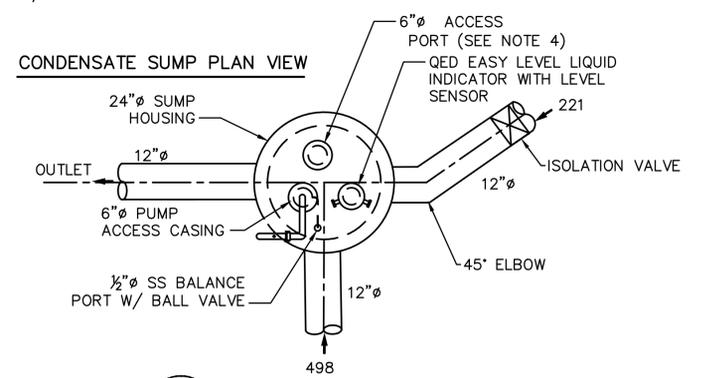
- NOTES:**
- PER EPA METHOD 1, FLOW METER AND MONITORING PORTS SHALL BE LOCATED A MINIMUM OF 8 PIPE DIAMETERS DOWNSTREAM AND 2 PIPE DIAMETERS UPSTREAM FROM FLOW DISTURBANCES SUCH AS BENDS, EXPANSIONS, CONTRACTIONS, JOINTS, VALVES, ETC.
 - PIPE SUPPORT SHALL BE LOCATED AT A MAXIMUM OF 8' O.C.
 - FLARE WILL INCLUDE CONTROL LOUVERS (DAMPERS) TO CONTROL FLOW.



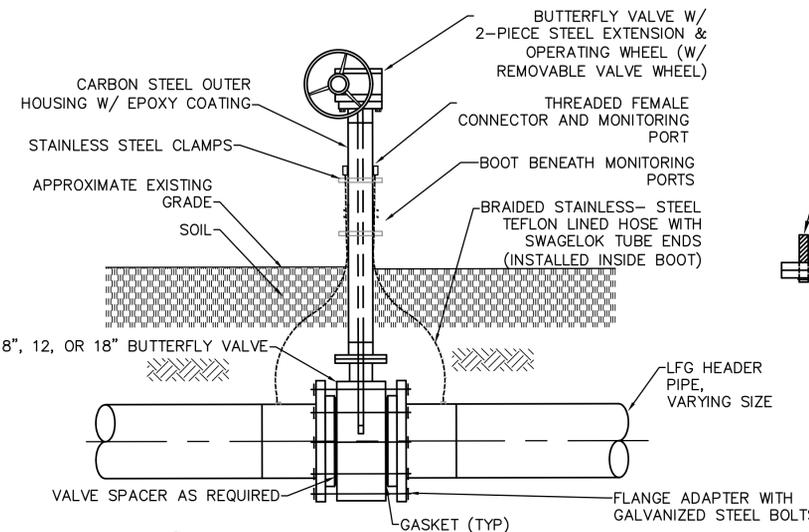
Project: 02218208.05 Drawings: 2024 New Flare Design



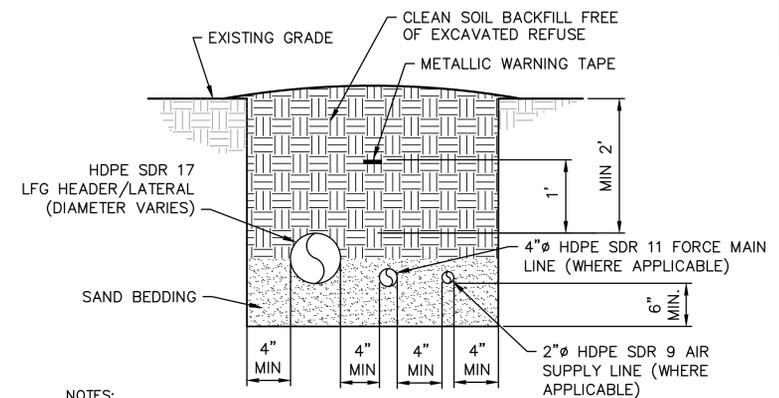
- NOTES:
- LFG HEADER PIPE INLET (221) AND OUTLET ORIENTED AT APPROX. 135 DEGREES. FIELD INVESTIGATE EXISTING HEADER LOCATIONS TO CONFIRM ORIENTATION PRIOR TO PUMP MANUFACTURING.
 - SUPPLY INSULATION ON ALL ABOVEGRADE PUMP DISCHARGE HOSE AND EXPOSED FORCEMAIN PIPING.
 - CONTRACTOR SHALL PLACE 2-FOOT THICK LAYER OF CONCRETE ONTO TOP OF ANTI-FLOTATION BASE PLATE TO COUNTERACT BUOYANCY POTENTIAL.
 - SUMP LID SHALL INCLUDE A SECOND 6" ACCESS PORT INTO SUMP VESSEL.
 - FIELD INVESTIGATION MUST BE COMPLETED BY CONTRACTOR TO DETERMINE TEE ELEVATIONS AND INLET/OUTLET ORIENTATIONS.



1 CONDENSATE SUMP (CS-4) DETAIL
4/12 NOT TO SCALE

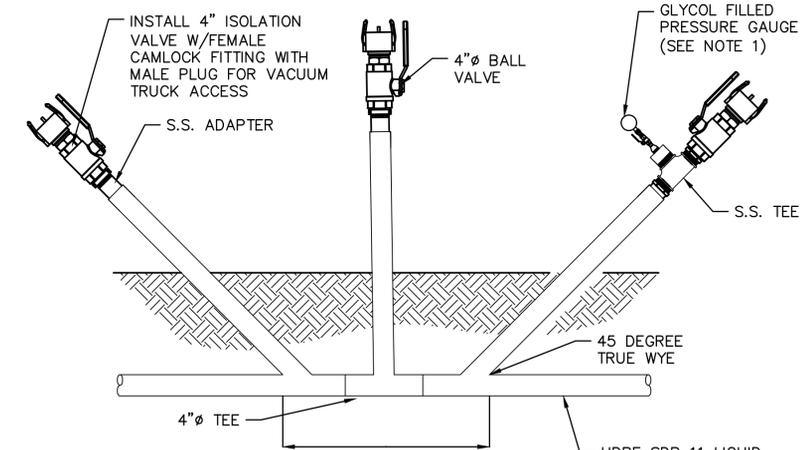


2 BELOW GRADE LFG HEADER ISOLATION VALVE DETAIL
4/12 NOT TO SCALE



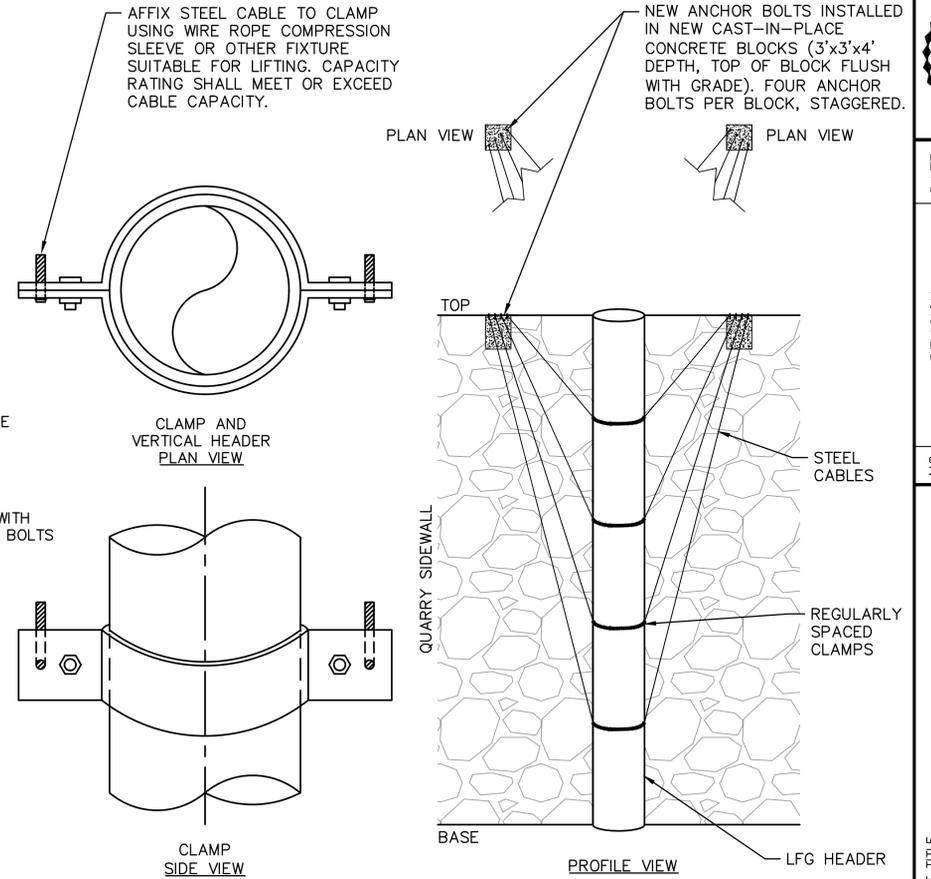
- NOTES:
- WARNING TAPE SHALL BE MIN. 3" WIDE AND IMPRINTED WITH "GAS LINE BURIED BELOW".
 - ALL HEADER AND LATERAL SHALL BE INSTALLED AT MIN. 3 FEET BURIAL DEPTH AND 5% SLOPE UNLESS APPROVED IN ADVANCE BY ENGINEER.
 - THE NUMBER AND TYPES OF PIPES INSTALLED IN THE TRENCH MAY VARY. SEE PLAN DRAWINGS.

3 HEADER/LATERAL TRENCH DETAIL
4,13/12 NOT TO SCALE



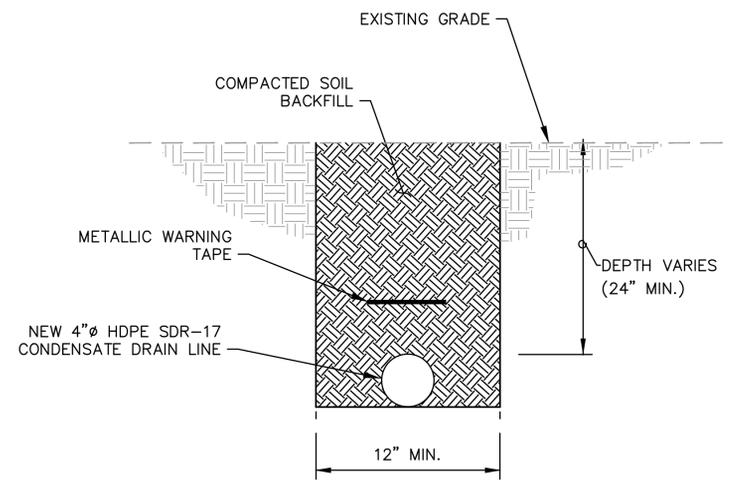
- NOTES:
- 3/8" SS BALL VALVE AND GLYCOL FILLED PRESSURE GAUGE (0-200 PSI RANGE).
 - NEW FORCEMAIN CLEANOUTS, WHERE POSSIBLE, SHALL BE INSTALLED ADJACENT TO VALVE STATIONS TO REDUCE REQUIRED EXCAVATION.

5 FORCEMAIN CLEANOUT DETAIL
4,5/12 NOT TO SCALE



- NOTES:
- ALL PIPE SUPPORT COMPONENTS SHALL BE CORROSION RESISTANT AND RATED FOR YEAR-ROUND OUTDOOR USAGE.
 - EACH STEEL WIRE SHALL HAVE A MINIMUM CAPACITY OF 2900 POUNDS, AND EACH ANCHOR BOLT SHALL HAVE A MINIMUM PULL-OUT STRENGTH OF 2900 LB. RISER CLAMPS SHALL HAVE A MINIMUM CAPACITY OF 2900 LBS. ANY OTHER COMPONENTS USED TO SUPPORT THE PIPE SHALL ALSO HAVE A MINIMUM CAPACITY OF 2900 LBS.

4 PIPE SUPPORT DETAIL
4,8/12 NOT TO SCALE



- NOTE:
- REFER TO ROAD CROSSING DETAIL ON SHEET 13 FOR ROAD CROSSINGS

6 DRAIN PIPE TRENCH DETAIL
4,7/12 NOT TO SCALE

DATE	REVISION	NO.

