WWYK250096

REPAIR STORMWATER SPILL GATE 11 STRUCTURE

PROJECT DRAWING INDEX

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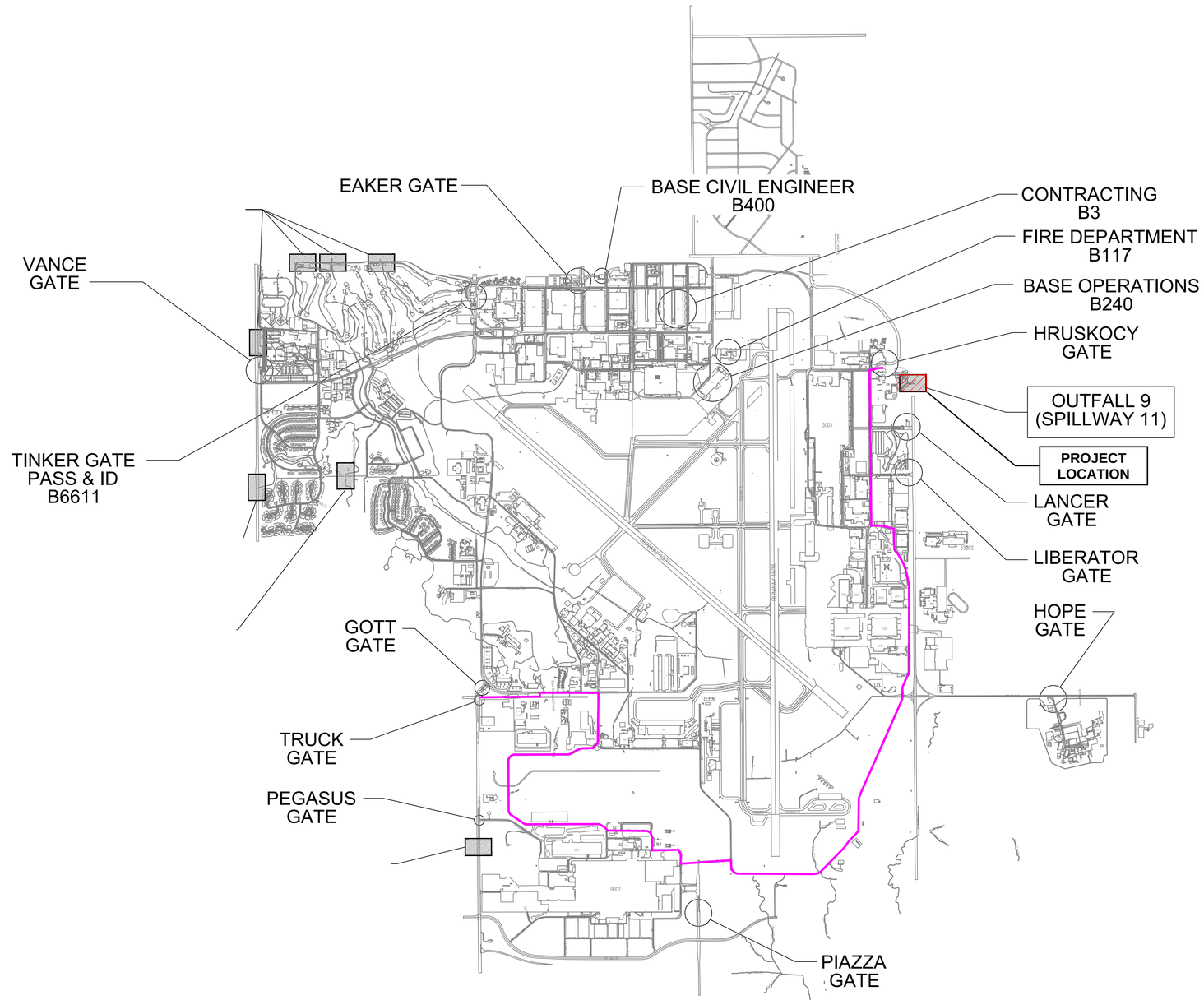
SIGNATURES

CORROSION ENGINEER: (CECE)	DATE:	ASBESTOS EVALUATION:	DATE:
CE OPERATIONS: (CECO)	DATE:	COMMUNICATIONS: (COMM)	DATE:
ZONE MANAGER:	DATE:	USING AGENCY:	DATE:
CONSTRUCTION MANAGEMENT: (CECE)	DATE:	REVIEWED BY:	DATE:
FIRE DEPARTMENT: (CEFT)	DATE:	DESIGN MANAGER: (CECE)	DATE:
SAFETY:	DATE:	CHIEF DESIGN BRANCH: (CECE)	DATE:
INDUSTRIAL HYGIENE:	DATE:	CHIEF ENGINEER DIR: (CECE)	DATE:
ENVIRONMENTAL:	DATE:	BASE CIVIL ENGINEER: (CE)	DATE:



TINKER AFB, OK VICINITY MAP

AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE
TINKER AFB, OK

35%

PROJECT INFORMATION
WWYK 250096
REPAIR STORMWATER SPILL GATE 11 STRUCTURE
TINKER AIR FORCE BASE, OKLAHOMA

REVISIONS

MARK	DATE	DESCRIPTION

MANAGEMENT INFORMATION
ISSUE DATE: 30 MARCH 2026
DESIGN GROUP: TEPA
DESIGNED BY: RP
DRAWN BY: RP
CHECKED BY: ES
DESIGN FILE LOCATION:

SHEET TITLE
GENERAL SHEET INDEX AND VICINITY MAP

SHEET NUMBER
G-001
SHEET OF

GENERAL NOTES

1. REMOVE AND REPLACE ALL EXISTING PAVEMENTS, CURBS, DRIVEWAYS, SIDEWALKS, GRAVEL ROADWAYS, PIPE CULVERTS, CULVERT HEADWALLS, FENCES, SIGNS, AND MISCELLANEOUS ITEMS WHERE REQUIRED TO COMPLETE THE CONSTRUCTION.
2. REPAIR TO ORIGINAL CONDITION ANY DAMAGE INCURRED DURING CONSTRUCTION AT NO EXPENSE TO OWNER.
3. PRIOR TO BEGINNING ANY CONSTRUCTION, FIELD VERIFY AND PROTECT THE LOCATIONS AND ELEVATIONS OF ALL EXISTING FACILITIES (UTILITIES, PIPING, EQUIPMENT, STRUCTURES, FENCING, BARRIERS, PAVEMENT, SIDEWALKS, SIGNAGE, ETC.) WHICH PERTAIN TO AND/OR AFFECT CONSTRUCTION OF THIS PROJECT.
4. VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. ALL UTILITIES MAY NOT BE SHOWN. CONTACT UTILITY SERVICE PROVIDERS AT LEAST 48 HOURS PRIOR TO TRENCHING OR EXCAVATION, AND REQUEST FIELD LOCATION OF UTILITIES. ONE-CALL LOCATOR SERVICES MAY NOT COVER ALL UTILITIES IN THIS AREA.
5. ANY EXISTING FACILITIES THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED TO A CONDITION EQUAL TO OR BETTER THAN ORIGINAL CONDITIONS AT NO ADDITIONAL COSTS.
6. RESTORE ALL DRIVEWAYS, CULVERTS, HEADWALLS, LANDSCAPING, AND OTHER IMPROVEMENTS (REGARDLESS OF WHETHER THEY WERE CONSTRUCTED OR INSTALLED BY PUBLIC AGENCIES, UTILITIES, OR INDIVIDUALS) THAT ARE DISTURBED BY CONSTRUCTION TO A CONDITION EQUAL TO OR BETTER THAN ORIGINAL CONDITIONS.
7. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE REVEGETATED AND RESTORED TO ORIGINAL CONDITIONS IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
8. ALL WATER LINE AND SEWER FORCE MAIN PIPE INSTALLED SHALL HAVE RESTRAINED JOINTS. PROVIDE CONCRETE THRUST BLOCKS ONLY WHERE APPROVED.
9. IMMEDIATELY NOTIFY THE ENGINEER OF ANY UNREPORTED OBSTACLES THAT MAY IMPEDE OR PREVENT THE CONSTRUCTION OF THE WORK.
10. ANY PORTION OF THE PROJECT IMPROPERLY PLACED AND/OR CONFLICTING WITH ANY EXISTING STRUCTURE SHALL BE REMOVED, CORRECTLY PLACED AND NO SEPARATE PAY SHALL BE APPROVED FOR ASSOCIATED COSTS.
11. CONSTRUCTION OPERATIONS SHALL BE CONDUCTED IN SUCH A MANNER AS TO PROTECT EXISTING FACILITIES AT ALL TIMES.
12. RECORD AND SUPPLY TO ENGINEER THE FOLLOWING INFORMATION:
    - A. LOCATION AND ELEVATION OF ALL SUPPLEMENTARY CONNECTIONS.
    - B. "AS-BUILT" INVERTS AND PROFILE OF CONSTRUCTED PIPELINE.
    - C. THE NEW LOCATION AND DEPTH OF ALL RELOCATED AND/OR ADJUSTED UTILITIES.
    - D. LOCATION AND ELEVATION OF ALL UTILITIES ENCOUNTERED.
13. ALL HOLES, TRENCHES, AND OTHER HAZARDOUS AREAS SHALL BE ADEQUATELY PROTECTED BY PROTECTIVE DEVICES.
14. ALL TRENCHES SHALL BE BACKFILLED WITHIN SEVEN (7) DAYS OF INITIAL EXCAVATION UNLESS APPROVED IN WRITING BY ENGINEER.
15. ALL EROSION AND SEDIMENTATION CONTROLS SHALL BE IMPLEMENTED BEFORE CONSTRUCTION COMMENCES AND SHALL BE MAINTAINED UNTIL SITE IS STABILIZED AFTER COMPLETION OF WORK IN EACH WORK AREA.
16. ANY DEWATERING SHALL BE INCLUDED IN THE CONTRACT PRICE.
17. ALL SPOIL AND EXCESS MATERIAL NOT USED IN CONSTRUCTION SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF, AS COORDINATED WITH THE CONTRACTING OFFICER.
18. CONFORM TO THE APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS REGARDING TRENCH SAFETY. PREPARE A TRENCH SAFETY PLAN FOR ALL EXCAVATIONS EXCEEDING 4-FEET IN DEPTH AND 4-FEET IN WIDTH, TO BE INCLUDED IN HEALTH AND SAFETY PLAN.
19. CONFINE WORK AREAS TO WITHIN THE PROJECT BOUNDARY. PRIOR TO FINAL ACCEPTANCE, REMOVE ALL TRASH AND DEBRIS WITHIN THE PERMANENT EASEMENTS AND TEMPORARY EASEMENTS.
20. FIELD CHANGES TO THE HORIZONTAL AND VERTICAL DESIGN MAY BE ALLOWED SUBJECT TO THE APPROVAL OF THE ENGINEER. FIELD CHANGES SHALL COMPLY WITH THE DESIGN INTENT AS NOTED ON THE DRAWINGS AND SPECIFICATIONS.
21. ALL CONSTRUCTION SHALL FOLLOW OKLAHOMA DEPARTMENT OF TRANSPORTATION (ODOT) SPECIFICATIONS, STANDARDS, AND MATERIAL ITEM NUMBERS AS CLOSELY AS POSSIBLE.