SHEET TITLE: **DETAILS 2**
PROJECT TITLE: **STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION**

CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY
2655 VALLEY DRIVE
BRISTOL, VA 24201

CLIENT: **SCS ENGINEERS**
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
16521 MIDLOTHIAN TPK., MIDLOTHIAN, VA 23113
PH. (804) 378-7440 FAX. (804) 378-7433

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Project: 02218208.05 Drawings: 2024 New Flare Design



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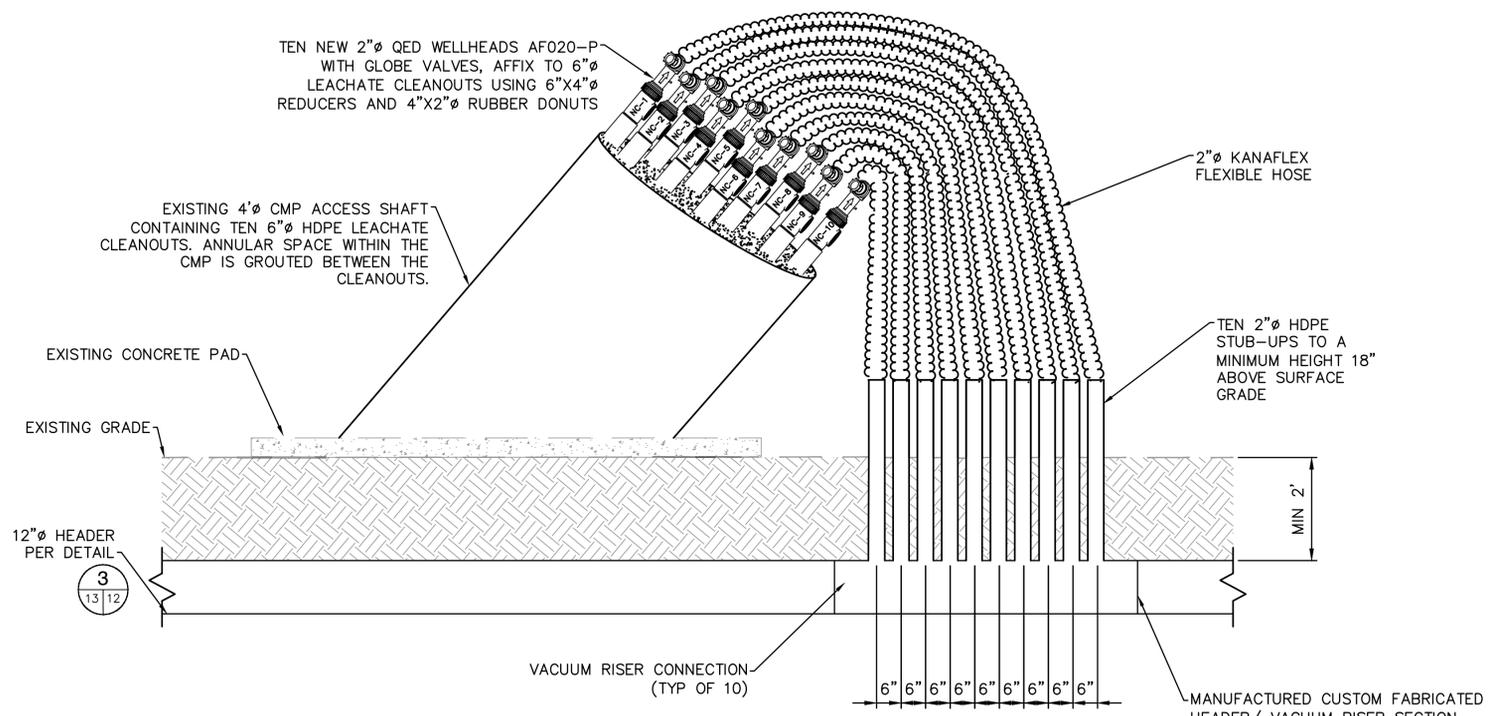
SHEET TITLE: **DETAILS 3**
 PROJECT TITLE: **STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION**

CLIENT: **CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

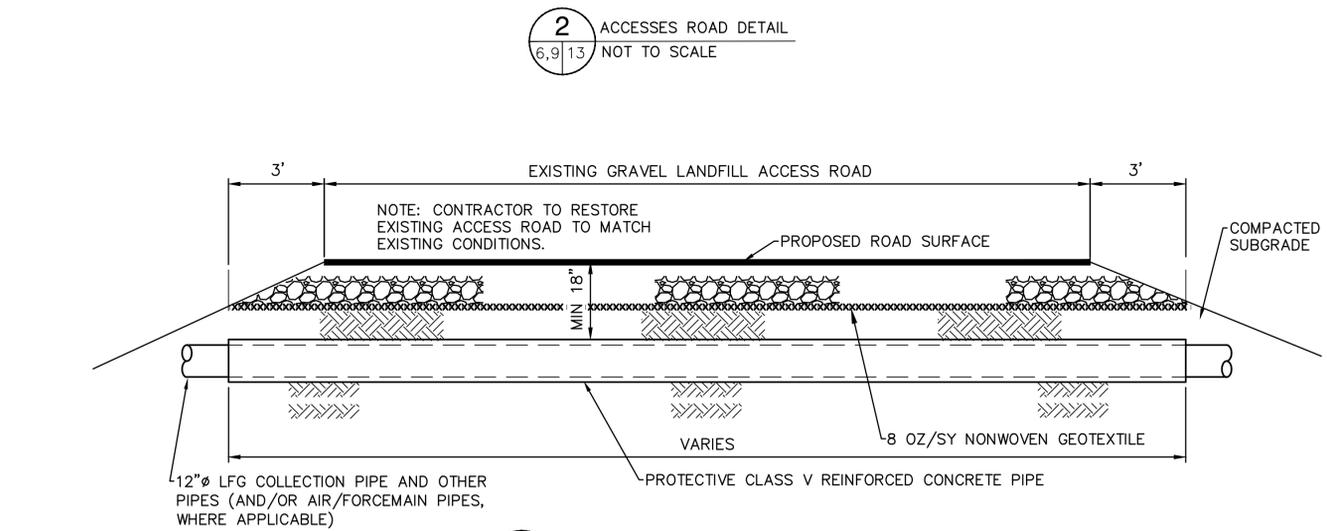
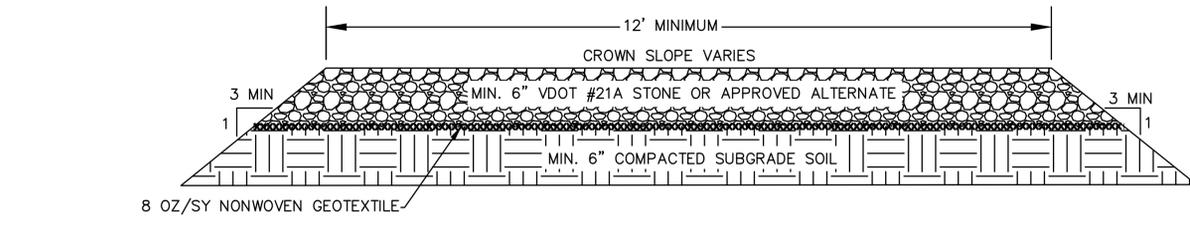
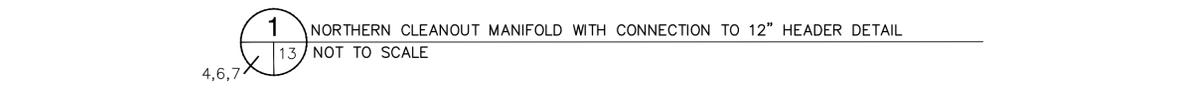
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DATE: 02/18/25
 DRAWN BY: TRW / TRW
 CHECKED BY: DBK / TRW
 APPROVED BY: C/JW

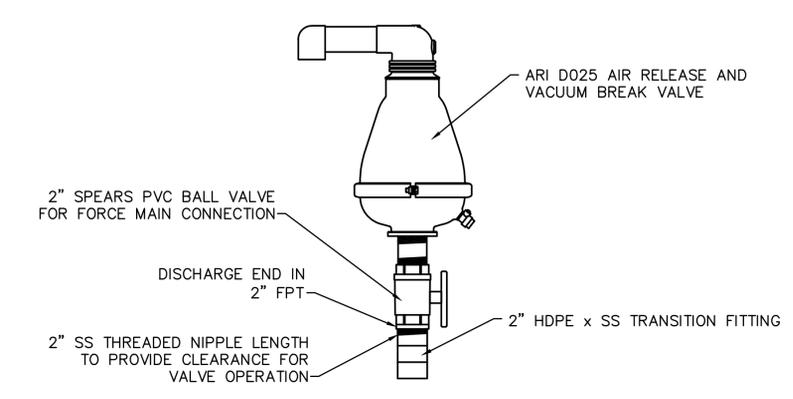
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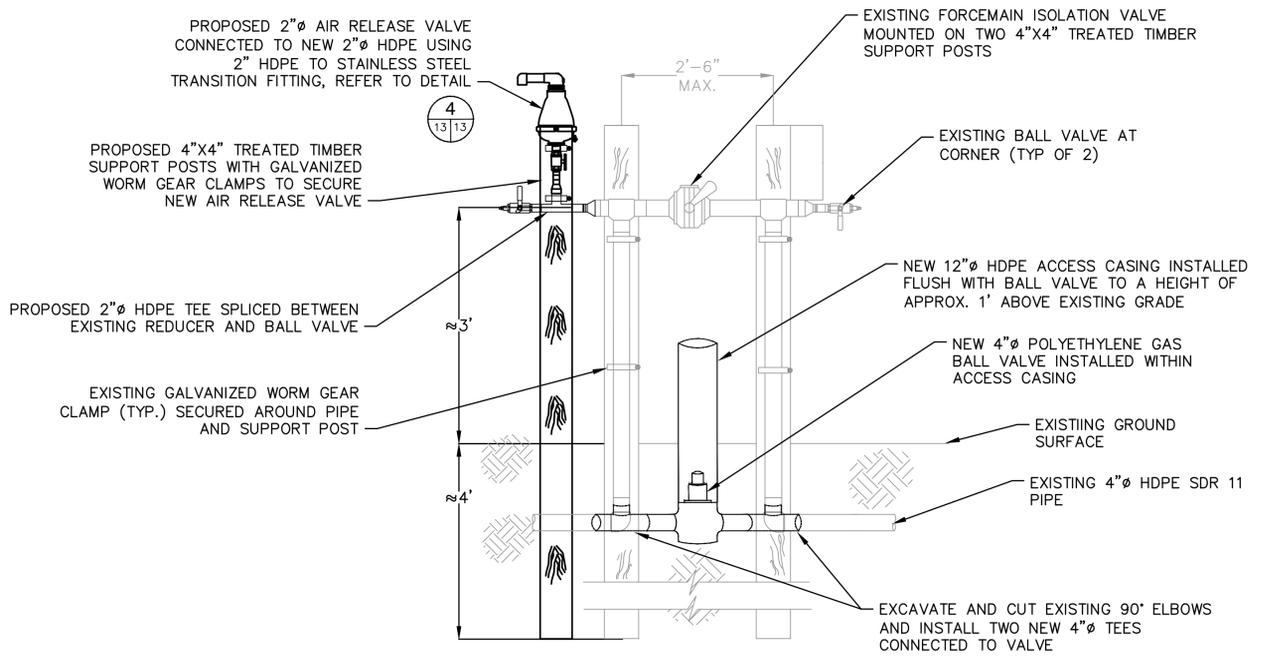
- NOTES:
1. THE CONTRACTOR SHALL INSTALL THE TEN QED WELLHEADS ENSURING A SLOPE OF 2% WILL BE MAINTAINED FROM THE 12" HEADER TO ALL TEN WELLHEADS FOR SUFFICIENT DRAINAGE.
 2. CONTRACTOR SHALL INSTALL PIPE SUPPORTS WHERE NECESSARY TO MAINTAIN SUFFICIENT SLOPE OF 2" PIPING.
 3. THE TEN 2" PIPE CONNECTIONS WILL CONNECT TO THE 12" HEADER VIA 2" FABRICATED VACUUM RISERS.
 4. THE 12" HEADER PIPE WILL CONNECT THE TEN QED WELLHEADS TO THE EXISTING LANDFILL GAS COLLECTION AND CONTROL SYSTEM
 5. MAINTAIN EXISTING 8.5' X 12.5' CONCRETE PAD



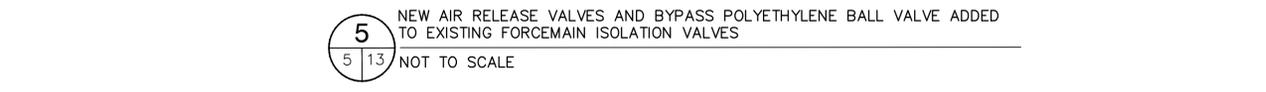
- NOTES:
1. THE CONTRACTOR SHALL RESTORE EXISTING ACCESS ROAD TO MATCH EXISTING CONDITIONS.



- NOTES:
1. INSTALL PLUMB TO GROUND. MANIFOLD IS NOT TO BE SECURED TO VACUUM RISER.

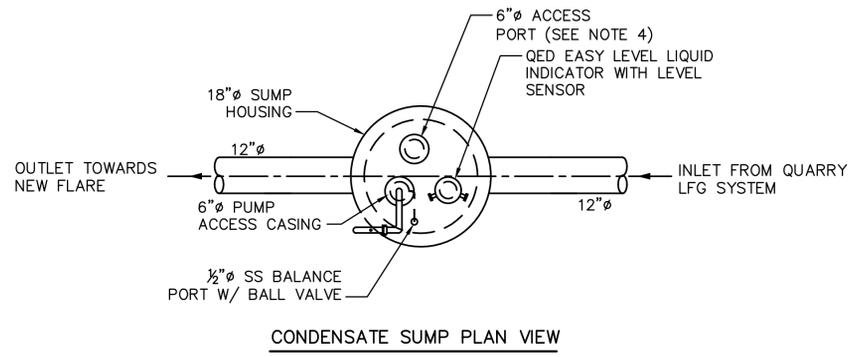
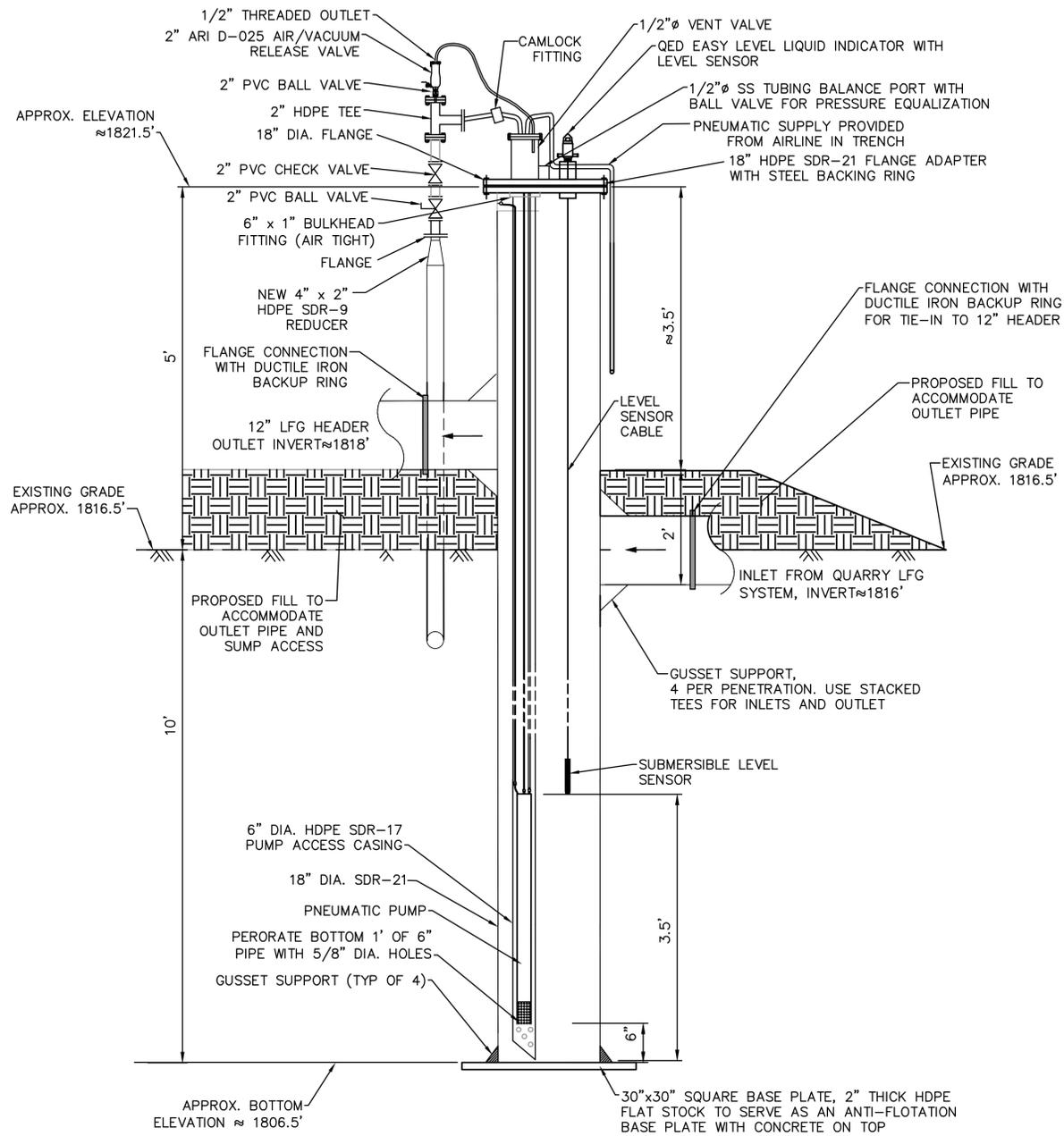


- NOTES:
1. CONTRACTOR SHALL EXCAVATE WITH CAUTION TO FIELD LOCATE EXISTING BURIED FORCEMAIN. EXISTING FEATURES SHALL BE PROTECTED AND REPLACED IF DAMAGED.



- NOTES:
1. CONTRACTOR SHALL EXCAVATE WITH CAUTION TO FIELD LOCATE EXISTING BURIED FORCEMAIN. EXISTING FEATURES SHALL BE PROTECTED AND REPLACED IF DAMAGED.

Project: 02218208.05 Drawings: 2024 New Flare Design



- NOTES:
1. LFG HEADER PIPE INLET AND OUTLET ORIENTED AT 180 DEGREES.
 2. SUPPLY INSULATION ON ALL ABOVEGRADE PUMP DISCHARGE HOSE AND EXPOSED FORCEMAIN PIPING.
 3. CONTRACTOR SHALL PLACE 2-FOOT THICK LAYER OF CONCRETE ONTO TOP OF ANTI-FLOTATION BASE PLATE TO COUNTERACT BUOYANCY POTENTIAL.
 4. SUMP LID SHALL INCLUDE A SECOND 6" ACCESS PORT INTO SUMP VESSEL.
 5. FIELD INVESTIGATION MUST BE COMPLETED BY CONTRACTOR TO DETERMINE TEE ELEVATIONS.
 6. CONTRACTOR WILL INSTALL SUPPORTS AS NECESSARY FOR SUMP VALVES.

1
14
CONDENSATE SUMP (CS-5) DETAIL
NOT TO SCALE
4,6,8

NO.	REVISION	DATE

SHEET TITLE: **DETAILS 4**
 PROJECT TITLE: **STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION**

CLIENT: **CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

SCS ENGINEERS
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PROJ. NO. 0208.14
 DWG. BY: TRW/LLH
 CHK. BY: DBK/TRW
 APP. BY: C.J.W.

CADD FILE: 02218208.14
 DATE: 02/18/2025
 SCALE: AS SHOWN
 DRAWING NO.



NO.	REVISION	DATE
1		
2		
3		
4		
5		

SHEET TITLE: **SITE PLAN FOR GENERATOR AND EQUIPMENT PAD**
 PROJECT TITLE: **STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION**

CLIENT: **CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
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 SCALE: AS SHOWN
 DRAWING NO.

PROPOSED CO-8

CAREFULLY ADJUST EXISTING ABOVE-GRADE LANDFILL GAS HEADER, AIR LINE, AND FORCE MAIN POSITION TO ACCOMMODATE PROPOSED GRADING

INSTALL CONDUIT TO NEW BLOWER/ FLARE STATION PER ELECTRICAL DRAWINGS E1-E7.

INSTALL CONCRETE PAD FOR GENERATOR PER DETAIL

1
15/16

MAINTAIN 2% MINIMUM GRADE FOR DRAINAGE FOR AREAS ADJACENT TO CONCRETE PAD

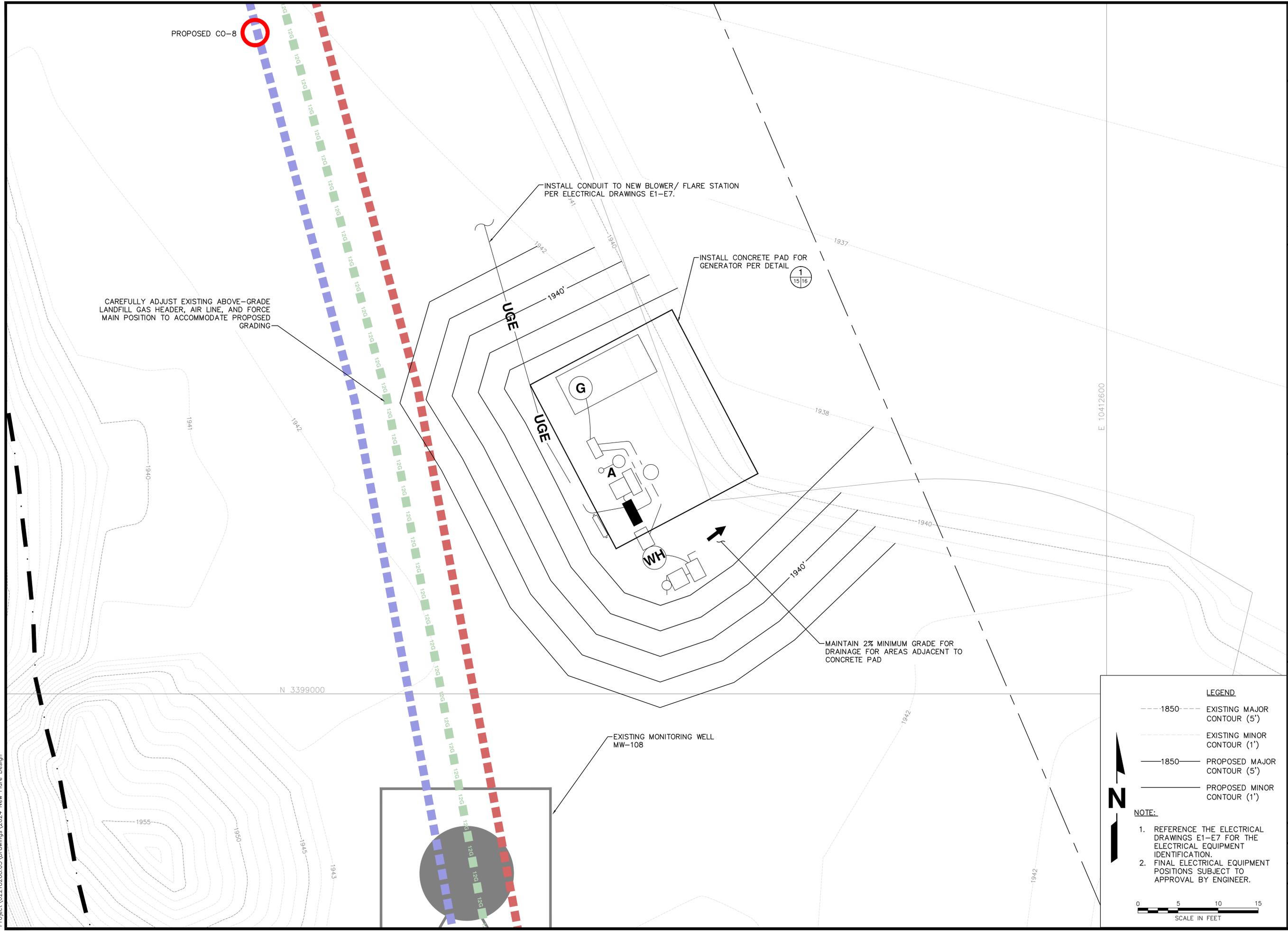
EXISTING MONITORING WELL MW-108

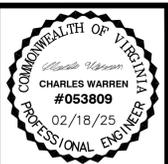
LEGEND

- 1850--- EXISTING MAJOR CONTOUR (5')
- 1850--- EXISTING MINOR CONTOUR (1')
- 1850— PROPOSED MAJOR CONTOUR (5')
- 1850— PROPOSED MINOR CONTOUR (1')

NOTE:

1. REFERENCE THE ELECTRICAL DRAWINGS E1-E7 FOR THE ELECTRICAL EQUIPMENT IDENTIFICATION.
2. FINAL ELECTRICAL EQUIPMENT POSITIONS SUBJECT TO APPROVAL BY ENGINEER.





DATE	
REVISION	
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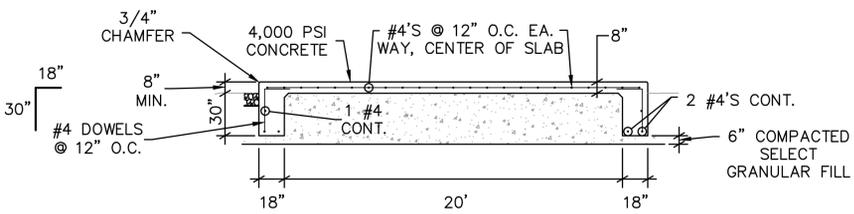
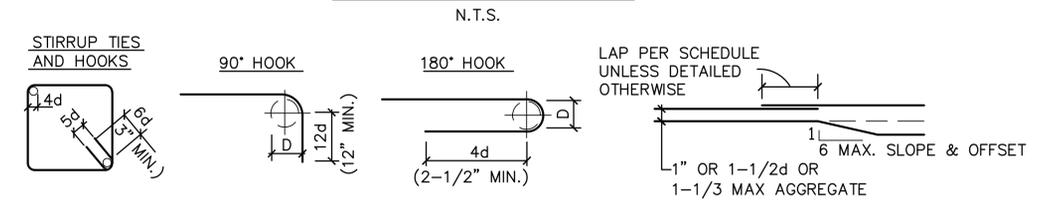
SHEET TITLE: **DETAILS 5 - GENERATOR PAD**
 PROJECT TITLE: **STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION**

CIENT: **CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

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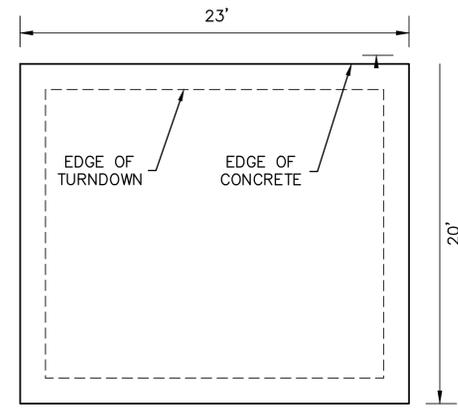
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REINFORCEMENT DETAILS



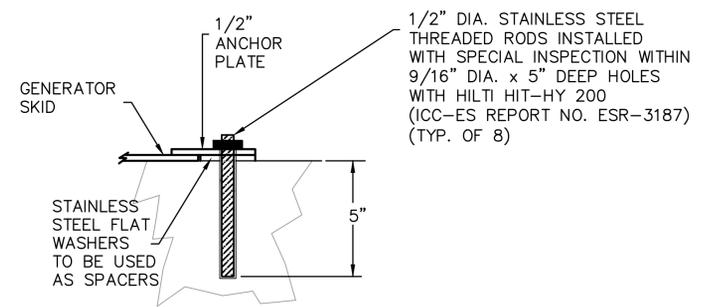
GENERATOR FOUNDATION SECTION

SCALE: 1" = 5' (FOR FULL-SIZE PLOT)



GENERATOR FOUNDATION PLAN

SCALE: 1" = 5' (FOR FULL SIZE PLOT)



GENERATOR SKID ANCHOR BOLT DETAIL

NOT TO SCALE

REINFORCED CONCRETE:

- CEMENT FOR CONCRETE OR GROUT SHALL CONFORM TO A.S.T.M. C-150, TYPE II.
- AGGREGATES SHALL CONFORM TO A.S.T.M. C-33 FOR NORMAL WEIGHT CONCRETE AND A.S.T.M. C-330 FOR LIGHTWEIGHT CONCRETE.
- READY MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH A.S.T.M. C-94.
- ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST A.C.I. CODE (A.C.I. 318) AND DETAILING MANUAL (A.C.I. 315) UNLESS OTHERWISE DETAILED OR NOTED IN DRAWINGS.
- CONCRETE SHALL HAVE A MINIMUM ULTIMATE STRENGTH AT 28 DAYS f'_c OF 4,000 PSI, WITH A WATER CEMENT RATIO NOT EXCEEDING 0.50. SUBMIT CONCRETE MIX DESIGNS TO THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL. CONCRETE DESIGN IS BASED ON $f'_c=2,500$ PSI AND, THEREFORE, SPECIAL INSPECTION OF CONCRETE IS NOT REQUIRED.
- ADMIXTURES MAY BE USED WITH APPROVAL OF THE ENGINEER. ADMIXTURES USED TO INCREASE THE WORKABILITY OF THE CONCRETE SHALL NOT BE CONSIDERED TO REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT.
- PROJECTING CORNERS OF SLABS, SHALL BE FORMED WITH A 3/4" CHAMFER UNLESS OTHERWISE NOTED.
- RIGID, REINFORCED CONCRETE SPREAD FOOTINGS AND MAT FOUNDATIONS SUPPORTED UPON SELECT GRANULAR FILL CAN BE PROPORTIONED USING AN ALLOWABLE NET BEARING PRESSURE OF 1,500 POUNDS PER SQUARE FOOT (PSF). THIS BEARING PRESSURE ASSUMES THAT SPREAD FOOTINGS WILL HAVE A MINIMUM WIDTH OF 1.5 FEET. FOOTINGS DESIGNED USING THE RECOMMENDATIONS HEREIN SHOULD NOT EXPERIENCE TOTAL SETTLEMENT GREATER THAN 3.00 INCHES. DIFFERENTIAL SETTLEMENT ACROSS THE MAT FOUNDATIONS SHOULD NOT EXCEED 1.50 INCHES.
- CONCRETE FORM TOLERANCES SHALL BE WITHIN THE STANDARDS SET BY THE AMERICAN CONCRETE INSTITUTE.
- ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS AND OTHER INSERTS SHALL BE WELL SECURED IN PLACE IN THE FORMS PRIOR TO PLACING OF CONCRETE. TWO-WAY MATS OF STEEL MUST BE WIRED TOGETHER BOTH WAYS AT ALTERNATE INTERSECTIONS.
- LOCATION OF CONSTRUCTION JOINTS NOT SPECIFICALLY INDICATED ON DRAWINGS SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACING REINFORCING STEEL.
- CONCRETE SLABS VARIATION FROM LEVEL TO BE 1/16" IN TEN FEET MAXIMUM, UNLESS OTHERWISE NOTED ON DRAWINGS.
- PIPES MAY PASS THROUGH STRUCTURAL CONCRETE IN SLEEVES, BUT NOT BE EMBEDDED THEREIN.
- DRYPACK SHALL CONSIST OF ONE PART PORTLAND CEMENT, 4 PARTS SAND BASED ON DRY LOOSE VOLUMES AND NOT LESS THAN 1/4 PART NOR MORE THAN 1/2 PART LIME PUTTY OR HYDRATED LIME. DRYPACK SHALL OBTAIN A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 2500 PSI AT 28 DAYS. SUBMIT MIX DESIGN TO THE STRUCTURAL ENGINEER FOR REVIEW.
- MINIMUM EMBEDMENT OF ANCHOR BOLTS (A.B.) UNLESS OTHERWISE NOTED ON THE PLANS, SHALL BE 7" IN FOOTINGS. ALL BOLTS SHALL HAVE A STANDARD BOLT HEAD OR A 1-1/4" 90° BEND AT EMBEDDED END. ANCHOR BOLTS SHALL BE SPACED A MINIMUM OF 12 DIAMETERS. IN LIEU OF BOLTS OR DOWELS IN CONCRETE, APPROVED CAST-IN-PLACE THREADED INSERTS MAY BE USED.
- EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT TZ INSTALLED WITH SPECIAL INSPECTION IN ACCORDANCE WITH ICC/ES REPORT No. 1917, OR APPROVED EQUAL.
- EPOXY ANCHORS SHALL BE THREADED RODS INSTALLED WITH SPECIAL INSPECTION WITH HILTI HY-200 EPOXY ADHESIVE IN ACCORDANCE W/ ES REPORT No ER-3187, OR APPROVED EQUAL.

REINFORCING STEEL:

- ALL REINFORCING STEEL UNLESS OTHERWISE NOTED IN DRAWINGS SHALL CONFORM TO ASTM A-615, GRADE 60.
- REINFORCING DETAILING, BENDING AND PLACING SHALL BE IN ACCORDANCE WITH CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE" LATEST EDITION.
- REINFORCING SHALL BE SPLICED ONLY AS SHOWN OR NOTED. SPLICES AT OTHER LOCATIONS MAY BE ALLOWED ONLY IF APPROVED BY THE STRUCTURAL ENGINEER.
- PLACING OF REINFORCEMENT SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE'S BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, LATEST EDITION.
- DIMENSIONS FROM FACE OF CONCRETE TO STEEL (CLR.) ARE TO FACE OF BARS.
- THE TRANSVERSE REINFORCING STEEL SHALL TERMINATE ONE AND ONE-HALF INCHES FROM THE CONCRETE SURFACE.
- BARS NOTED "CONT" AND TYPICAL WALL REINFORCING SHALL HAVE A MINIMUM SPLICE EQUAL TO THE STANDARD LAP SPLICES UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
- REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY PIPE, PIPE FLANGE OR METAL PARTS EMBEDDED IN CONCRETE. A MINIMUM CLEARANCE OF 2" SHALL BE MAINTAINED BETWEEN REINFORCING STEEL AND ALL EMBEDDED METAL PARTS.
- PROVIDE THE MINIMUM PROTECTIVE COVERING OF CONCRETE UNLESS OTHERWISE NOTED:

BELOW GRADE OR EXPOSED TO WEATHER:
 UNFORMED, CAST IN PLACE 3" CLEAR
 FORMED, CAST IN PLACE 2" CLEAR

LAP SCHEDULE-CLASS "B"		
BAR SIZE	TOP BARS	OTHER BARS
#3	30"	23"
#4	41"	31"
#5	51"	39"
#6	61"	47"
#7	89"	68"
#8	101"	78"

BEND SCHEDULE		
BAR SIZES	D	
#3 THRU #8	6d	

D = DIAMETER OF REINF. BAR

NOTES:

- CONCRETE CLASS: 3,500 PSI. - NORMAL WEIGHT CLASS "B" LAP, TYPICAL
- CLASS "A" SPLICES ARE ALLOWED WHEN ONE HALF OF THE TOTAL BARS ARE SPLICED WITHIN THE REQUIRED LAP LENGTH OF THE BARS.
- CLASS "A" SPLICE = CLASS "B" SPLICE / 1.3

GENERAL :

- THE CONTRACTOR SHALL TAKE NO ADVANTAGE OF ANY ERROR OR OMISSION IN THE PLANS, ESTIMATED QUANTITIES OR SPECIFICATIONS. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS ON THE JOB SITE PRIOR TO COMMENCING WITH THE WORK. SPECIAL CARE SHALL BE GIVEN TO SITE AND BUILDING LAYOUT THEREON. IN THE EVENT THE CONTRACTOR DISCOVERS AN ERROR, OMISSION, OR POSSIBLE DISCREPANCY BETWEEN FIELD CONDITIONS AND THE DRAWINGS, THEY SHALL IMMEDIATELY NOTIFY THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
- NOTES AND DETAILS ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER THESE GENERAL NOTES.
- ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE 2018 EDITION AND THE LOCAL BUILDING OFFICIAL.
- THE DESIGN, ADEQUACY AND SAFETY OF ERECTION, BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND HAS NOT BEEN CONSIDERED BY THE STRUCTURAL ENGINEER.
- NO PIPES, DUCTS, SLEEVES, CHASES, ETC. SHALL BE PLACED IN SLABS, BEAMS, OR WALLS UNLESS SPECIFICALLY SHOWN OR NOTED. NOR SHALL ANY STRUCTURAL MEMBER BE CUT FOR PIPES DUCTS, ETC., UNLESS OTHERWISE NOTED. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FOR INSTALLATION OF ANY ADDITIONAL PIPES, DUCTS ETC., REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR LOCATIONS.
- ALL DETAIL CALLOUTS AS SHOWN ON THE DRAWINGS, SECTIONS AND ELEVATIONS SHALL APPLY TO ALL SIMILAR CONDITIONS WHETHER REFERENCED OR NOT. TYPICAL DETAILS AND NOTES SHALL APPLY UNLESS SHOWN OTHERWISE IN DRAWINGS.
- DESIGN LOADS:**
 - WIND:**

BASIC WIND SPEED	100 MPH
WIND IMPORTANCE	I = 1.0
WIND EXPOSURE	C
 - EARTHQUAKE:**

SEISMIC IMPORTANCE FACTOR I	= 1.0
SEISMIC ZONE	2A
- NO CHANGES SHALL BE MADE TO THESE DRAWINGS WITHOUT THE EXPRESSED WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.
- WORK THESE DRAWINGS WITH CIVIL, MECHANICAL, PROCESS, GENERAL AND ELECTRICAL DRAWINGS.
- WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS SUCH STANDARDS SHALL BE THE LATEST EDITION, AND/OR ADDENDUM.
- AS A CONVENIENCE TO THE CONTRACTOR, THE ENGINEER SHALL REVIEW SHOP DRAWINGS AS TO THEIR GENERAL CONFORMANCE TO THE DESIGN CONCEPT. THE CONTRACTOR SHALL BE RESPONSIBLE NONETHELESS FOR COMPLIANCE AND DIMENSIONS. SHOP DRAWINGS ARE REQUIRED FOR THE FOLLOWING:
 REINFORCING STEEL
 HIGH STRENGTH BOLTING
 STRUCTURAL FIELD WELDING
 EPOXY ANCHORS

- FOR EXCAVATION IN NATIVE SOIL, SHORING SHALL BE PROVIDED TO SATISFY STATE OF PENNSYLVANIA SAFETY REQUIREMENTS.
- ALL FILLS MUST BE COMPACTED TO AT LEAST 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR PROCEDURES OUTLINED IN ASTM D698.
- BACKFILL MATERIAL AROUND THE FOUNDATION ELEMENTS SHOULD CONSIST OF SUITABLE ON-SITE MATERIAL OR CLEAN GRANULAR FILL FROM A BORROW SOURCE. THIS MATERIAL SHOULD BE PLACED IN 12-INCH MAXIMUM LOOSE LIFTS AND BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557.
- FOUNDATION:**
 - SOIL DESIGN PRESSURE: 1,500 P.S.F.
 - FOOTINGS SHALL EXTEND AT LEAST 30" BELOW FINISHED GRADE TO PROVIDE ADEQUATE FROST PROTECTION.
 - SOIL ENGINEER SHALL VERIFY THAT CONSTRUCTION AT THE SITE IS IN ACCORDANCE WITH THE RECOMMENDATIONS AND CONCLUSIONS OF HIS REPORT.
 - FINISHED EXCAVATIONS FOR FOUNDATION SHALL BE NEAT AND TRUE TO LINE WITH ALL LOOSE MATERIALS AND STANDING WATER REMOVED FROM EXCAVATION.
 - BEFORE ANY CONCRETE IS PLACED, EXCAVATIONS SHALL BE CHECKED AND APPROVED BY A QUALIFIED SOILS ENGINEER TO INSURE COMPLIANCE WITH THE REQUIREMENTS.
 - ALL FILL MATERIAL IS TO BE APPROVED BY THE SOILS ENGINEER AND IS TO BE COMPACTED TO 95% OF MAXIMUM DENSITY INSPECTION IS REQUIRED DURING FILL AND COMPACTION.
 - NOTIFY THE STRUCTURAL ENGINEER OF ANY UNUSUAL SOIL CONDITIONS THAT ARE IN VARIANCE WITH THE DATA HEREIN CITED.
 - TEMPORARY EXCAVATION SLOPES IN DRY, LOOSE DEPOSITS SHOULD BE MAINTAINED NOT STEEPER THAN 1.5 HORIZONTAL TO 1.0 VERTICAL (1.5 : 1). IN WET OF LOOSE SOILS, TEMPORARY EXCAVATION SLOPES SHOULD BE FLATTENED AS REQUIRED IN ACCORDANCE WITH OSHA REGULATIONS 29 CFR PART 1926.
 - FOLLOWING EXCAVATION TO AT LEAST 12 INCHES BELOW BOTTOM OF FOOTING, THE SUBGRADE SHOULD THEN BE COMPACTED IN ORDER TO DENSIFY ANY NATURALLY OCCURRING LOOSE ZONES OR THOSE WHICH DEVELOP DURING THE EXCAVATION PROCESS.
 - FOLLOWING COMPACTION OPERATIONS, BACKFILL AS REQUIRED, TO THE BOTTOM OF THE PROPOSED EQUIPMENT FOOTINGS AND MAT FOUNDATIONS WITH SELECT GRANULAR FILL MATERIAL. THIS MATERIAL SHOULD BE PLACED IN 12-INCH MAXIMUM LOOSE LIFTS AND BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557.
 - EQUIPMENT FOUNDATIONS SHOULD BE DESIGNED AND SIZED TO ADEQUATELY DAMPEN DYNAMIC FORCES AND VIBRATIONS CAUSED BY THE OPERATION OF EQUIPMENT SUPPORTED ON THE FOUNDATION. THE NATURAL FREQUENCY OF VIBRATION SHOULD DIFFER FROM THE OPERATING FREQUENCY BY AT LEAST 50 PERCENT TO AVOID RESONANCE.