ENVIRONMENTAL QUALITY NOTES:

1. PRIOR TO COMMENCING CONSTRUCTION, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES SHALL BE PROPERLY SELECTED AND INSTALLED. ALL TEMPORARY E&S CONTROL MEASURES SHALL BE MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND GOOD ENGINEERING PRACTICES. THE CONTROLS SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS ARE REVEGETATED AND THE AREAS HAVE BECOME PERMANENTLY STABILIZED.
2. IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT MUST BE REMOVED AT A FREQUENCY SUFFICIENT TO MINIMIZE OFFSITE IMPACTS TO WATER QUALITY (E.G., FUGITIVE SEDIMENT IN STREET BEING WASHED INTO SURFACE STREAMS OR SENSITIVE FEATURES BY THE NEXT RAIN).
3. SEDIMENT MUST BE REMOVED FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS NOT LATER THAN WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%. A PERMANENT STAKE MUST BE PROVIDED THAT CAN INDICATE WHEN THE SEDIMENT OCCUPIES 50% OF THE BASIN VOLUME.
4. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORMWATER DISCHARGES (E.G., SCREENING OUTFALLS, PICKED UP DAILY).
5. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE AND STORED ON-SITE MUST HAVE PROPER E&S CONTROLS INSTALLED.
6. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, AND CONSTRUCTION ACTIVITIES WILL NOT RESUME WITHIN 21 DAYS. WHEN THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY IS PRECLUDED BY WEATHER CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.
7. THESE GENERAL CONSTRUCTION NOTES SHALL BE PROVIDED TO ALL SUBCONTRACTORS.

EROSION AND SEDIMENTATION CONTROL NOTES:

1. EROSION CONTROL MEASURES, SITE WORK AND RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE CONTRACT.
2. SILT FENCE, ROCK BERMS, SEDIMENTATION BASINS AND SIMILARLY RECOGNIZED TECHNIQUES AND MATERIALS SHALL BE EMPLOYED DURING CONSTRUCTION TO PREVENT POINT SOURCE SEDIMENTATION LOADING OF DOWNSTREAM FACILITIES. SUCH INSTALLATION SHALL BE REGULARLY INSPECTED FOR EFFECTIVENESS. ADDITIONAL MEASURES MAY BE REQUIRED IF, IN THE OPINION OF THE ENGINEER, THEY ARE WARRANTED.
3. MAINTAIN ALL TEMPORARY EROSION CONTROL STRUCTURES.
4. ADHERE TO THE STORM WATER POLLUTION PREVENTION PLAN.

TRENCH SAFETY NOTES:

1. ALL WORK PERTAINING TO OPEN TRENCHING SHALL COMPLY WITH THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS.
2. THE CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEM, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH OSHA STANDARDS FOR TRENCH EXCAVATION. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE OF ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

TRAFFIC CONTROL NOTES:

1. PROVIDE AND MAINTAIN ANY REQUIRED TRAFFIC CONTROL DEVICES DURING CONSTRUCTION IN ACCORDANCE WITH THE STATE'S DEPARTMENT OF TRANSPORTATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
2. ALL TRAFFIC CONTROL DEVICES, LAYOUTS, AND MAINTENANCE SHOULD BE INCIDENTAL TO THE COST ASSOCIATED WITHIN THE VICINITY OF HIGHWAYS, ROADS, AND STREETS INDICATED ON THE CONTRACT DRAWINGS.
3. MARK ALL CONSTRUCTION EQUIPMENT AND VEHICLES WITH COMPANY PAINT DESIGNS, INSIGNIAS OR OTHER COMPANY MARKINGS WHICH ARE CLEARLY VISIBLE.
4. CONSTRUCTION EQUIPMENT SHALL HAVE AUTOMATIC SIGNALING DEVICES TO SOUND AN ALARM WHEN MOVING IN REVERSE.
5. ONLY RUBBER TIRED VEHICLES WILL BE ALLOWED ON EXISTING PAVEMENT WHICH IS TO REMAIN.

COORDINATION AND COMMUNICATION DURING CONSTRUCTION

1. IF AFTER HOURS OR WEEKEND WORK IS REQUIRED, THE CONTRACTING OFFICER SHALL BE NOTIFIED 14 CALENDAR DAYS PRIOR TO DAY OF NEED. AFTER HOURS OR WEEKEND WORK ARE SUBJECT TO GOVERNMENT APPROVAL AND AVAILABILITY OF ESCORTS.
2. ALL PERSONNEL ARE RESPONSIBLE FOR OBTAINING PROPER PASS PRIOR TO ENTERING SITE. COORDINATE WITH CONTRACTING OFFICER ON SUBMITTING ACCESS REQUESTS A MINIMUM OF 14 CALENDAR DAYS PRIOR (ACCESS REQUIREMENTS ARE SUBJECT TO SUDDEN CHANGES TO MEET SECURITY REQUIREMENTS).
3. KEEP ALL ROADS CLEAN OF CONSTRUCTION DEBRIS, MUD, ETC. AT ALL TIMES. PROVIDE EQUIPMENT AND PERSONNEL TO CLEAN ROADS AS REQUESTED BY CONTRACTING OFFICER.
4. VIDEO DOCUMENT CONDITION OF STREETS, PARKING AREAS, ETC. PRIOR TO CONSTRUCTION AND REPAIR DUE TO DAMAGE CAUSED BY CONSTRUCTION AND/OR DEMOLITION ACTIVITIES AT NO ADDITIONAL COST TO THE GOVERNMENT AS REQUESTED BY CONTRACTING OFFICER.

CIVIL LEGEND

AC AIR CONDITIONER UNIT	FENCE
FIRE HYDRANT	CHAINLINK FENCE
FLAG POLE	TREE LINE
GAS METER	STOCKADE FENCE
GAS VALVE	SECURITY FENCE
GAS VENT	ELECTRIC FENCE
TRA GROUND TRANSFORMER	HOG WIRE FENCE
GUARD POST	ELECTRIC UNDERGROUND LINE
LIGHT POLE	OVERHEAD ELECTRIC LINE
STORM DRAIN MANHOLE	GAS LINE
ELECTRIC MANHOLE	GAS LINE (ATLAS)
SANITARY SEWER MANHOLE	SANITARY SEWER LINE
TELEPHONE MANHOLE	SANITARY SEWER LINE (ATLAS)
PAY PHONE	STORM DRAIN LINE
TRANSFORMER POLE	OVERHEAD TELEPHONE LINE
POWER POLE	UNDERGROUND TELEPHONE LINE
GUY POLE	UNDERGROUND FIBER OPTIC LINE
DOWN GUY	UNDERGROUND CABLE TV LINE
MONUMENT FOUND	WATER LINE
MONUMENT SET	WATER LINE (ATLAS)
SANITARY SEWER CLEANOUT	WATER LINE (IRRIGATION)
COMMERCIAL SIGN	MARKED PIPELINE
SIGN	UNKNOWN UNDERGROUND UTILITY
SPRINKLER HEAD	GROUND SURFACE CONTOUR
SPRINKLER VALVE	CURB AND GUTTER
TELEPHONE RISER	SURFACE DRAINAGE FLOWLINE
COMMUNICATIONS VAULT	LIMITS OF CONSTRUCTION
TRAFFIC/ELECTRIC PULL BOX	TREE DRIP LINE
WATER METER	SHRUB LINE
WATER VALVE BOX	EXISTING CONCRETE
UST FUEL FILL PORT	EXISTING ASPHALT
GROUND LIGHT	EXISTING GRAVEL
HANDHOLE, ELECTRIC	EXISTING RIPRAP
ELECTRIC METER	CONCRETE DEMO
HOSE BIB	ASPHALT DEMO
WATER VENT	PROPOSED ASPHALT
TRAFFIC DETECTOR LOOP	PROPOSED CONCRETE
TRAFFIC SIGNAL POLE	
TRAFFIC CONTROL BOX	
PARKING METER	
DOUBLE PARKING METER	
BORE HOLE LOCATION	
GEO PROBE	
MONITORING WELL	
XXX.XX GUTTER ELEVATION, UNLESS OTHERWISE NOTED	

LEGEND NOTES

1. ALL SYMBOLS OR LINETYPES/PATTERNS ARE NOT NECESSARILY USED ON THIS PROJECT.
2. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE .

ABBREVIATIONS

ME: MATCH EXISTING
FL: FLOW LINE
TC: TOP OF CURB
TW: TOP OF WALL
TYP: TYPICAL
DIA: DIAMETER
NTS: NOT TO SCALE
OCEW: ON CENTER EACH WAY

AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE
TINKER AFB, OK

35%

PROJECT INFORMATION
WWYK 250096
REPAIR STORMWATER
SPILL GATE 11
STRUCTURE
TINKER AIR FORCE BASE, OKLAHOMA

REVISIONS

MARK	DATE	DESCRIPTION

MANAGEMENT INFORMATION
ISSUE DATE: 30 MARCH 2026
DESIGN GROUP: TEPA
DESIGNED BY: RP
DRAWN BY: RP
CHECKED BY: ES
DESIGN FILE LOCATION:

SHEET TITLE
CIVIL
LEGEND AND
GENERAL NOTES

SHEET NUMBER
C-001
SHEET OF

1 OVERALL PLAN
SCALE: 1" = 15,000

N

0 15,000' 30,000' 60,000'
SCALE: 1" = 15,000'

AFMC
AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE
TINKER AFB, OK

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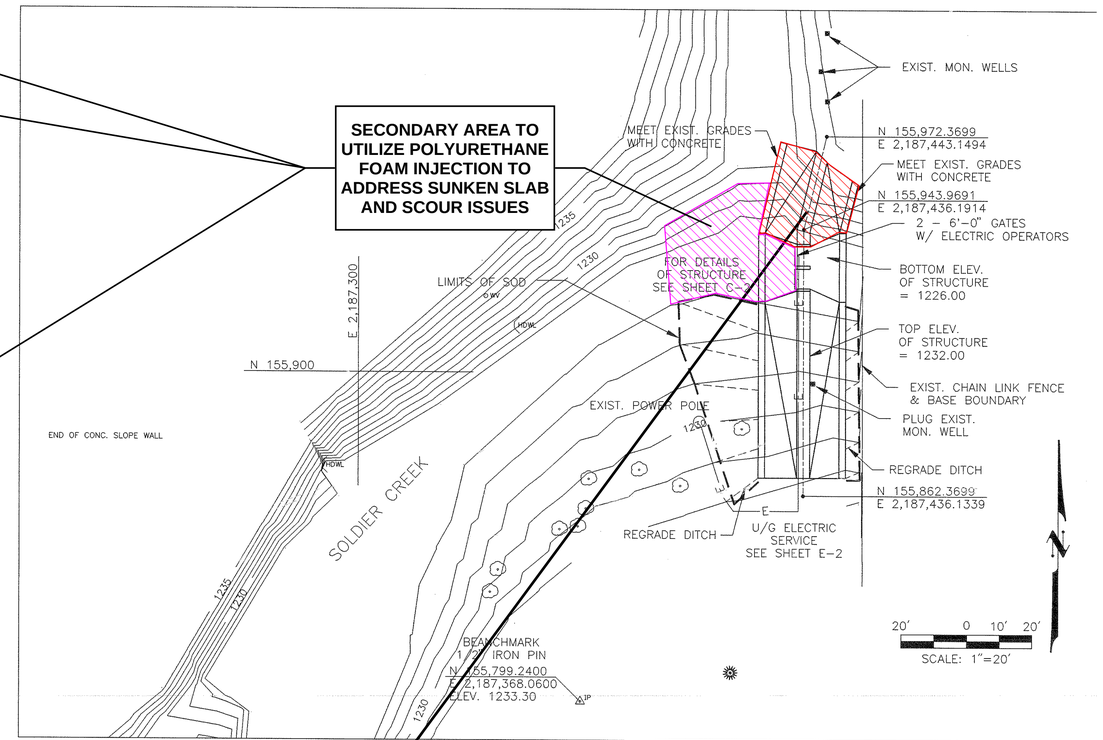
SHEET TITLE
CIVIL
OVERALL PLAN
(1)

SHEET NUMBER
C-002
SHEET OF

SUNKEN SLAB (SEE AS-BUILTS)

CONCRETE AREA TO BE REPAIRED

SECONDARY AREA TO UTILIZE POLYURETHANE FOAM INJECTION TO ADDRESS SUNKEN SLAB AND SCOUR ISSUES



PRIMARY AREA TO BE VOID FILLED AND SOIL STABILIZED USING POLYURETHANE FOAM INJECTION.

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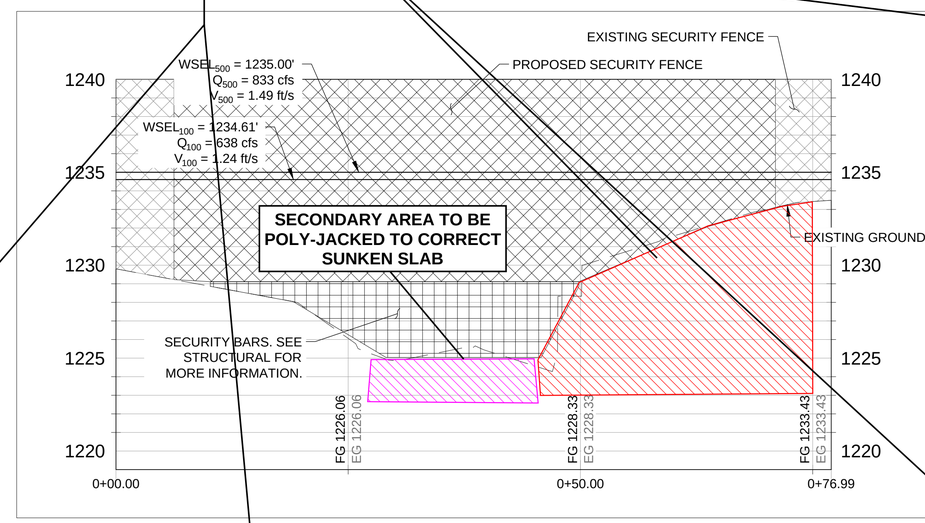
SHEET TITLE
CIVIL OVERALL PLAN (2)

SHEET NUMBER
C-003
SHEET OF

PRIMARY AREA TO BE VOID FILLED

CONCRETE AREA TO BE REPAIRED



LEGEND

- EXISTING CHAIN LINK SECURITY FENCE
- PROPOSED CHAIN LINK SECURITY FENCE
- STEEL BEAM
- PROPOSED METAL GRATE
- PROPOSED CONCRETE PAVEMENT
- EXISTING GROUND

CONCRETE AREA TO BE REPAIRED

3 FENCE AT CHANNEL SECTION - OUTFALL 9

AS NOTED

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SHEET TITLE

CIVIL
OVERALL PLAN
(3)

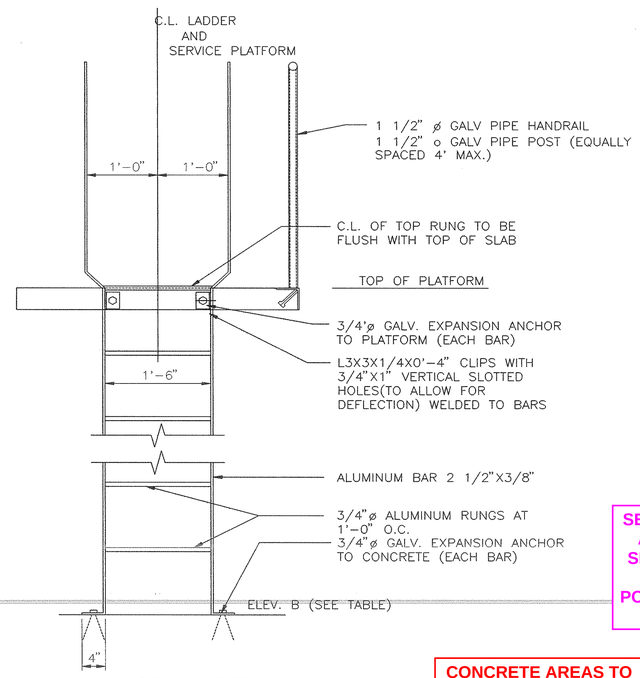
SHEET NUMBER

C-004

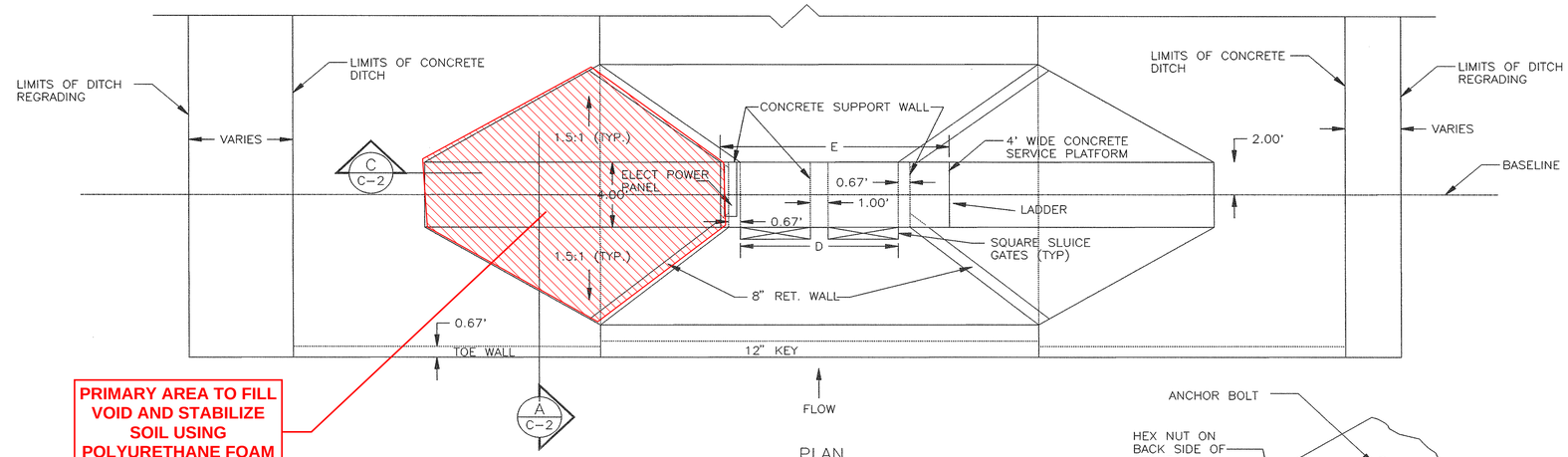
SHEET OF

DIMENSION SCHEDULE			
SITE	[redacted]	STR. NO. 2	[redacted]
DIM. A		6' SQ.	
DIM. C		21.00'	
DIM. D		13.00'	
DIM. E		15.67'	
DIM. Y		6.00'	
DIM. ZL		4.00	
DIM. ZR		9.00	

ELEVATION SCHEDULE			
SITE	[redacted]	STR. NO. 2	[redacted]
ELEV. A		1232.00	
ELEV. B		1232.00	
ELEV. C		1226.00	