1 CONCRETE PAD FOR BACKUP GENERATOR AND EQUIPMENT
 15/16 AS INDICATED



ELECTRICAL GENERAL NOTES:

- ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC (2018) & APPLICABLE LOCAL CODES. THE MANUFACTURER'S RECOMMENDATIONS SHALL BE FOLLOWED AS REQUIRED. ALL MATERIALS, AS A MINIMUM, SHALL BE NEW AND UNDERWRITERS LABORATORY (U.L.) LISTED.
- THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, CERTIFICATES OF INSPECTION, ETC. REQUIRED BY THE AUTHORITIES HAVING JURISDICTION OVER THIS WORK.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND/OR MANUFACTURER'S LITERATURE, FOR ALL EQUIPMENT AND MATERIAL PROPOSED FOR INSTALLATION TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO RELEASING AN ORDER FOR FABRICATION AND/OR SHIPMENT. EQUIPMENT AND MATERIAL INCLUDED SHALL BE ITEMS SUCH AS, BUT NOT LIMITED TO: SWITCHES, DISCONNECTS, PANELBOARDS, BREAKERS, WIRING AND CONDUIT, ETC. WIRING AND CONDUIT, ETC.
- STATEMENT OF WORK: THE CONTRACTOR SHALL PROVIDE ALL NECESSARY ELECTRICAL EQUIPMENT AND LABOR TO ENSURE THE COMPLETE WORKING ORDER OF THE LANDFILL GAS BLOWER/FLARE SYSTEM. IN GENERAL THE WORD "PROVIDE" MEANS TO FURNISH AND INSTALL.
- THE DRAWINGS ARE DIAGRAMMATIC AND DO NOT PURPORT TO SHOW ALL MATERIAL NECESSARY FOR A COMPLETE AND USABLE SYSTEM. PARENTHETIC DIMENSIONED ITEMS ARE FOR REFERENCE ONLY. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY FOR A COMPLETELY FINISHED, TESTED, AND OPERATIONAL ELECTRICAL SYSTEM AND SHALL BE RESPONSIBLE FOR APPROVAL OF WORK BY THE AUTHORITY HAVING JURISDICTION. ANY APPARATUS, APPLIANCE, MATERIAL, AND/OR INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE AND READY FOR OPERATION, NOT NORMALLY SHOWN, SHALL BE FURNISHED, DELIVERED AND INSTALLED BY THE CONTRACTOR WITHOUT ADDITIONAL EXPENSE TO THE OWNER.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL BRACES/SUPPORTS FOR HIS WORK. COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND CONDUIT TO BE SET IN POURED IN PLACE CONCRETE.
- PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR WITH ALL CIRCUITS IAW NFPA 70 ARTICLE 250 WHETHER SHOWN OR NOT ON THE PLANS. ADJUST FEEDER AND BRANCH CIRCUIT RACEWAY SIZE IF REQUIRED.
- VERIFY EQUIPMENT LOCATIONS FOR ELECTRICAL ROUGH-INS WITH OWNER REPRESENTATIVE, FIELD MEASUREMENTS, AND WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT TO BE CONNECTED. CONFLICTS WITH OTHER EQUIPMENT AND FEATURES SHALL BE RESOLVED PRIOR TO INSTALLATIONS.
- WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED, COORDINATE WITH OWNER'S REPRESENTATIVE.
- INSTALL ELECTRICAL EQUIPMENT TO FACILITATE MAINTENANCE AND REPAIR OR REPLACEMENT OF EQUIPMENT COMPONENTS. AS MUCH AS PRACTICAL, CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM OF INTERFERENCE WITH OTHER INSTALLATIONS.
- ALL CONDUCTORS SHALL BE COPPER AND HAVE 75 DEGREE C. INSULATION. ALL EQUIPMENT LUGS SHALL BE U. L. LISTED FOR 75 DEGREE C. WHERE EQUIPMENT IS NOT LISTED AS SUCH, ADJUST CONDUCTOR AMPACITY IAW NFPA 70 ARTICLE 310, TABLE 16.
- THE DESIGN OF ALL BRANCH CIRCUITS IS BASED ON COPPER CONDUCTORS.
- MINIMUM POWER CONDUCTOR SIZE IS #12 AWG, AND MINIMUM CONTROL CONDUCTOR SIZE IS #14 AWG.
- CONTRACTOR SHALL PROVIDE CONDUCTORS/CABLE/CONDUIT I.A.W. N.E.C. AND PRECEDING 3 NOTES.
- ANY BRANCH CIRCUIT REQUIRING A NEUTRAL SHALL BE PROVIDED WITH ITS OWN NEUTRAL. NO COMMON NEUTRAL SHALL BE PERMITTED.
- THE CONTRACTOR SHALL PROVIDE CONNECTIONS FOR ALL ELECTRICAL EQUIPMENT INSTALLED ON THIS PROJECT. CONNECTIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND/OR CONSISTENT WITH INDUSTRY PRACTICE.
- ALL CONDUIT SHALL BE RIGID GALVANIZED STEEL UNLESS OTHERWISE NOTED. CONDUIT ROUTED BELOW GRADE SHALL HAVE PVC COATING.
- THE ELECTRICAL EQUIPMENT & DIAGRAMS SHOWN ON THE DRAWINGS MAY BE MODIFIED TO ACCOMMODATE FACTORY OR VENDOR SUPPLIED STANDARD EQUIPMENT WITH A PRE-FABRICATED, BLOWER/FLARE STATION AS APPROVED BY THE OWNERS REPRESENTATIVE.
- CONTRACTOR SHALL OBTAIN ELECTRICAL PERMITS FROM THE CITY AS APPLICABLE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE LOCAL UTILITY COMPANY SUCH THAT NEW ELECTRICAL SERVICE IS BROUGHT TO THE PROJECT, INCLUDING ANY REQUIRED TRANSFORMERS, CONCRETE PADS CONDUIT METERS, AND C/T'S.

ELECTRICAL ABBREVIATIONS	
ABBREVIATION	DESCRIPTION
A	AMPERE
AC	ALTERNATING CURRENT, ARMOR CLAD
AGE	ABOVE GROUND ELECTRICAL
AIC	ASYMMETRICAL INTERRUPT CURRENT
AWG	AMERICAN WIRE GAUGE
BRKR	BREAKER
C	CONDUIT
CB	CIRCUIT BREAKER
CBL	CABLE
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
DWG	DRAWING
EQ	EQUAL
EXIST	EXISTING
FVNR	FULL VOLTAGE NON-REVERSING
G.GND	GROUND
HD	HEAVY DUTY
ID	IDENTIFICATION
K	THOUSAND
KVA	KILOVOLT AMP
KW	KILOWATT
MCB	MAIN CIRCUIT BREAKER
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
P	POLES
P/O	PART OF
PB	PULL BOX
PNL	PANEL
PVC	POLYVINYL CHLORIDE
RGS	RIGID GALVANIZED STEEL
SW	STORM WATER
T	TRANSFORMER
TYP	TYPICAL
UGE	UNDERGROUND ELECTRICAL
UON	UNLESS OTHERWISE NOTED
W	WATTS, WIRE
WH	WATTS/HOUR
WP	WEATHERPROOF
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
Ø	PHASE

SYMBOLS:

- AGE— NEW ABOVE GROUND ELECTRICAL RUN.
- G— NEW BURIED GROUNDING CONDUCTOR RUN.
- L— NEW EXPOSED COPPER LIGHTNING CONDUCTOR RUN.
- OH— EXISTING OVERHEAD ELECTRICAL DISTRIBUTION RUN.
- OHE— NEW OVERHEAD UTILITY MV ELECTRICAL DISTRIBUTION RUN (BY OTHERS).
- UGE— NEW UNDERGROUND ELECTRICAL RUN.
- ⊙ EXISTING UTILITY POLE.
- ⊙ NEW UTILITY POLE, PROVIDED BY OTHERS.
- NEW TRANSFORMER, SEE ONE-LINE DIAGRAM FOR RATINGS.
- NEW UTILITY WATT/HOUR METER, PROVIDED BY OTHERS.
- NEW PANELBOARD, SEE ONE-LINE DIAGRAM FOR RATINGS.
- NEW MOTOR, SEE ONE-LINE DIAGRAM FOR RATINGS.
- NEW FVNR COMBINATION STARTER AND DISCONNECT SWITCH, SEE ONE-LINE DIAGRAM FOR RATINGS.
- NEW VARIABLE FREQUENCY DRIVE, MANUFACTURER PROVIDED.
- NEW ABOVE GROUND SOOW CORD, LAY ON GROUND, SERPENTINE COIL CONFIGURATION.
- NEW CIRCUIT BREAKER.
- NEW SURFACE MOUNTED LIGHT FIXTURE, SEE LIGHTING FIXTURE SCHEDULE THIS SHEET.
- NEW GFCI WEATHERPROOF RECEPTACLE, 20A, 125V NEMA 5-20R, SURFACE MOUNTED.
- NEW PULL BOX.
- NEW POLE MOUNTED LIGHT FIXTURE, 4" ROUND POLE, 11ga (0.120"), 20" HEIGHT, 90-DEGREE DRILL MOUNTING, BLACK FINISH.
- NEW LOAD BANK, MOUNTED ON GENERATOR ENCLOSURE.
- NEW HANDHOLE, SIZED PER NEC.
- NEW GROUND ROD.
- NEW GROUND TEST WELL.
- NEW AIR TERMINAL, CLASS 1, 24-INCHES.
- NEW GROUND CONDUIT SUPPORT.
- NEW EQUIPMENT NUMBER. SEE DRAWINGS E4 AND E10.
- NEW FEEDER NUMBER. SEE DRAWING E4, NEW FEEDER SCHEDULE.

LIGHTING FIXTURE SCHEDULE						
FIXT. TYPE	MANUFACTURER	CATALOG NUMBER	MOUNTING		REMARKS	VOLTAGE
			POLE	REC.		
A	LITHONIA	DSX0-LED-P7-40K-70CRI-T4M-XVOLT-R PA-PER-DBLXD	X	-	LED AREA LUMINAIRE, 40K, 70CRI, 171W, 20,000LM, PHOTOCCELL	480V

NO.	REVISION	DATE

SHEET TITLE: GENERAL NOTES, ABBREVIATIONS, SYMBOLS, LIGHTING FIXTURE SCHEDULE
 PROJECT TITLE: STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION

CLIENT: CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

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 DATE: 12/20/2024
 DESIGNED BY: RZ
 CHECKED BY: RZ
 DRAWN BY: RZ
 APP. BY: RZ
 GRZ

CADD FILE: E1
 DATE: 12/20/2024
 SCALE: AS SHOWN
 DRAWING NO. E1



GENERAL NOTES:

1. ALL PVC SCHEDULE 40 CONDUITS SHALL NOT BE BURIED UNDER AREAS WHERE VEHICULAR TRAVEL IS ACCESSIBLE.
2. THE CONTRACTOR SHALL COORDINATE ALL ABOVE GROUND AND UNDERGROUND CABLE RUNS WITH CIVIL DRAWINGS PRIOR TO THE COMMENCEMENT OF WORK. ALL CABLE RUNS SHALL NOT BE WITHIN THE HIGH WATER LINE OF THE BASINS.
3. ALL ELECTRICAL RUNS SHALL BE ABOVE GROUND UON.
4. THE CONTRACTOR SHALL COORDINATE WITH CIVIL DRAWINGS FOR ALL FINAL LOCATIONS OF EQUIPMENT. ELECTRICAL DRAWINGS SHOWN ARE DIAGRAMMATIC UON.

KEY NOTES:

1. UTILITY COMPANY TO EXTEND EXISTING 3-PHASE MV ELECTRICAL POWER TO THE NEW SERVICE DROP LOCATION.
2. PROVIDE AND INSTALL NEW HANDHOLE. SEE DETAIL 6/E6.
3. FOLLOW NEW LFG HEADER LINES TO THE NEW FLARE STATION. REFER TO CIVIL DRAWINGS FOR LFG HEADER LINE RUN, AND DETAIL 3/E7 FOR BURIAL DEPTH.
4. NEW ALTERNATE ELECTRICAL SERVICE. COORDINATE THE NEW SERVICE WITH THE UTILITY COMPANY.
5. THE VERTICAL DISTANCE FROM THE TOP OF THE RIDGE TO THE QUARRY FLOOR CAN VARY FROM ~ 325'. REFER TO THE TOPO PLANS FOR THE EXACT ELEVATION CHANGES.
6. UTILITY COMPANY TO EXTEND EXISTING 3-PHASE MV ELECTRICAL POWER TO THE NEW SERVICE DROP LOCATION - ALTERNATE PATH.



1 ELECTRICAL SITE PLAN - PHASE 1 NEW WORK
 E2 SCALE: 1"=100'

Project\02218208.05\Drawings\VOH_Cover_System_Design - SWP588 Construction Plans\REF

NO.	REVISION	DATE

SHEET TITLE	ELECTRICAL SITE PLAN PHASE 1 NEW WORK
PROJECT TITLE	STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION

CLIENT
**CITY OF BRISTOL INTEGRATED SOLID
 WASTE MANAGEMENT FACILITY**
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