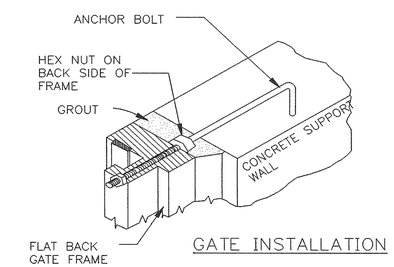


2 C-2 DETAIL



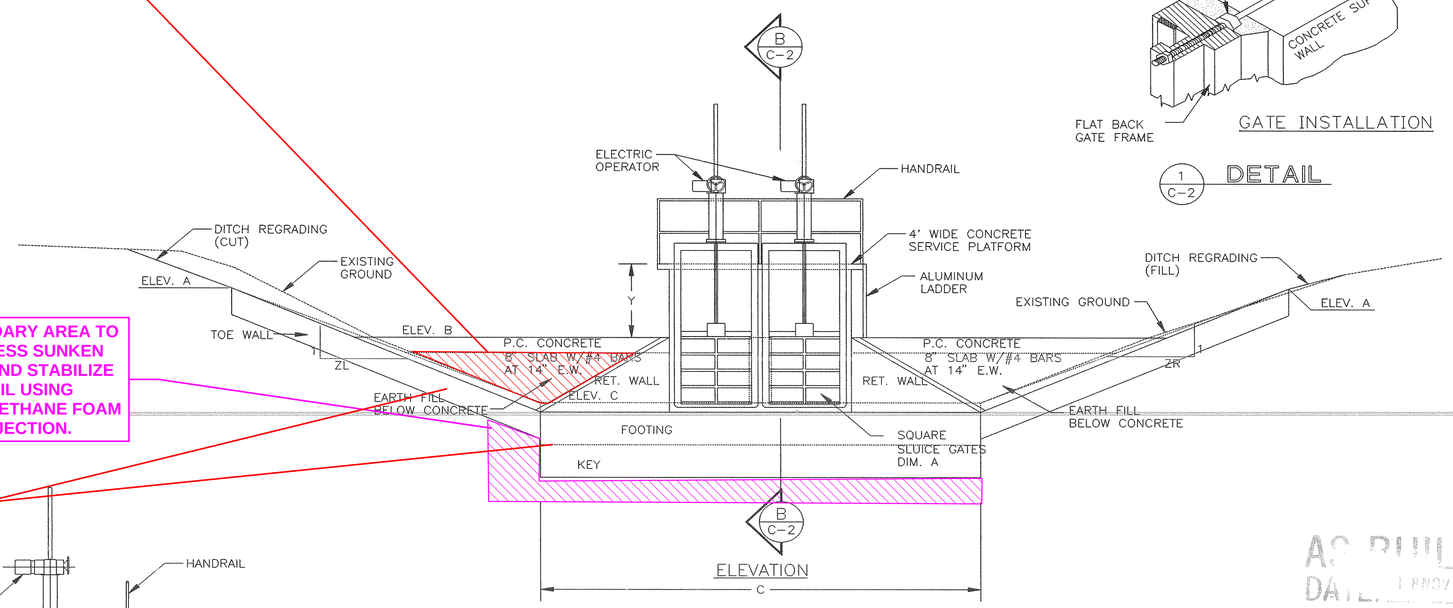
PLAN

PRIMARY AREA TO FILL VOID AND STABILIZE SOIL USING POLYURETHANE FOAM INJECTION



GATE INSTALLATION

1 C-2 DETAIL

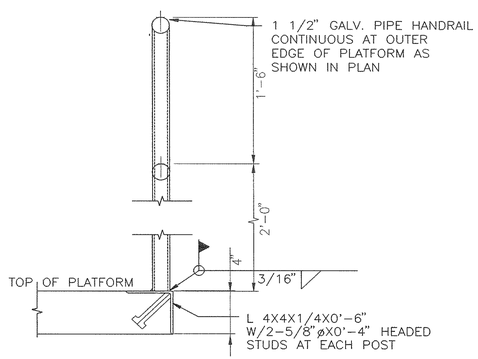


ELEVATION

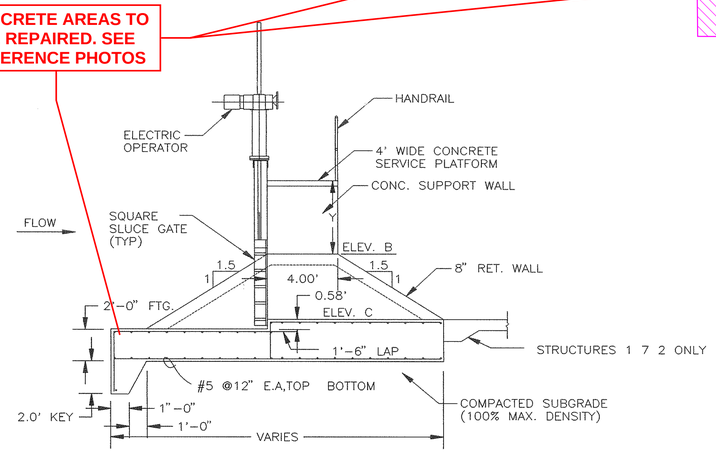
SECONDARY AREA TO ADDRESS SUNKEN SLAB AND STABILIZE SOIL USING POLYURETHANE FOAM INJECTION.

CONCRETE AREAS TO BE REPAIRED. SEE REFERENCE PHOTOS

AS BUILT DATE 1 NOV 1993



3 C-2 DETAIL



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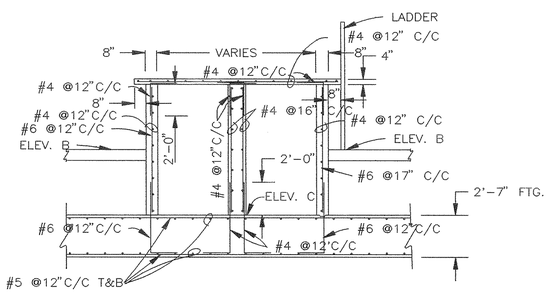

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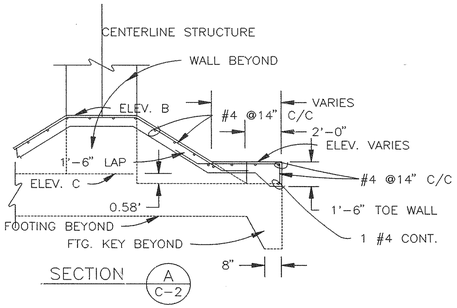

SECTION A C-2

AFMC
AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE
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35%

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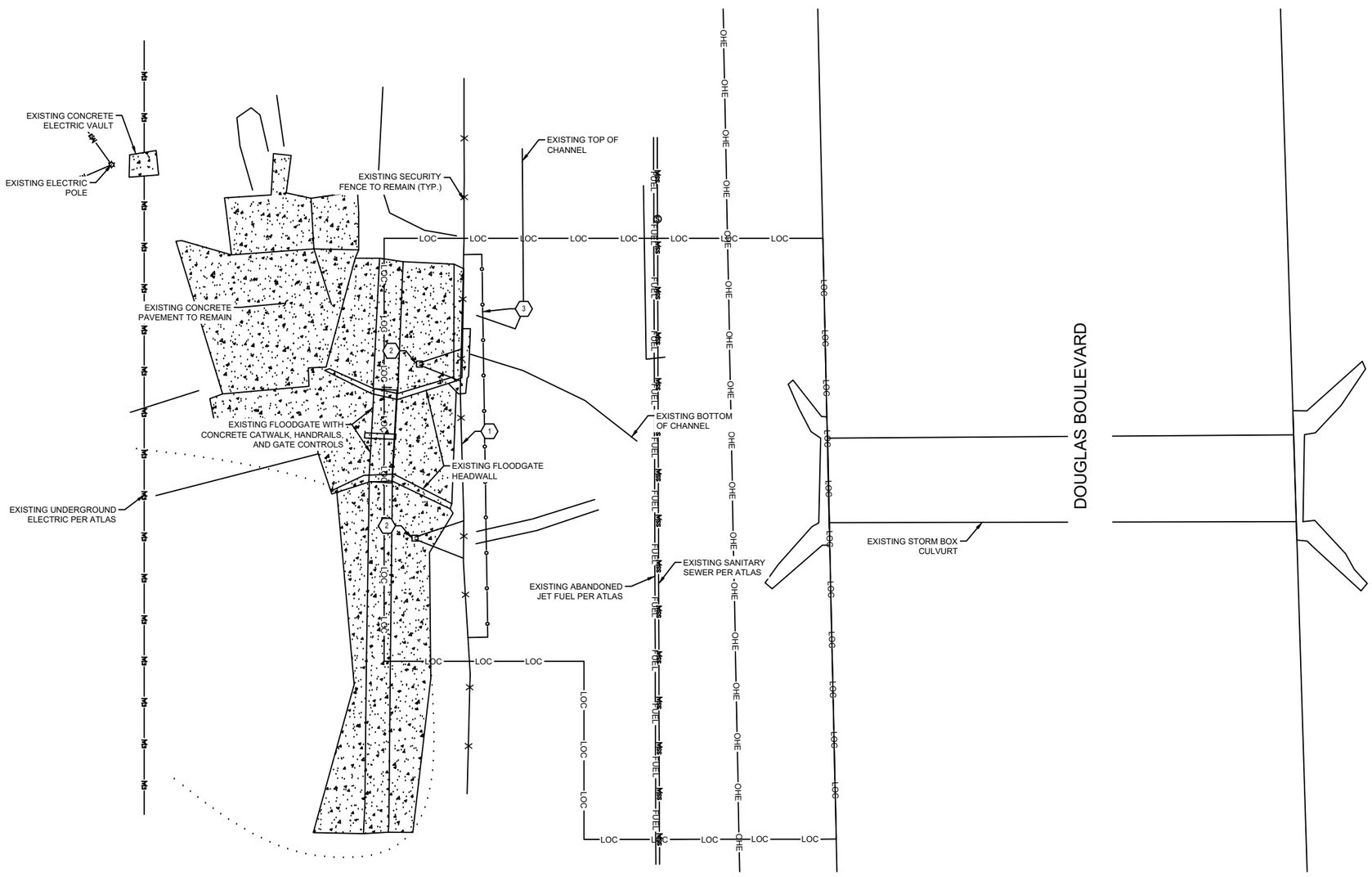
DESIGN FILE LOCATION:	

SHEET TITLE
CIVIL
OVERALL PLAN
(4)

SHEET NUMBER
C-005
SHEET OF



1 EXISTING CONDITIONS AND DEMOLITION - OUTFALL 9

SCALE: 1" = 10'

N

0 10' 20' 40'

SCALE: 1" = 10'

LEGEND

- EXISTING CONCRETE PAVEMENT
- EXISTING SECURITY FENCE
- EXISTING SECURITY FENCE TO BE REMOVED
- XXXX EXISTING CONTOUR
- LOC CONSTRUCTION LIMITS (±0.16 AC.)
- TEMPORARY SECURITY FENCE

KEYED NOTES

1. EXISTING SECURITY FENCE TO BE REMOVED TO NEAREST POST.
2. EXISTING STEEL FENCE BRACE TO BE REMOVED.
3. PROPOSED 7-FT CHAIN LINK TEMPORARY SECURITY FENCE. PERIMETER SECURITY SHALL BE MAINTAINED DURING ALL CONSTRUCTION ACTIVITIES. TEMPORARY SECURITY FENCING SHALL BE INSTALLED BEFORE EXISTING FENCE REMOVAL AND BE KEPT IN PLACE UNTIL THE COMPLETE INSTALLATION OF NEW PERIMETER FENCE(S).

GENERAL NOTES

1. CONTRACTOR TO VERIFY LOCATIONS OF EXISTING UTILITIES AND ALL SURVEY INFORMATION PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO COORDINATE WITH BASE UTILITIES AND VERIFY STATUS OF ABANDONED UTILITIES BEFORE BEGINNING WORK.

EXCAVATION NOTE

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTORS TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTORS IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH, AS A MINIMUM OSHA STANDARDS FOR TRENCH EXCAVATIONS. CONTRACTOR AND/OR CONTRACTORS INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITHIN OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE

TINKER AFB, OK

35%

PROJECT INFORMATION:
WWYK 250096
REPAIR STORMWATER SPILL
GATE 11
STRUCTURE
TINKER AIR FORCE BASE, OKLAHOMA

REVISIONS

MARK	DATE	DESCRIPTION

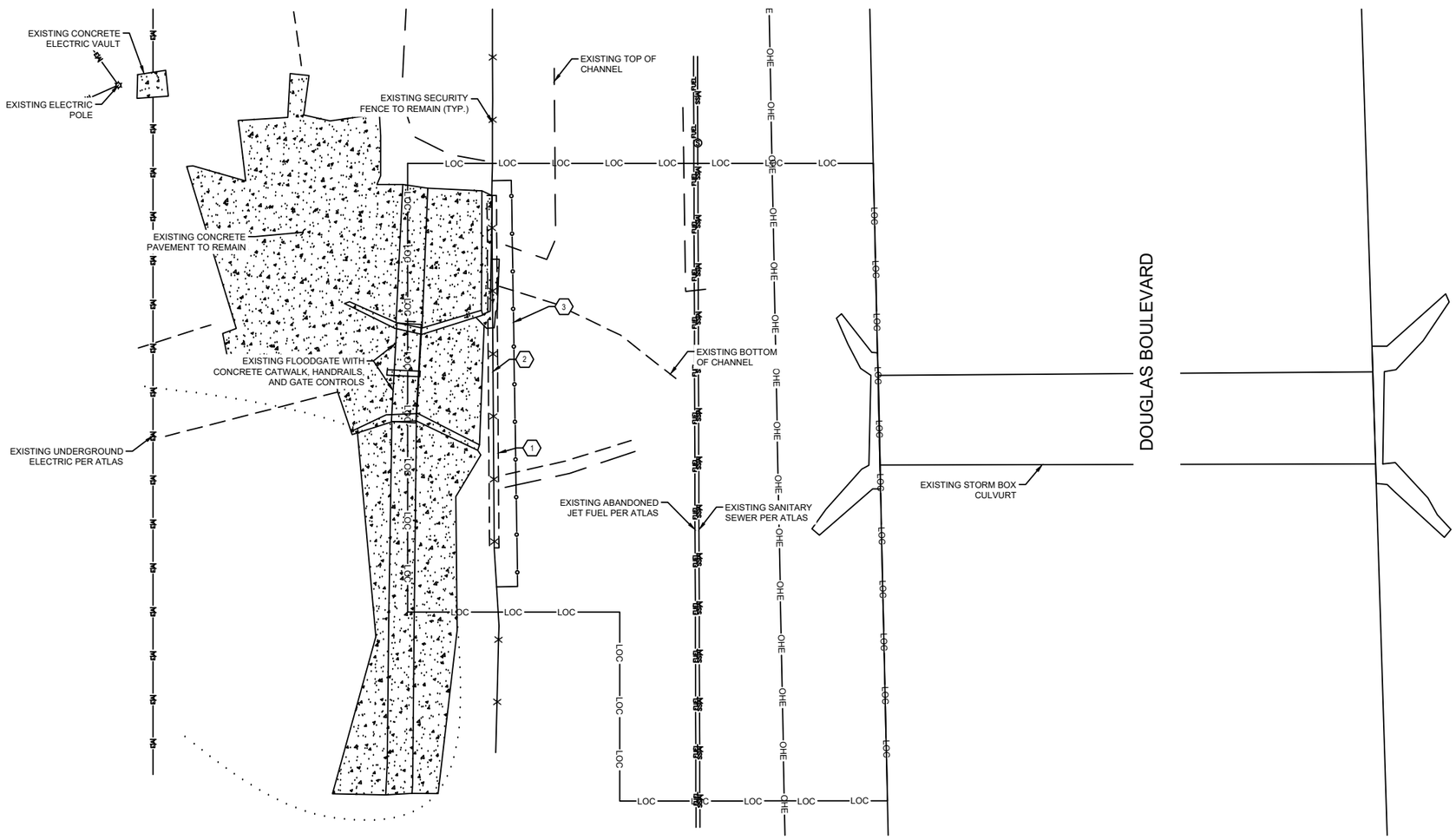
MANAGEMENT INFORMATION

ISSUE DATE: 30 MARCH 2026
DESIGN GROUP: TEPA/HDR
DESIGNED BY: RP
DRAWN BY: RP
CHECKED BY: ES
DESIGN FILE LOCATION:

SHEET TITLE
CIVIL - EXISTING CONDITIONS AND DEMOLITION - OUTFALL 9

SHEET NUMBER
CD104

SHEET - OF -



1 ITE PLAN - OUTFALL 9

SCALE: 1" = 10'

N

0 10' 20' 40'

SCALE: 1" = 10'

LEGEND

PROPSOED SECURITY FENCE

TEMPORARY SECURITY FENCE

KEYED NOTES

1. PROPOSED SECURITY BARS BELOW SECURITY FENCE. SEE SHEET S-101 FOR MORE INFORMATION.
2. PROPOSED SECURITY FENCE. INSTALL PERIMETER CHAIN LINK FENCE. FENCE HEIGHT SHALL BE MINIMUM 11FT FABRIC HEIGHT AND 12FT SECURE HEIGHT TO OUTRIGGERS. SEE SHEET C-503 FOR DETAIL. SECURITY FORCES PREFER TENSION WIRE INSTALLATION OF FENCES. CONTRACTOR TO NOTIFY SECURITY FORCES IF FIELD CONDITIONS LIMIT USE OF TENSION WIRE IN PLACE OF TOP RAIL. CONTRACTOR TO VERIFY AND MATCH EXISTING FENCE HEIGHT.
3. PROPOSED 7-FT CHAIN LINK TEMPORARY SECURITY FENCE. PERIMETER SECURITY SHALL BE MAINTAINED DURING ALL CONSTRUCTION ACTIVITIES. TEMPORARY SECURITY FENCING SHALL BE INSTALLED BEFORE EXISTING FENCE REMOVAL AND BE KEPT IN PLACE UNTIL THE COMPLETE INSTALLATION OF NEW PERIMETER FENCE(S).

GENERAL NOTES

1. CONTRACTOR TO VERIFY LOCATIONS OF EXISTING UTILITIES AND ALL SURVEY INFORMATION PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO COORDINATE WITH BASE UTILITIES AND VERIFY STATUS OF ABANDONED UTILITIES BEFORE BEGINNING WORK.

EXCAVATION NOTE

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SIGNAGE NOTE

PLACE WARNING SIGNS (NO DRONE SIGN, INSTALLATION SIGN, AND MILITARY WORKING DOG SIGN) TO BE CLEARLY VISIBLE TO PERSONS IMMEDIATELY OUTSIDE THE PERIMETER OF POSTED AREAS. PLACE SIGNS SO AS NOT TO AID INTRUDERS IN CLIMBING FENCES AND BREACHING BARRIERS/BOUNDARIES. POST BILINGUAL SIGNS IN AREAS WHERE ENGLISH MAY NOT BE THE PREDOMINATE LANGUAGE OR WHERE A LARGE PORTION OF THE LOCAL POPULATION MAY ONLY SPEAK ANOTHER LANGUAGE. PLACE SIGNS AT INTERVALS NOT TO EXCEED 100 YARDS, AT LIKELY AVENUES OF APPROACH, AND WHERE BOUNDARIES MAKE ABRUPT CHANGES IN DIRECTION.