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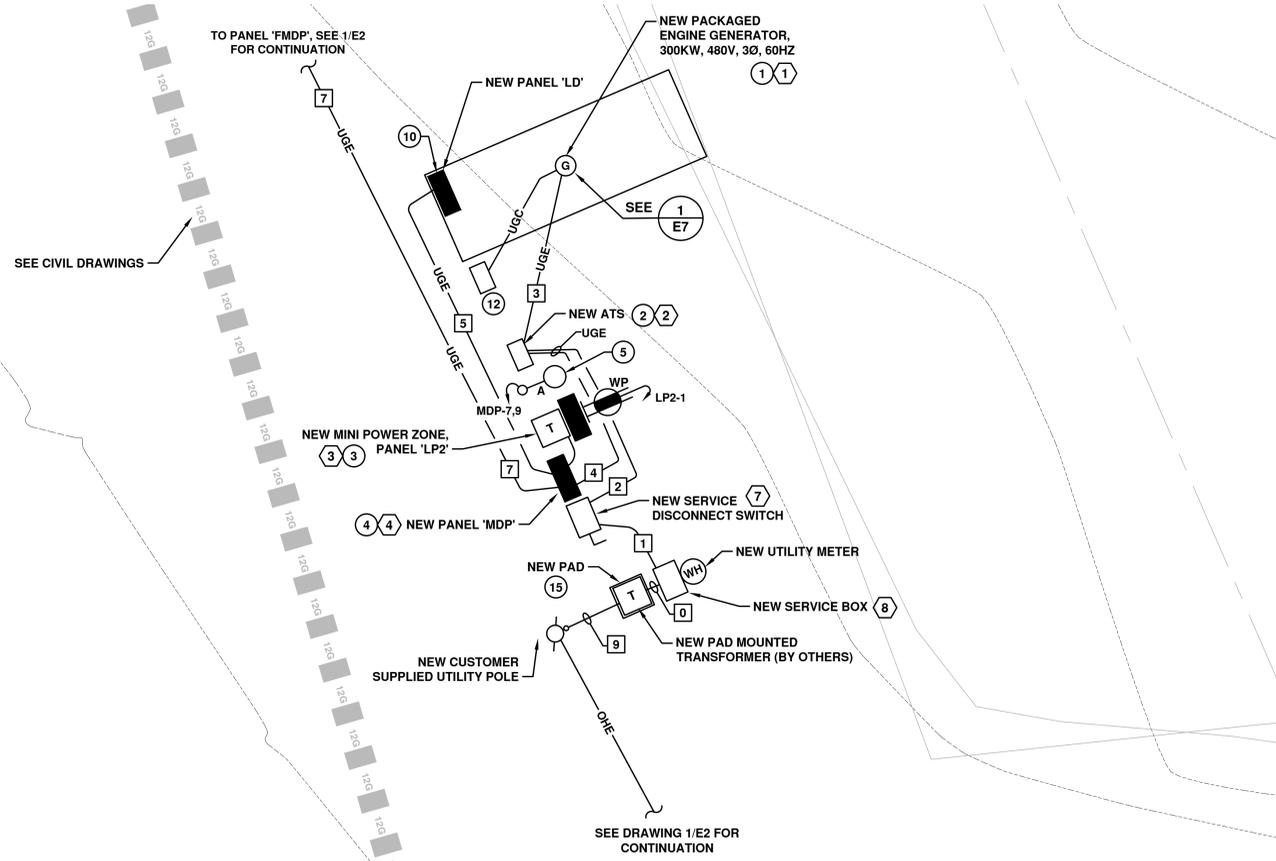
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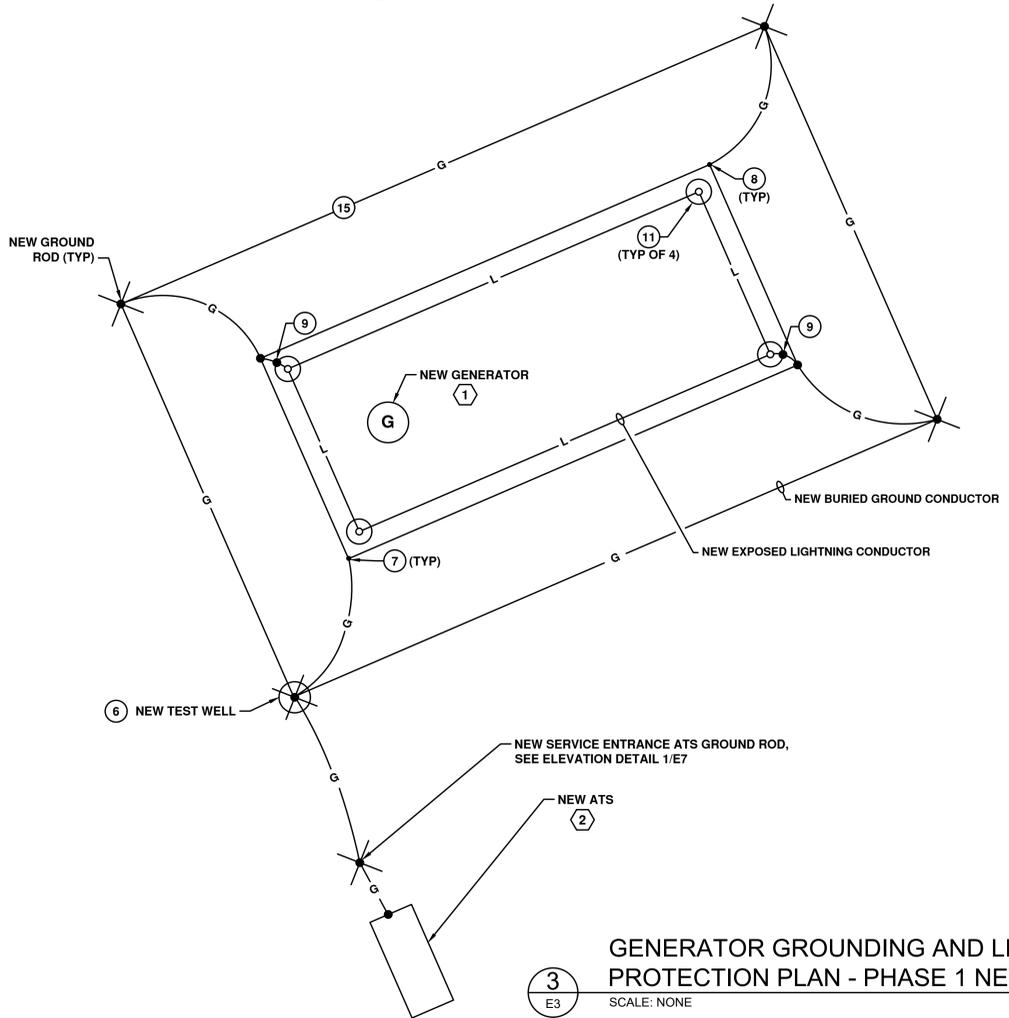


GENERAL NOTES:

1. ALL PVC SCHEDULE 40 CONDUITS SHALL NOT BE BURIED UNDER AREAS WHERE VEHICULAR TRAVEL IS ACCESSIBLE.
2. THE CONTRACTOR SHALL COORDINATE ALL ABOVE GROUND AND UNDERGROUND CABLE RUNS WITH CIVIL DRAWINGS PRIOR TO THE COMMENCEMENT OF WORK. ALL CABLE RUNS SHALL NOT BE WITHIN THE HIGH WATER LINE OF THE BASINS.
3. ALL ELECTRICAL RUNS SHALL BE ABOVE GROUND UON.
4. THE CONTRACTOR SHALL COORDINATE WITH CIVIL DRAWINGS FOR ALL FINAL LOCATIONS OF EQUIPMENT. ELECTRICAL DRAWINGS SHOWN ARE DIAGRAMMATIC UON.
5. SEE GENERATOR SPECIFICATION 263213.13 FOR DATALINK COMMUNICATIONS AND MODBUS INTERFACE.
6. REFER TO DRAWING E4 FOR NEW EQUIPMENT NUMBERS.



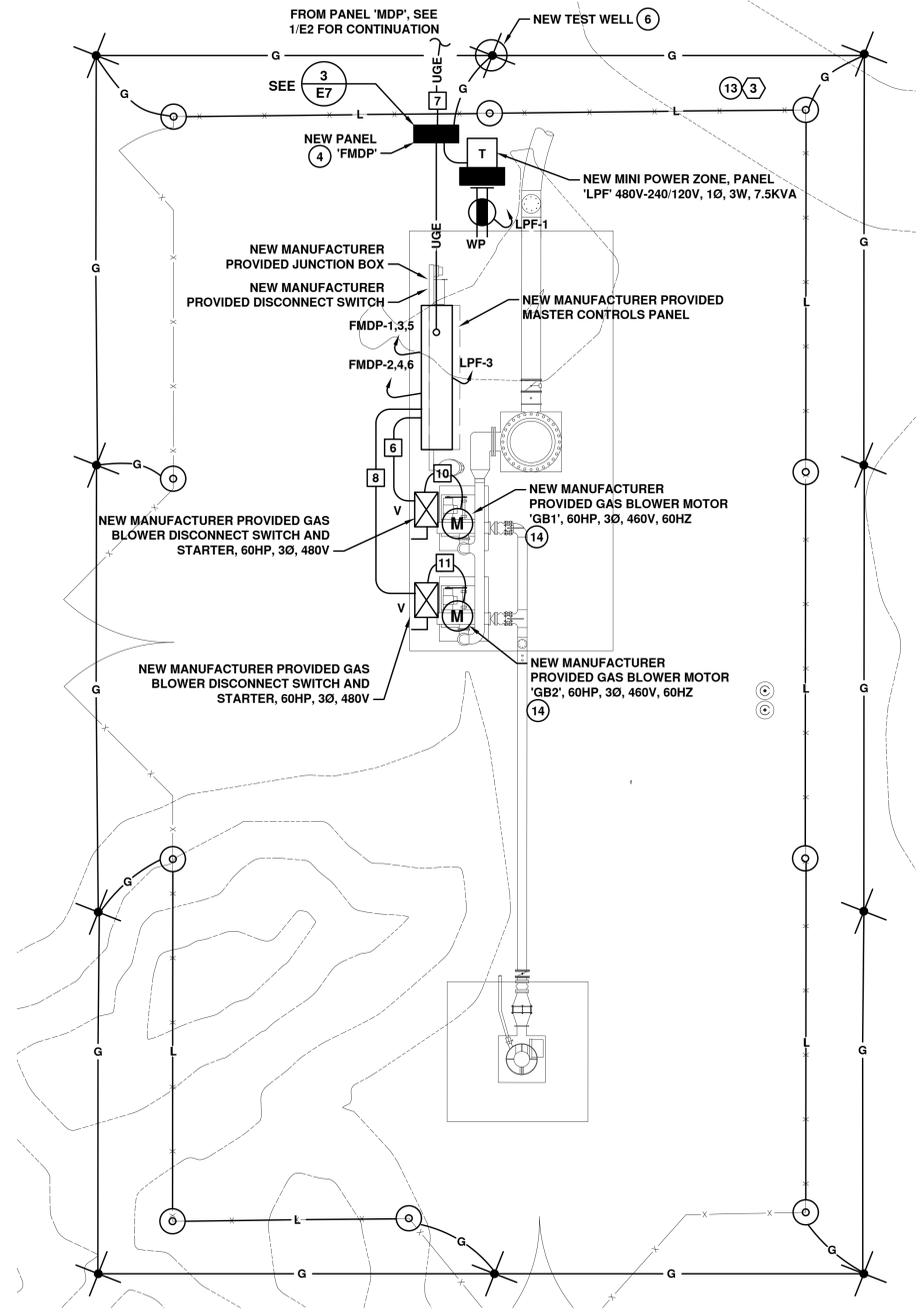
1 ELECTRICAL SERVICE ENLARGEMENT PLAN - PHASE 1 NEW WORK
 E3 SCALE: 1"=5'



3 GENERATOR GROUNDING AND LIGHTNING PROTECTION PLAN - PHASE 1 NEW WORK
 E3 SCALE: NONE

KEY NOTES:

1. PROVIDE AND INSTALL NEW STAND-BY GENERATOR. PROVIDE AND INSTALL GROUNDING COUNTERPOISE AROUND GENERATOR ENCLOSURE. SEE DETAIL 13/E6 AND SPECIFICATION 260526.
2. PROVIDE AND INSTALL NEW SERVICE ENTRANCE ATS.
3. PROVIDE AND INSTALL NEW MINI POWER ZONE 'LP2'. SEE DRAWING E5 FOR PANEL SCHEDULES.
4. PROVIDE AND INSTALL NEW PANEL. SEE DRAWING E5 FOR PANEL SCHEDULES.
5. PROVIDE AND INSTALL NEW POLE AND POLE MOUNTED LIGHT FIXTURE. SEE LIGHTING FIXTURE SCHEDULE ON DRAWING E1 AND DETAIL 2/E7.
6. PROVIDE AND INSTALL NEW GROUND TEST WELL AND CONNECT TO NEW SERVICE ENTRANCE ATS GROUND ROD. FOR CONNECTION DETAILS, SEE DRAWING E6 AND 12/E6 FOR COUNTERPOISE DETAILS.
7. PROVIDE AND INSTALL NEW GROUND BOND AT THE CORNER OF THE GENERATOR ENCLOSURE (TYP).
8. PROVIDE AND INSTALL NEW GROUNDING BOND ON THE CORNER OF THE NEW GENERATOR ENCLOSURE FROM NEW GROUNDING CONDUCTOR. FOR DETAILS, SEE 10/E6.
9. PROVIDE AND INSTALL NEW GROUNDING BOND FROM NEW AIR TERMINAL TO NEW GROUNDING CONDUCTOR. FOR DETAILS, SEE 9/E6 AND 10/E6.
10. NEW 30KVA TRANSFORMER INTEGRAL TO THE GENERATOR ENCLOSURE.
11. PROVIDE AND INSTALL NEW AIR TERMINALS ON TOP OF EACH CORNER OF THE GENERATOR ENCLOSURE. FOR DETAILS, SEE 9/E6.
12. PROVIDE AND INSTALL NEW MODBUS TO CELLULAR GATEWAY (SST AUTOMATION INDUSTRIAL COMMUNICATION MODEL #GT100-4MG-IE AND A WP, GFCI DUPLEX RECEPTACLE IN A CONTRACTOR PROVIDED NEMA 4X LOCKABLE ENCLOSURE) AND ASSOCIATED WP RS485 CABLE IN CONDUIT FROM THE GENERATOR TO THE ENCLOSURE. SEE PANEL SCHEDULE 'LD' FOR POWER CIRCUIT.
13. PROVIDE AND INSTALL NEW MINI POWER ZONE 'LPP'. SEE DRAWING E5 FOR PANEL SCHEDULES.
14. PROVIDE AND INSTALL NEW PACKAGED PUMP, DISCONNECT, AND STARTER.
15. PROVIDE NEW PAD/GROUNDING COUNTERPOISE. SEE SPECIFICATION 260525, AND DETAIL 5/E7.



2 FLARE STATION ENLARGEMENT PLAN - PHASE 1 NEW WORK
 E3 SCALE: 1"=5'

NO.	REVISION	DATE

SHEET TITLE: GENERATOR AND FLARE STATION
 ELECTRICAL PLANS - PHASE 1 NEW WORK
 PROJECT TITLE:
 STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION

CLIENT:
 CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY
 2655 VALLEY DRIVE
 BRISTOL, VA 24201

SCS ENGINEERS
 STEARNIS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
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 PROJ. NO. 202408.14
 DATE: 12/20/2024
 CHK. BY: GRZ
 APP. BY: GRZ

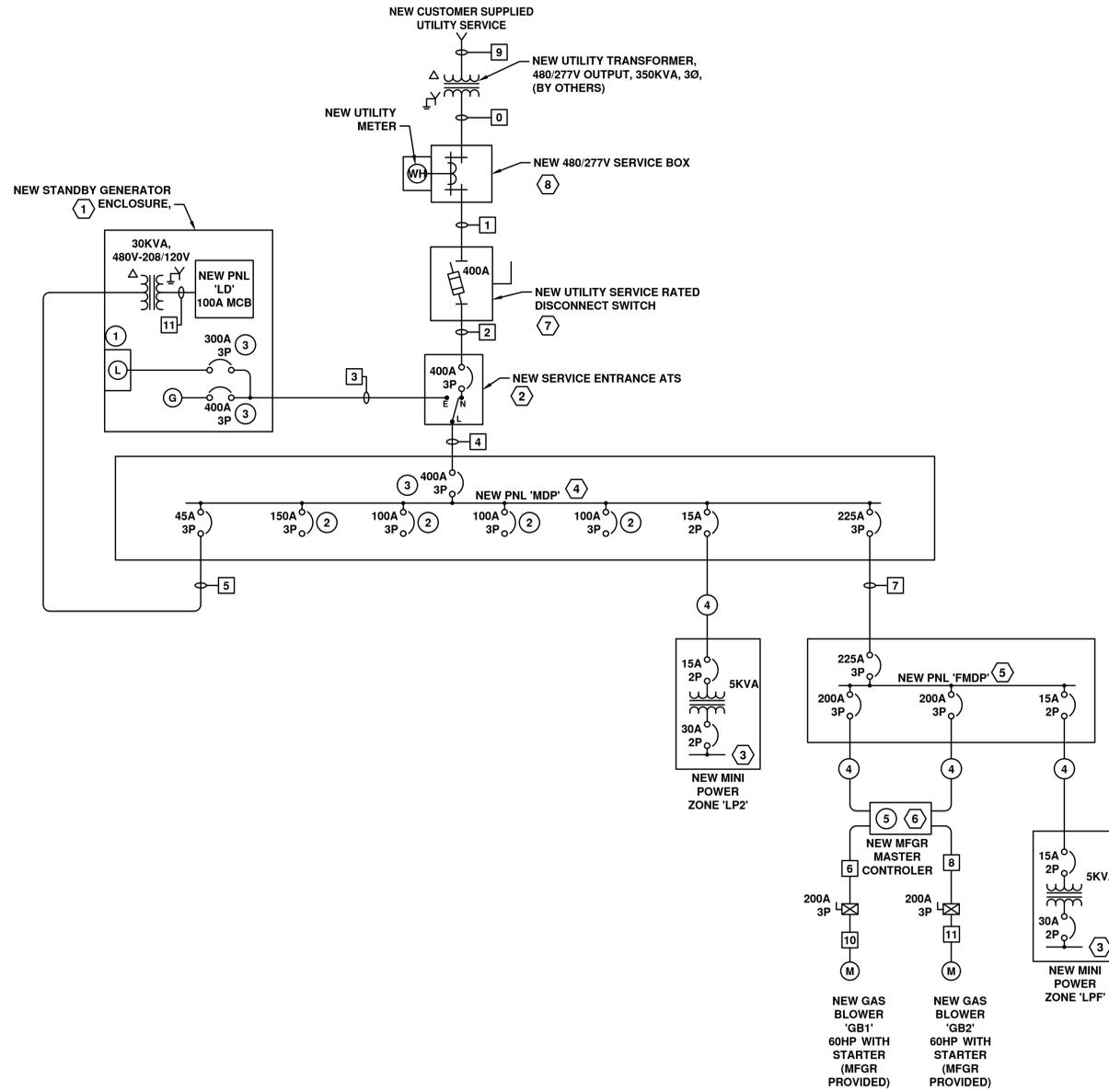
CADD FILE: E3
 DATE: 12/20/2024
 SCALE: AS SHOWN
 DRAWING NO.