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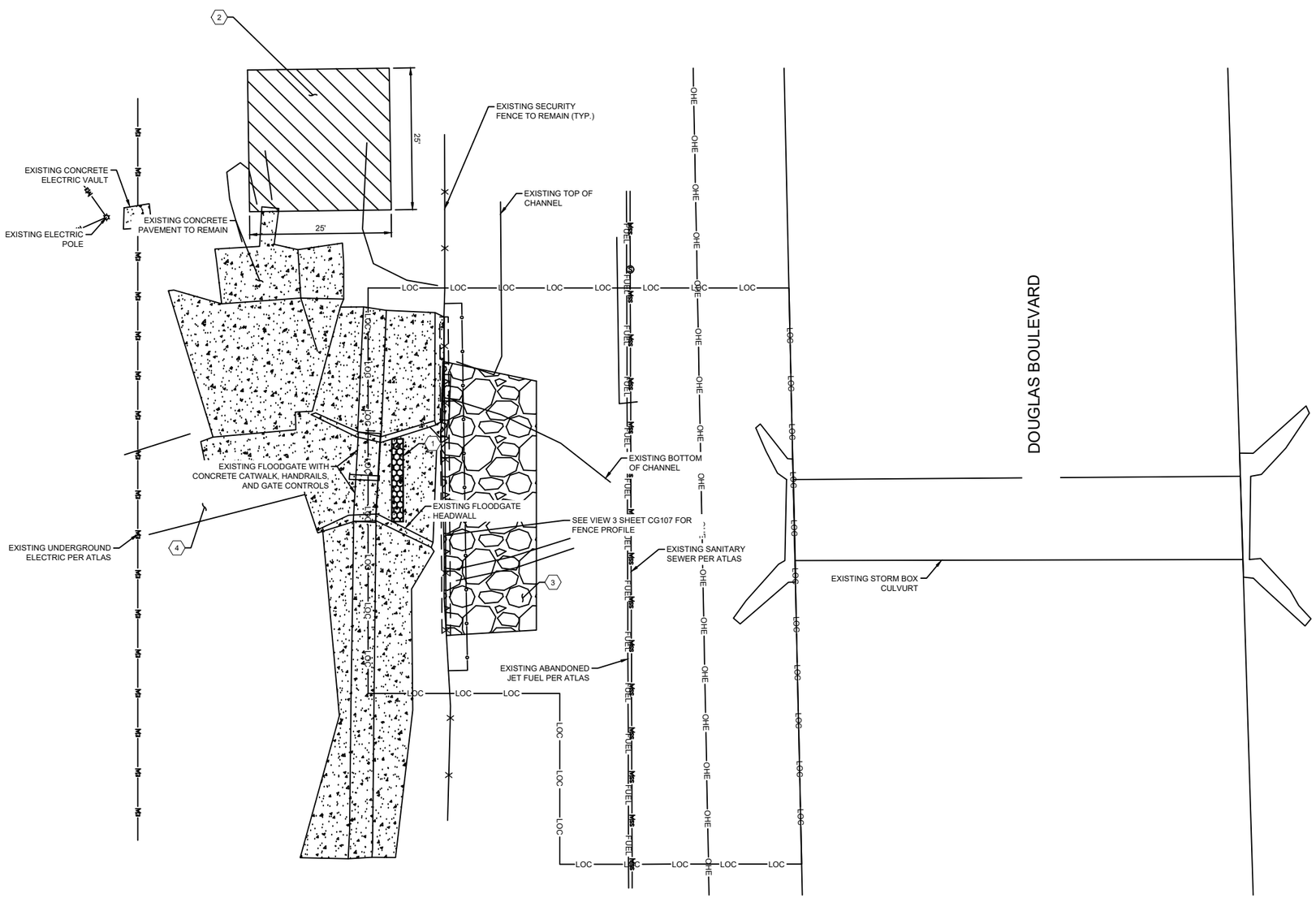
SHEET TITLE

CIVIL
SITE PLAN -
OUTFALL 9

SHEET NUMBER

CS104

SHEET - OF -



1 GRADING AND EROSION CONTROL PLAN - OUTFALL 9

SCALE: 1" = 10'

N

0 10' 20' 40'

SCALE: 1" = 10'

LEGEND

- EXISTING ASPHALT PAVEMENT
- EXISTING SECURITY FENCE
- XXXX EXISTING CONTOUR
- LOC CONSTRUCTION LIMITS (±0.16 AC.)
- PROPOSED ROCK BERM
- PROPOSED ROCK RIP-RAP
- FLOW ARROW
- ME ± XXX MATCH EXISTING ELEVATION

KEYED NOTES

1. 3" TO 5" OPEN GRADED, WIRE WRAPPED ROCK BERM. SEE DETAIL 5/C-501.
2. CONTRACTOR LAYDOWN AREA. EXACT LOCATION TO BE COORDINATED WITH CONTRACTING OFFICER.
3. PROVIDE D_{50} = 18" ROCK RIP-RAP. RIP-RAP TO BE INSTALLED AT A DEPTH OF 16" AND MATCH EXISTING SLOPES.
4. CONTRACTOR TO PUMP AND REROUTE WATER FOR THE DURATION OF CONSTRUCTION.

GENERAL NOTES

1. CONTRACTOR TO VERIFY LOCATIONS OF EXISTING UTILITIES AND ALL SURVEY INFORMATION PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO COORDINATE WITH BASE UTILITIES AND VERIFY STATUS OF ABANDONED UTILITIES BEFORE BEGINNING WORK.

AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE
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PROJECT INFORMATION
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SPILL GATE 11
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CIVIL
GRADING AND
EROSION CONTROL
PLAN - OUTFALL 9

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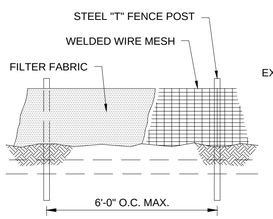
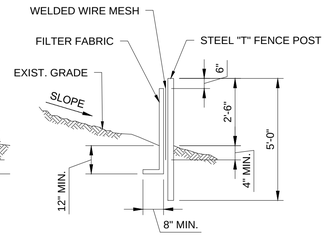


TYPICAL ELEVATION



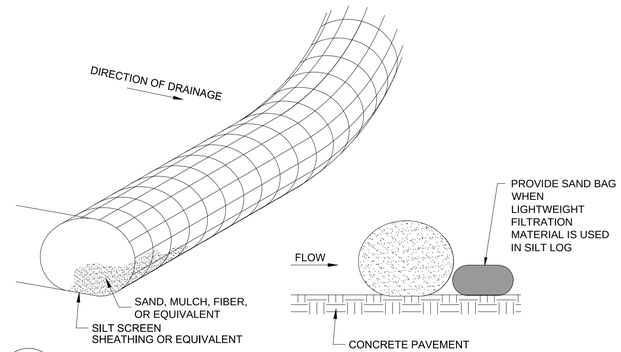
TYPICAL SECTION

SILT FENCE NOTES:

1. CLEAR THE GROUND OF DEBRIS, ROCKS, AND PLANTS (INCLUDING GRASSES TALLER THAN 2") SO THAT A SMOOTH SURFACE CAN BE UTILIZED FOR ANCHORING THE SKIRT.
2. LAY OUT THE SILT FENCE FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
3. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
4. ATTACH THE 2" X 4" 12 GAUGE WELDED WIRE MESH TO THE "T" FENCE POSTS WITH 11 1/2 GAUGE GALVANIZED "T" POST CLIPS. THE TOP OF THE WIRE SHOULD BE 24" ABOVE GROUND LEVEL. THE WELDED WIRE MESH SHALL BE OVERLAPPED 6" AND TIED AT LEAST SIX TIMES WITH HOG RINGS.
5. THE TOE OF THE SILT FENCE SHALL BE TRENCHED-IN SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE THE SILT FENCE CAN NOT BE TRENCHED-IN (E.G. PAVEMENT), WEIGHT THE FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER THE SILT FENCE.
6. SILT FENCE SHALL BE SECURELY FASTENED TO THE WOVEN WIRE MESH, WHICH IS IN TURN SECURELY ATTACHED TO THE STEEL FENCE POSTS.
7. SILT FENCE SPLICES SHOULD BE A MINIMUM OF 18" WIDE, ATTACHED IN AT LEAST SIX PLACES. SPLICES IN CONCENTRATED FLOW AREAS WILL NOT BE ACCEPTED.
8. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
9. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.
10. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
11. THE CONTRACTOR SHALL FIELD VERIFY THE TYPE, LOCATION, AND DEPTH OF ALL UTILITY CROSSINGS PRIOR TO CONSTRUCTION IN ORDER TO ADJUST THE PIPE GRADE IF NECESSARY AND AVOID DAMAGING THOSE UTILITIES. ADJUSTMENTS SHALL BE APPROVED BY THE ENGINEER.
12. INSTALL SILT FENCE AND TWO-FOOT WIDE VEGETATIVE FILTER MAT, ACROSS THE LIMITS OF CONSTRUCTION WHERE APPLICABLE, ALONG CONTOUR AT INTERVALS OF TEN VERTICAL FEET DOWNSLOPE OF ANY DISTURBANCE. WHEN THE SLOPE MEETS OR EXCEEDS 25%, OR WHERE DISTURBED AREA IS WITHIN FIFTY LINEAR FEET OF TOP OF BANK OF A WATER BODY, THE VEGETATIVE FILTER MAT SHALL BE INSTALLED WITH A 100% COVERAGE, IN ADDITION TO OTHER REQUIRED ENVIRONMENTAL PROTECTION MEASURES.

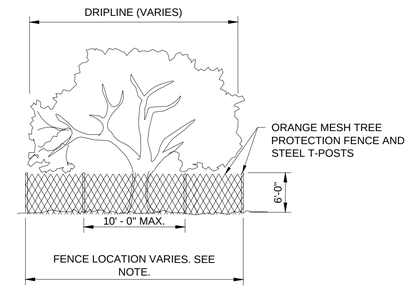
1 SILT FENCE DETAIL

SCALE: N.T.S.



2 SILT LOG DETAIL

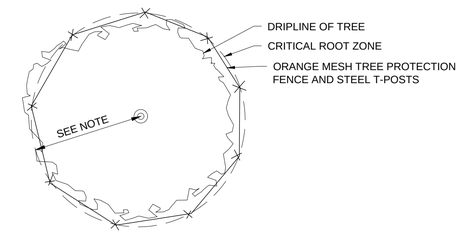
NO SCALE



TREE PROTECTION FENCE ELEVATION

CRITICAL ROOT ZONE (C.R.Z.) RADIUS = 1 FT. PER INCH OF TRUNK DIAMETER

INDIVIDUAL TREE

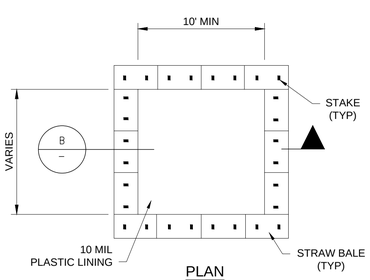


TREE PROTECTION FENCE PLAN

NOTE:
FENCE TO BE LOCATED 10' BEYOND THE TREE DRIPLINE. WHERE IT IS NOT POSSIBLE TO PLACE 10' BEYOND DRIP LINE, PROVIDE FENCE AT LIMITS OF CRITICAL ROOT ZONE RADIUS = 1 FT. PER INCH OF TRUNK DIAMETER . REFERENCE TINKER SPEC 00 72 00.

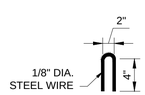
3 TREE PROTECTION FENCE DETAIL

SCALE: N.T.S.