E3

Project: 02218208.05 Drawings: E:\04 - Cover System Design - SWP5588 Construction Plans VREF

KEY NOTES:

- ① PROVIDE INTEGRAL LOAD BANK TO THE GENERATOR. SEE SPECIFICATION 263213.13.
- ② PROVISION FOR PHASE 2 WORK. SEE ONE-LINE DIAGRAM DRAWING E11.
- ③ 100% RATED CIRCUIT BREAKER (INTEGRAL TO UNIT), LSI TYPE.
- ④ REFER TO THE PANEL SCHEDULE FOR THE CIRCUIT CONDUCTORS AND CONDUIT SIZES.
- ⑤ CONTROLLER INTEGRAL TO THE FLARE SKID.



① POWER ONE-LINE DIAGRAM - PHASE 1 NEW WORK
SCALE: NONE



NEW FEEDER SCHEDULE						
NUMBER	SETS	PHASE CONDUCTORS	NEUTRAL	GROUND	CONDUIT	REMARKS
0	-	-	-	-	4"	NEW SCHEDULE 40 PVC, FEEDER BY THE UTILITY
1	1	(3)-#500 KCMIL	(1)-#500 KCMIL	#2AWG	4"	NEW RGS C, FEEDER BY OTHERS
2	1	(3)-#500 KCMIL	(1)-#500 KCMIL	#2AWG	4"	NEW RGS C
3	1	(3)-#500 KCMIL	(1)-#500 KCMIL	#2AWG	4"	NEW SCHEDULE 40 PVC
4	1	(3)-#500 KCMIL	(1)-#500 KCMIL	#2AWG	4"	NEW SCHEDULE 40 PVC
5	1	(3)-#500 KCMIL	(1)-#500 KCMIL	#2AWG	4"	NEW SCHEDULE 40 PVC
6	1	(3)-#2 AWG	-	#6AWG	1-1/2"	NEW SCHEDULE 40 PVC
7	1	(3)-#500 KCMIL	(1)-#500 KCMIL	#2AWG	4"	NEW SCHEDULE 80 PVC
8	1	(3)-#2 AWG	-	#6AWG	1-1/2"	NEW SCHEDULE 40 PVC
9	-	-	-	-	3"	NEW SCHEDULE 40 PVC, FEEDER BY THE UTILITY
10	1	(3)-#2 AWG	-	#6AWG	1-1/2"	NEW LFMC C
11	1	(3)-#2 AWG	-	#6AWG	1-1/2"	NEW LFMC C

NEW EQUIPMENT SCHEDULE	
NUMBER	REMARKS
①	NEW STANDBY PACKAGED GENERATOR, 480/277V, 3Ø, 4W, 60HZ, 300/375 (KW/KVA), 0.8PF, INTEGRAL FUEL SUB-BASE, 24HR RUNTIME, LEVEL 2 SOUND ATTENUATED ENCLOSURE (STEEL) 74dBA @ 23', INTEGRAL LOAD BANK 225KW AND 100A LOAD CENTER AND GSCP PANEL, GFI RECEPTACLE, E-STOP, SPACE HEATER, BATTERY CHARGER, JACKET HEATER, STANDBY BATTERY 1000CCA, 90Ah AND GENERATOR TEST REPORT, SEE SPECIFICATION 263213.13.
②	NEW SERVICE ENTRANCE RATED ATS, 480/277V, 3Ø, 4W, 60HZ, 400A, ASCO SERIES 7000, NEMA 4X, WITH 100% RATED CIRCUIT BREAKERS, SEE SPECIFICATION 263600.
③	NEW MINI POWER ZONE, 480V-240/120V, 1Ø, 3W, 5.0KVA, 18KAIC, NEMA 3R STAINLESS STEEL, SQUARE D MPZB7S40FSS, SEE SPECIFICATION 262213.
④	NEW PANEL 'MDP', 480/277V, 400A, 3Ø, 4W, 30KAIC, NEMA 4X, SQUARE D I-LINE. SEE SPECIFICATION 262416.
⑤	NEW PANEL 'FMDP', 480/277V, 300A, 3Ø, 4W, 22KAIC, NEMA 4X, SQUARE D I-LINE. SEE SPECIFICATION 262416.
⑥	NEW GAS BLOWER MASTER CONTROL PANEL, MANUFACTURER PROVIDED.
⑦	NEW UTILITY SERVICE RATED DISCONNECT SWITCH, 400A, 600V, HD, 400A CLASS L FUSED, SQ-D MODEL CH365DS, NEMA 4X.
⑧	NEW UTILITY SERVICE BOX, 400A, 480V, WITH CT'S AND METER SOCKET.

NO.	REVISION	DATE

SHEET TITLE ONE-LINE DIAGRAM, FEEDER AND EQUIPMENT SCHEDULES - PHASE 1 NEW WORK
PROJECT TITLE
STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION

CLIENT
CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY
2655 VALLEY DRIVE
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SCS ENGINEERS
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PROJ. NO. 202208.14
DATE: 12/20/2024
SCALE: AS SHOWN
DRAWING NO. E4



NEW PANEL 'FMPD'												300A BUS 480/277V, 3Ø, 4W WITH 225A MCB												RECESSED MOUNTED	
												WITH 100% NEUTRAL BUS, & GROUND BUS												AIC RATING = 22,000	
CKT. #	ITEMS SERVED	CONDUIT (INCH)	WIRE	CKT. BRK.			CONNECTED LOADS			CKT. BRK.			WIRE	CONDUIT (INCH)	ITEMS SERVED	CKT. #									
				TRIP	P		A KVA	B KVA	C KVA	P	TRIP														
1																2									
3	GAS BLOWER 'GB1'	1-1/2	3-#2AWG+#6G	200	3		21.3	21.3				3	200	3-#2AWG+#6G	1-1/2	GAS BLOWER 'GB2'	4								
5																6									
7	MASTER CONTROLS	3/4	2-#12AWG+#12G	20	1	0.5	0.2					2	15	3-#12AWG+#12G	3/4"	NEW MINI POWER ZONE 'LPF'	8								
9	SPARE	-	-	20	1		0.0	0.2				1	20	-	-	SPARE	10								
11	SPARE	-	-	20	1		0.0	0.0		0.0	0.0	1	20	-	-	SPARE	12								
13	SPARE	-	-	20	1	0.0	0.0					1	20	-	-	SPARE	14								
15	SPARE	-	-	20	1		0.0	0.0				1	20	-	-	SPARE	16								
17	SPARE	-	-	20	1		0.0	0.0		0.0	0.0	1	20	-	-	SPARE	18								
19	SPARE	-	-	20	1	0.0	0.0					1	20	-	-	SPARE	20								
21	SPACE	-	-	-	1		0.0	0.0				1	-	-	-	SPACE	22								
23	SPACE	-	-	-	1		0.0	0.0		0.0	0.0	1	-	-	-	SPACE	24								
25	SPACE	-	-	-	1	0.0	0.0					1	-	-	-	SPACE	26								
27	SPACE	-	-	-	1		0.0	0.0				1	-	-	-	SPACE	28								
29	SPACE	-	-	-	1		0.0	0.0		0.0	0.0	1	-	-	-	SPACE	30								
				TOTAL			43.3	42.8	42.6																
DEMAND FACTOR: 100%												CONNECTED LOAD = 128.7 KVA													
ENCLOSURE TYPE: NEMA 4X												CONNECTED CURRENT = 155 A													
												DEMAND LOAD = 128.7 KVA													
												DEMAND CURRENT = 155 A													
												DEMAND+20% CURRENT = 186 A													

NEW PANEL 'MDP'												400A BUS 480/277V, 3Ø, 4W WITH 400A MCB												RECESSED MOUNTED	
												WITH 100% NEUTRAL BUS, & GROUND BUS												AIC RATING = 30,000	
CKT. #	ITEMS SERVED	CONDUIT (INCH)	WIRE	CKT. BRK.			CONNECTED LOADS			CKT. BRK.			WIRE	CONDUIT (INCH)	ITEMS SERVED	CKT. #									
				TRIP	P		A KVA	B KVA	C KVA	P	TRIP														
1	PROVISION FOR PHASE 2 WORK, SEE PANEL SCHEDULE DRAWING E12	-	-	100	3		0.0	0.0				3	100	-	-	PROVISION FOR PHASE 2 WORK, SEE PANEL SCHEDULE DRAWING E12	2								
3																	4								
5																	6								
7	TOPSIDE LIGHTING	1"	2-#8AWG+#12G	20	2	0.2	0.4					2	15	3-#12AWG+#12G	3/4"	NEW MINI POWER ZONE 'LP2'	8								
9																	10								
11	PROVISION FOR PHASE 2 WORK, SEE PANEL SCHEDULE DRAWING E12	-	-	150	3		0.0	0.0				3	100	-	-	PROVISION FOR PHASE 2 WORK, SEE PANEL SCHEDULE DRAWING E12	12								
13																	14								
15																	16								
17																	18								
19	NEW PANEL 'LD'	SEE FEEDER SCHEDULE ON SHEET E4		45	3		6.3	0.2				6.0	0.2	2	20	2-#8AWG+#12G *	1"	BASIN LIGHTING	20						
21																	22								
23	SPARE	-	-	20	1		0.0	0.0		0.0	0.0	3	225	SEE FEEDER SCHEDULE ON SHEET E4		NEW PANEL 'FMDP'	24								
25	SPARE	-	-	20	1	0.0	43.3					1	20	-	-	SPARE	26								
27	SPARE	-	-	20	1		0.0	0.0				1	20	-	-	SPARE	28								
29	SPARE	-	-	20	1		0.0	0.0		0.0	0.0	1	20	-	-	SPARE	30								
31	SPARE	-	-	20	1		0.0	0.0				1	20	-	-	SPARE	32								
33	SPARE	-	-	20	1		0.0	0.0				1	20	-	-	SPARE	34								
35	SPARE	-	-	20	1		0.0	0.0				1	20	-	-	SPARE	36								
				TOTAL			50.4	49.6	48.8																
DEMAND FACTOR: 80%												CONNECTED LOAD = 148.8 KVA													
ENCLOSURE TYPE: NEMA 4X												CONNECTED CURRENT = 179 A													
												DEMAND LOAD = 119.0 KVA													
												DEMAND CURRENT = 143 A													
												DEMAND+20% CURRENT = 172 A													

NEW PANEL 'LP2'												40A BUS 240/120V, 1Ø, 3W WITH 30A MCB												RECESSED MOUNTED	
												WITH 100% NEUTRAL BUS, & GROUND BUS												AIC RATING = 10,000	
CKT. #	ITEMS SERVED	CONDUIT (INCH)	WIRE	CKT. BRK.			CONNECTED LOADS			CKT. BRK.			WIRE	CONDUIT (INCH)	ITEMS SERVED	CKT. #									
				TRIP	P		A KVA	B KVA	C KVA	P	TRIP														
1	GFCI WP RECEPTACLE	3/4	2-#12AWG+#12G	20	1	0.2	0.0					2	20	-	-	SPARE	2								
3	CONTROLS	3/4	2-#12AWG+#12G	20	1		0.2	0.0				1	20	-	-	SPARE	4								
5	BASIN RECEPTACLE	3/4	2-#10AWG+#12G	20	1	0.2	0.0					1	20	-	-	SPARE	6								
7	SPARE	-	-	20	1		0.0	0.0		0.0	0.0	1	20	-	-	SPARE	8								
9	SPARE	-	-	20	1	0.0	0.0					1	20	-	-	SPARE	10								
11	SPARE	-	-	20	1		0.0	0.0		0.0	0.0	1	20	-	-	SPARE	12								
13	SPACE	-	-	-	1	0.0	0.0					1	-	-	-	SPACE	14								
15	SPACE	-	-	-	1		0.0	0.0				1	-	-	-	SPACE	16								
				TOTAL			0.4	0.2																	
DEMAND FACTOR: 50%												CONNECTED LOAD = 0.6 KVA													
ENCLOSURE TYPE: NEMA 3R STAINLESS STEEL												CONNECTED CURRENT = 3 A													
												DEMAND LOAD = 0.3 KVA													
												DEMAND CURRENT = 1 A													
												DEMAND+20% CURRENT = 2 A													

NEW PANEL 'LD'												100A BUS 208/120V, 3Ø, 4W WITH 100A MCB												RECESSED MOUNTED	
												WITH 100% NEUTRAL BUS, & GROUND BUS												AIC RATING = 18,000	
CKT. #	ITEMS SERVED	CONDUIT (INCH)	WIRE	CKT. BRK.			CONNECTED LOADS			CKT. BRK.			WIRE	CONDUIT (INCH)	ITEMS SERVED	CKT. #									
				TRIP	P		A KVA	B KVA	C KVA	P	TRIP														
1	GFCI WP RECEPTACLE	3/4	2-#12AWG+#12G	20	1	0.2	2.0					3	25	3#10AWG+#10G	3/4	JACKET HEATER	2								
3																	4								
5	BATTERY CHARGER	3/4	3#8AWG+#10G	50	3		4.0	0.1		4.0	2.0		1	20	2-#12AWG+#12G	3/4	GENERATOR LIGHTING	6							
7																	8								
9	CONTROLS	3/4	2-#12AWG+#12G	20	1		0.2	0.2				1	20	2-#12AWG+#12G	3/4	ATS HEATER	10								
11	MODBUS GATEWAY	3/4	2-#12AWG+#12G	20	1		0.0	0.0		0.0	0.0	1	20	-	-	SPARE	12								
13	SPARE	-	-	20	1	0.0	0.0					1	20	-	-	SPARE	14								
15	SPARE	-	-	20	1		0.0	0.0				1	20	-	-	SPARE	16								
17	SPACE	-	-	-	1		0.0	0.0		0.0	0.0	1	-	-	-	SPACE	18								
				TOTAL			6.3	6.4	6.0																
DEMAND FACTOR: 50%												CONNECTED LOAD = 18.7 KVA													
ENCLOSURE TYPE: NEMA 4X												CONNECTED CURRENT = 52 A													
												DEMAND LOAD = 9.4 KVA													
												DEMAND CURRENT = 26 A													
												DEMAND+20% CURRENT = 31 A													

NEW PANEL 'LPF'												40A BUS 240/120V, 1Ø, 3W WITH 30A MCB												RECESSED MOUNTED	
												WITH 100% NEUTRAL BUS, & GROUND BUS												AIC RATING = 10,000	
CKT. #	ITEMS SERVED	CONDUIT (INCH)	WIRE	CKT. BRK.			CONNECTED LOADS			CKT. BRK.			WIRE	CONDUIT (INCH)	ITEMS SERVED	CKT. #									
				TRIP	P		A KVA	B KVA	C KVA	P	TRIP														
1	GFCI WP RECEPTACLE	3/4	2-#12AWG+#12G	20	1	0.2	0.0					2	20	-	-	SPARE	2								
3	MASTER CONTROLS	3/4	2-#12AWG+#12G	20	1		0.2	0.0				1	20	-	-	SPARE	4								
5	SPARE	-	-	20	1	0.0	0.0					1	20	-	-	SPARE	6								
7	SPARE	-	-	20	1		0.0	0.0		0.0	0.0	1	20	-	-	SPARE	8								
9	SPARE	-	-	20	1	0.0	0.0					1	20	-	-	SPARE	10								
11	SPARE	-	-	20	1		0.0	0.0		0.0	0.0	1	20	-	-	SPARE	12								
13	SPACE	-	-	-	1	0.0	0.0					1	-	-	-	SPACE	14								
15	SPACE	-	-	-	1		0.0	0.0				1	-	-	-	SPACE	16								
				TOTAL			0.2	0.2																	
DEMAND FACTOR: 50%												CONNECTED LOAD = 0.4 KVA													
ENCLOSURE TYPE: NEMA 3R STAINLESS STEEL												CONNECTED CURRENT = 2 A													
												DEMAND LOAD = 0.2 KVA													
												DEMAND CURRENT = 1 A													
												DEMAND+20% CURRENT = 1 A													

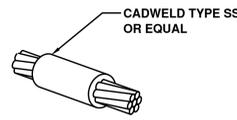
NO.	REVISION	DATE

SHEET TITLE: PANEL SCHEDULES PHASE 1
 PROJECT TITLE: STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION

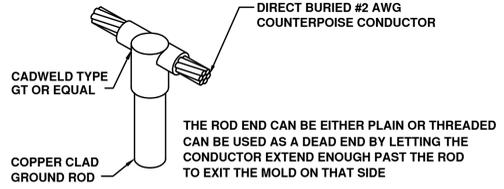
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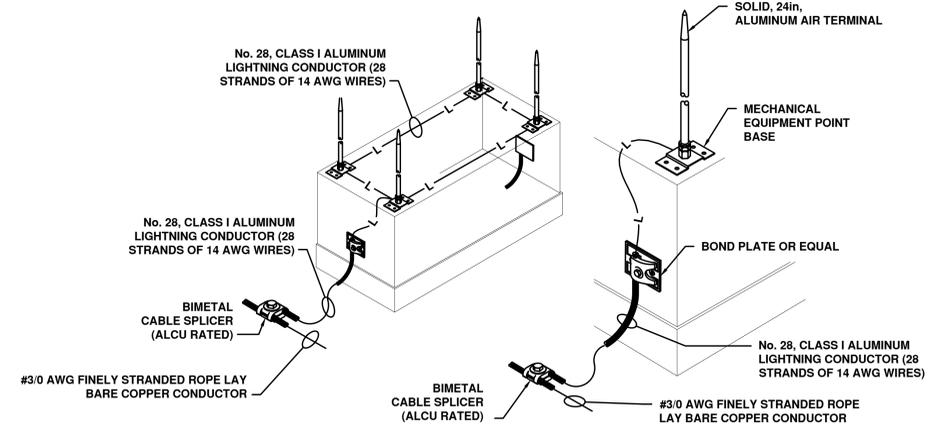
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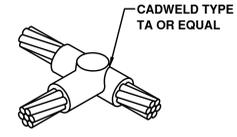
1 GROUNDING CONDUCTOR SPLICE DETAIL (TYP)
E6 NO SCALE



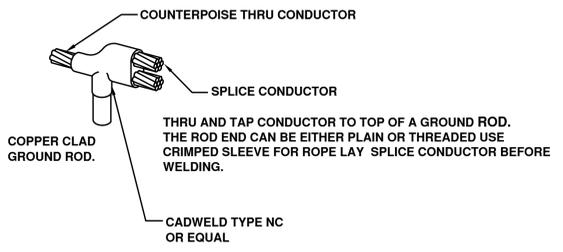
2 TWO CONDUCTOR TO ROD DETAIL (TYP)
E6 NO SCALE



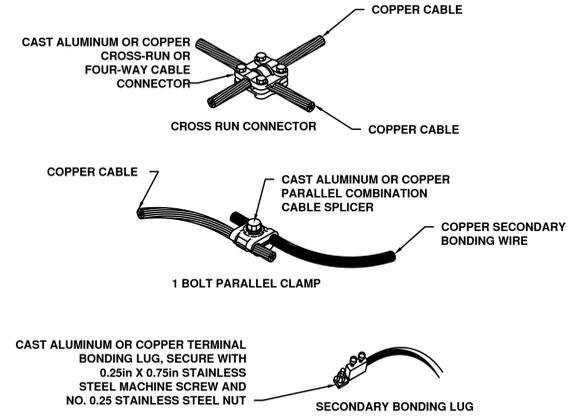
10 LIGHTNING PROTECTION CONNECTION DETAIL
E6 NO SCALE



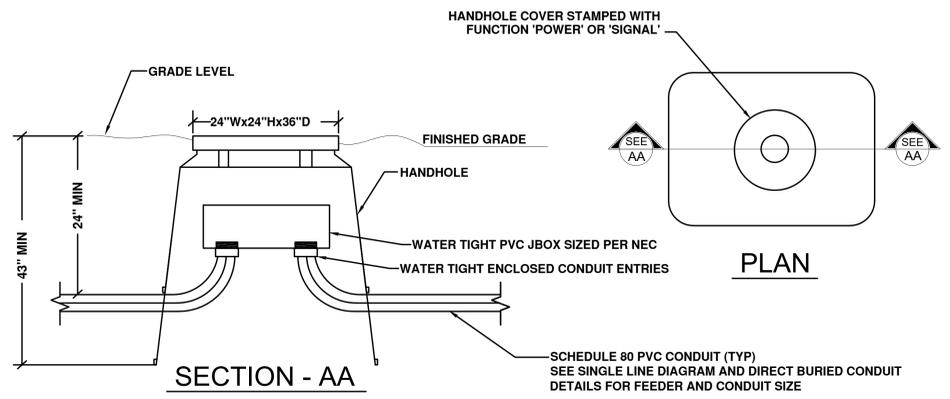
3 GROUND CONDUCTOR TAP DETAIL (TYP)
E6 NO SCALE



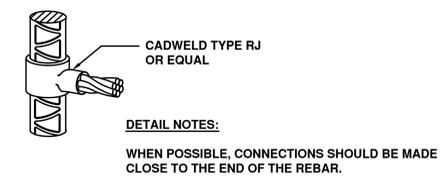
4 THREE CONDUCTOR TO ROD DETAIL (TYP)
E6 NO SCALE



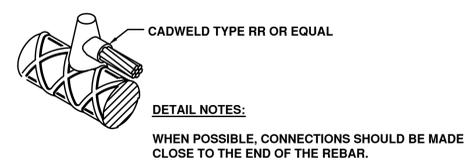
11 TYPICAL CABLE SPLICES DETAIL
E6 NO SCALE



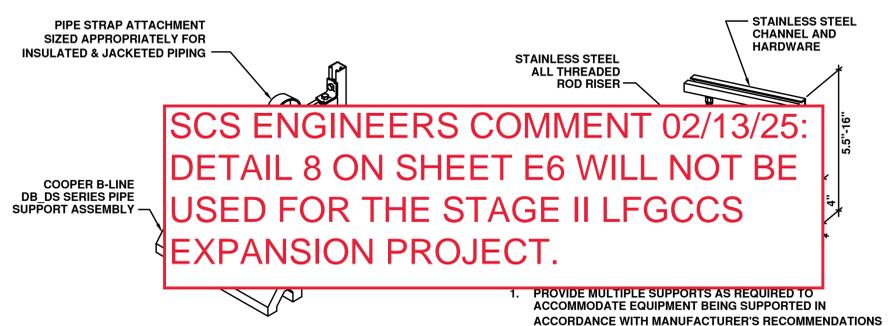
6 TYPICAL POWER HANDHOLE DETAIL
E6 NO SCALE



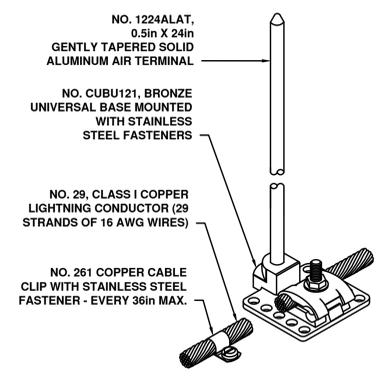
5 VERTICAL REBAR BOND CONNECTION
E6 NO SCALE



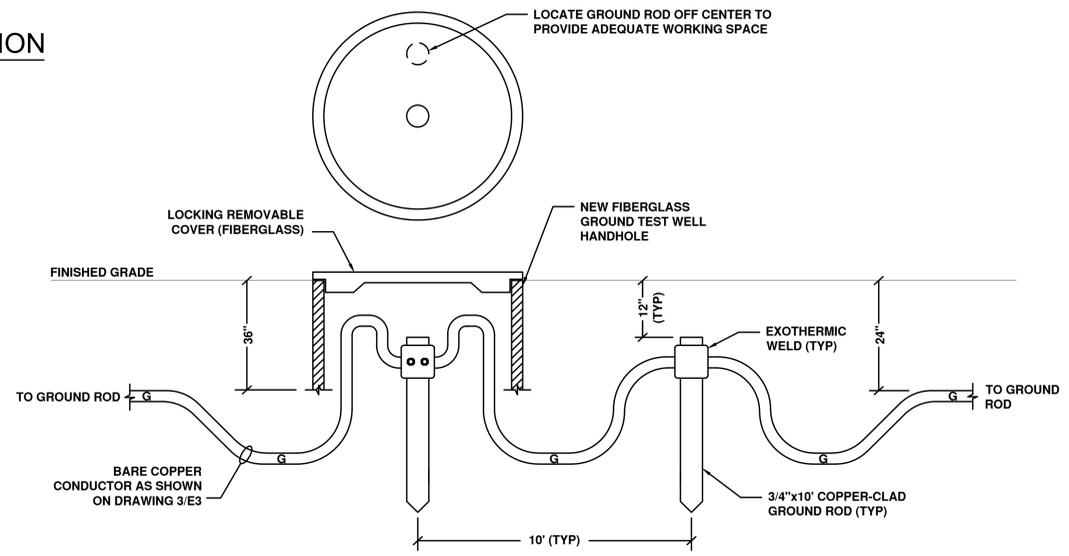
7 HORIZONTAL REBAR BOND CONNECTION
E6 NO SCALE



8 HORIZONTAL CONDUIT SUPPORT DETAIL
E6 NO SCALE



9 AIR TERMINAL DETAIL
E6 NO SCALE



12 COUNTERPOISE GROUND ROD SPACING DETAIL
E6 SCALE: NONE

**SCS ENGINEERS COMMENT 02/13/25:
DETAIL 8 ON SHEET E6 WILL NOT BE
USED FOR THE STAGE II LFGCCS
EXPANSION PROJECT.**

1. PROVIDE MULTIPLE SUPPORTS AS REQUIRED TO ACCOMMODATE EQUIPMENT BEING SUPPORTED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

NOTE: UTILIZE ALUMINUM TO BOND ALUMINUM EQUIPMENT ONLY OTHERWISE USE COPPER.

NO.	DATE	REVISION

SHEET TITLE	PROJECT TITLE
DETAILS PHASE 1	STAGE II LANDFILL GAS COLLECTION AND CONTROL SYSTEM EXPANSION

CLIENT
CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY
2655 VALLEY DRIVE
BRISTOL, VA 24201

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DWG. BY: TCOL, GRZ
CHK. BY: TCOL, GRZ
APP. BY: TCOL, GRZ

CADD FILE: E6
DATE: 12/20/2024
SCALE: AS SHOWN
DRAWING NO.

E6

Project: 022182025.05 Drawings: E6.CH Cover: System Design - SWP5588 Construction Plans VREF