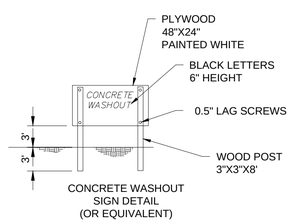


PLAN

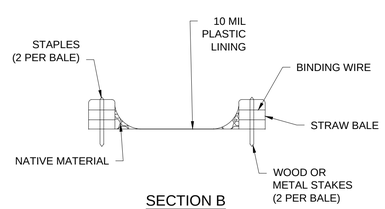
TYPE "ABOVE GRADE" WITH STRAW BALES



STAPLE DETAIL



CONCRETE WASHOUT SIGN DETAIL (OR EQUIVALENT)



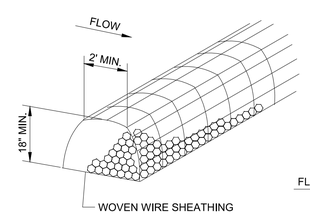
SECTION B

NOTES:

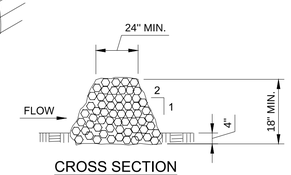
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

4 CONCRETE WASHOUT PIT DETAIL

SCALE: N.T.S.



ROCK BERM



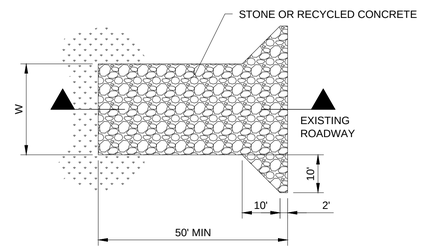
CROSS SECTION

ROCK BERM NOTES:

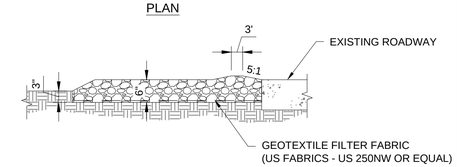
1. USE OPEN GRADED ROCK 3-5 INCH DIAMETER FOR OTHER CONDITIONS. USE ONLY OPEN GRADED ROCK 4-8 INCH DIAMETER FOR STREAM FLOW CONDITIONS
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 1 INCH OPENING AND MINIMUM WIRE DIAMETER OF 20 GAUGE.
3. THE ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED SITE AND IN A MANNER AS TO NOT CREATE A SILTATION PROBLEM.
5. DAILY INSPECTION SHALL BE MADE ON SEVERE-SERVICE ROCK BERMS; SILT SHALL BE REMOVED WHEN ACCUMULATION REACHES 6 INCHES.
6. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

5 ROCK BERM DETAIL

SCALE: N.T.S.



PLAN



SECTION

NOTES:

1. LOCATE THE STABILIZED CONSTRUCTION ENTRANCE AS NEEDED FOR CONSTRUCTION OPERATIONS AND REGULATORY COMPLIANCE.
2. USE DESIGNATED STABILIZED ENTRANCE(S) FOR ALL CONSTRUCTION TRAFFIC.
3. WIDTH "W" IS DEPENDENT ON USAGE AND SITE CONDITIONS. AT A MINIMUM, PROVIDE AND CONSTRUCT AN ENTRANCE FIFTEEN (15) FEET IN WIDTH FOR ONE-WAY TRAFFIC AND TWENTY-FOUR (24) FEET IN WIDTH FOR TWO-WAY TRAFFIC.
4. MINIMUM SIZE OF STONE OR RECYCLED CONCRETE IS TWO (2) INCHES.
5. A FIFTEEN (15) FOOT RADIUS IS ALSO ACCEPTABLE FOR THE RETURN PORTION OF THE ENTRANCE.
6. CLEAN SEDIMENT FROM VEHICLES PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WASH VEHICLES ON AN AREA STABILIZED WITH CRUSHED STONE OR AGGREGATE WITH DRAINAGE DIRECTED AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. PREVENT ALL SEDIMENT FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE USING ADDITIONAL BMP'S AND APPROVED METHODS.
7. MAINTAIN THE ENTRANCE IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR REPLACEMENT OF TOP SURFACING AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.
8. REMOVE THE ENTRANCE AT THE END OF THE CONSTRUCTION AND RESTORE AREA.

6 CONSTRUCTION ENTRANCE

SCALE: N.T.S.

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TINKER AIR FORCE BASE, OKLAHOMA

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CHECKED BY:ES
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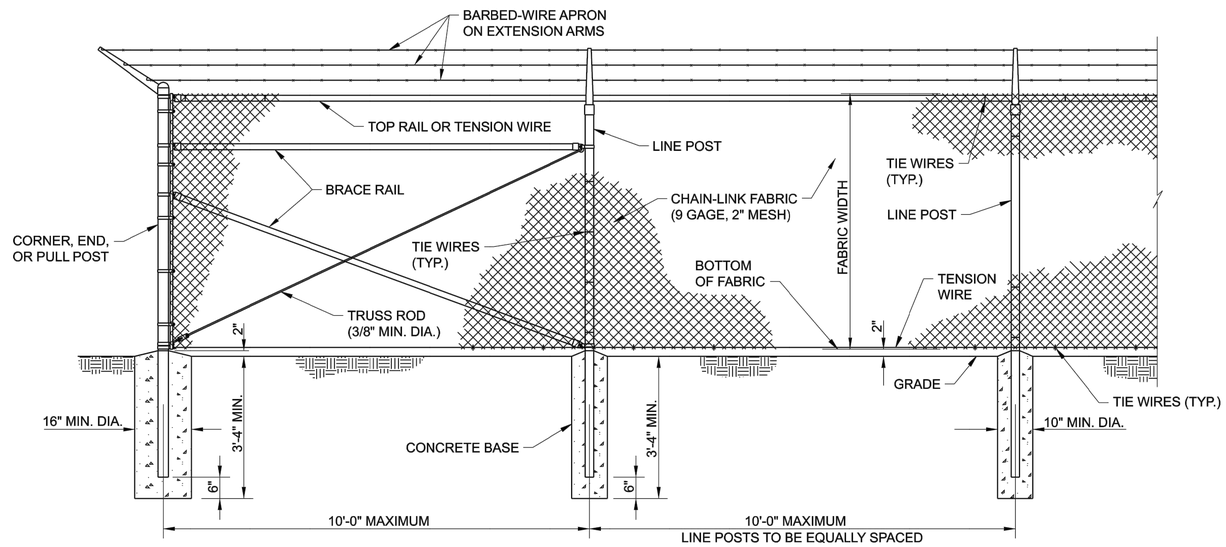
SHEET TITLE
CIVIL
EROSION CONTROL DETAILS

SHEET NUMBER
C-501

SHEET - OF -



FE6 CHAIN-LINK SECURITY FENCE DETAIL

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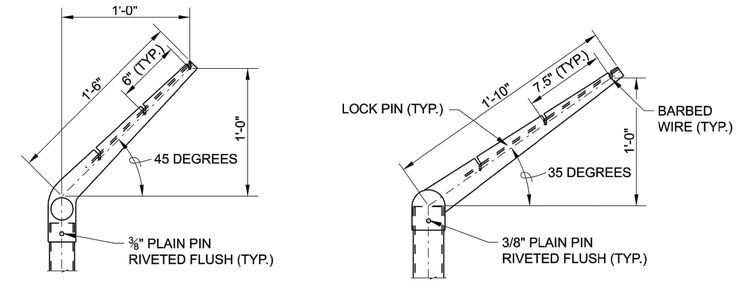
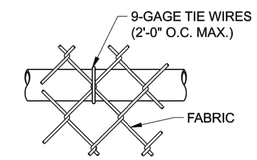


LINE POST **CORNER POST**

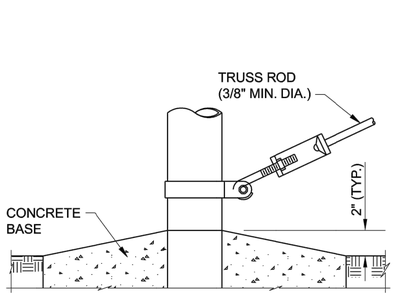
EXTENSION ARM DETAILS

NO SCALE

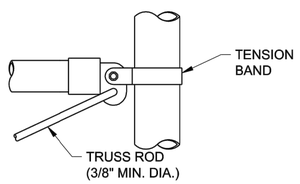
STEEL POST SCHEDULE			
USE AND SECTION	MINIMUM OUTSIDE DIMENSIONS (NOMINAL)		
	FABRIC LESS THAN 72"	FABRIC 72" TO 96"	FABRIC OVER 96"
CORNER, END & PULL POSTS			
TUBULAR - ROUND	2.375" O.D.	2.875" O.D.	4.00" O.D.
TUBULAR - SQUARE	2.00" SQ.	2.50" SQ.	3.00" SQ.
C-SECTION (ROLL-FORMED)	3.50" x 3.50"	3.50" x 3.50"	———
LINE POSTS			
TUBULAR - ROUND	1.90" O.D.	2.375" O.D.	2.875" O.D.
H-SECTION	2.25" x 1.70"	2.25" x 1.70"	2.25" x 1.70"
C-SECTION (ROLL-FORMED)	1.875" x 1.625"	2.25" x 1.70"	———
TOP, BOTTOM & BRACE RAILS			
TUBULAR - ROUND	1.66" O.D.		
TUBULAR - SQUARE	1.50" O.D.		
H-SECTION	1.625" x 1.50"		
C-SECTION (ROLL-FORMED)	1.625" x 1.25"		



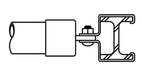
TOP OR BRACE RAIL ATTACHMENT



TRUSS ROD AND BAND

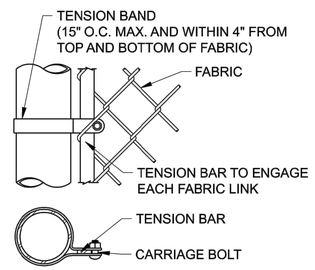


ROUND POST

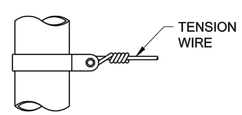


H-BEAM

BRACE RAIL CLAMP DETAILS



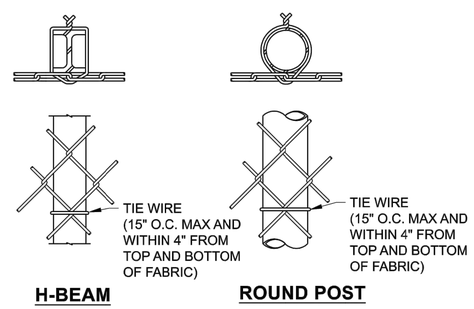
END OR GATE POST DETAIL



TENSION BAND DETAIL

FASTENING DETAILS

NO SCALE



H-BEAM **ROUND POST**

LINE POST ATTACHMENTS

NOTES:

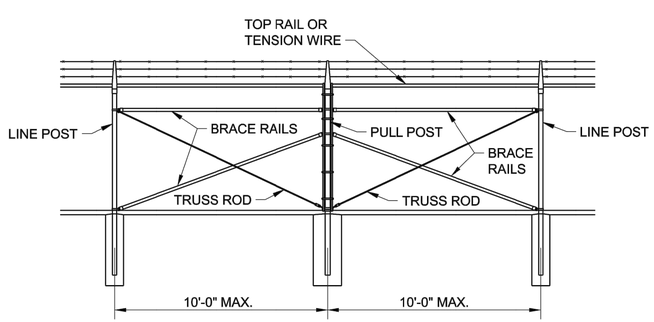
1. DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPES OF FENCE SECTIONS AND METHODS OF INSTALLATION.
2. WIRE TIES, RAILS, POSTS, AND BRACES SHALL BE CONSTRUCTED ON THE SECURE SIDE OF THE FENCE ALIGNMENT. CHAIN-LINK FABRIC SHALL BE PLACED ON THE OPPOSITE SIDE OF THE SECURE AREA.
3. UNLESS OTHERWISE SHOWN OR SPECIFIED, ALL FE6 FENCE SHALL HAVE APRON EXTENDED OUTWARD FROM THE AREA BEING PROTECTED.
4. C-SECTION POSTS SHALL BE INSTALLED SO THAT THE VOID INSIDE THE POST IS COMPLETELY FILLED WITH CONCRETE UP TO THE TOP OF THE FOUNDATION.

FENCE LEGEND:

TYPE FE5 - CHAIN-LINK FENCE WITHOUT BARBED-WIRE APRON
TYPE FE6 - CHAIN-LINK FENCE W/BARBED-WIRE ON SINGLE OUTRIGGER
TYPE FE7 - CHAIN-LINK FENCE W/BARBED-WIRE ON DOUBLE OUTRIGGER
TYPE FE8 - CHAIN-LINK FENCE W/BARBED-WIRE AND BARBED-TAPE ON DOUBLE OUTRIGGER
TR - FENCE WITH TOP RAIL AND TENSION WIRE AT BOTTOM
TBR - FENCE WITH TOP AND BOTTOM RAILS
TWB - TENSION WIRE TOP AND BOTTOM
TWBR - FENCE WITH TOP TENSION WIRE AND BOTTOM RAIL
FINAL NUMBER IS FABRIC WIDTH IN INCHES

EXAMPLES:

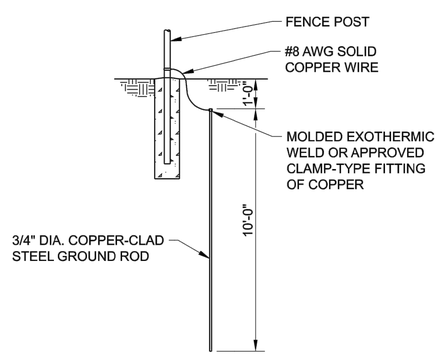
FE6-TR-72 - CHAIN-LINK SECURITY FENCE WITH BARBED-WIRE ON SINGLE OUTRIGGER, TOP RAIL, AND 72 INCH FABRIC WIDTH.
FE5-TWB-48 - CHAIN-LINK SECURITY FENCE WITH NO APRON, TOP AND BOTTOM TENSION WIRE, AND 48 INCH FABRIC WIDTH.



BRACE PANEL DETAIL

NO SCALE

NOTE:
PROVIDE BRACE PANEL WHENEVER STRAIGHT RUNS EXCEED 500 FEET.



GROUNDING DETAIL

NO SCALE

AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE
TINKER AFB, OK

35%

PROJECT INFORMATION
WWYK 250096
REPAIR STORMWATER
SPILL GATE 11
STRUCTURE
TINKER AIR FORCE BASE, OKLAHOMA

REVISIONS

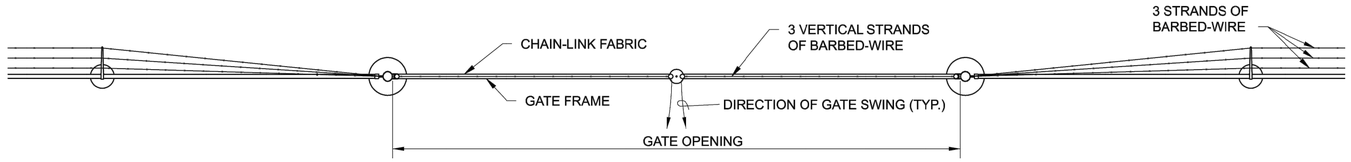
MARK	DATE	DESCRIPTION

MANAGEMENT INFORMATION

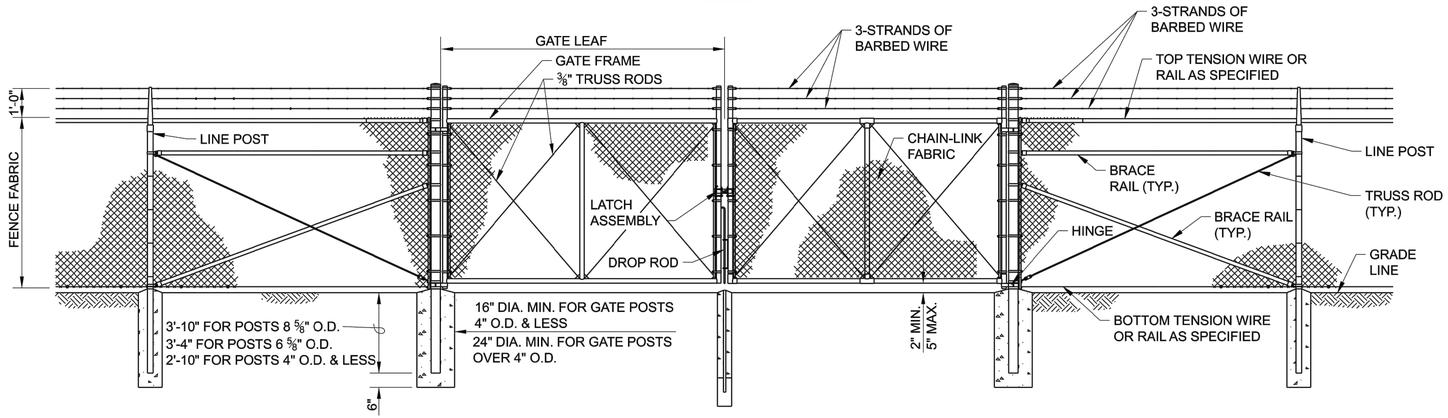
ISSUE DATE: 30 MARCH 2026
DESIGN GROUP: TEPA/HDR
DESIGNED BY: LEM
DRAWN BY: SFF
CHECKED BY: BKT
DESIGN FILE LOCATION:

SHEET TITLE
STRUCTURAL
GENERAL NOTES
AND STRUCTURAL
ABBREVIATIONS

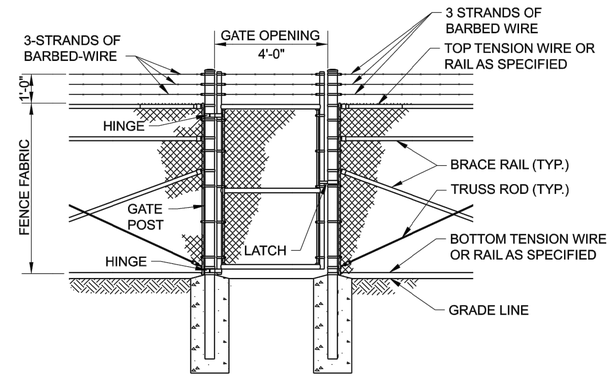
SHEET NUMBER
C-503
SHEET OF



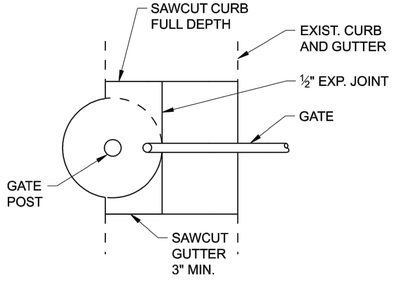
PLAN



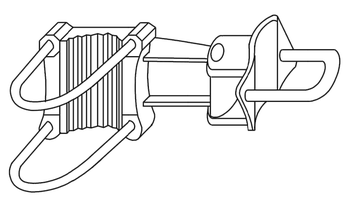
ELEVATION
DOUBLE SWING GATE (TYPE FE6 FENCE)
NO SCALE



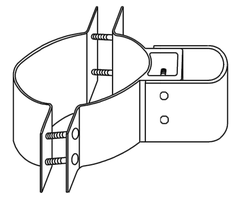
PERSONNEL GATE
TYPE FE6 FENCE
NO SCALE



PLAN



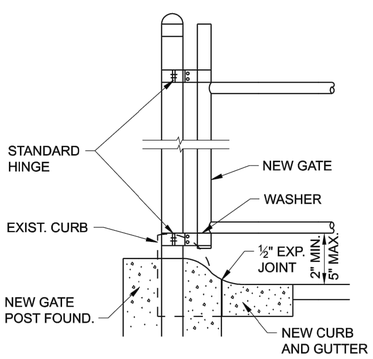
OFFSET HINGE



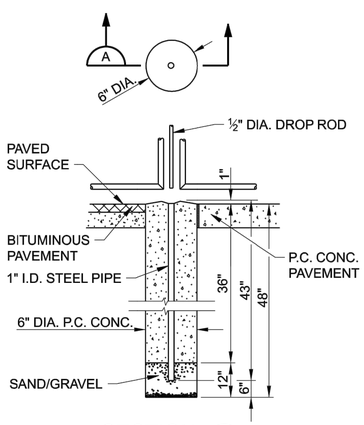
STANDARD HINGE

GATE POST SCHEDULE	
GATE LEAF WIDTH (NOMINAL)	OUTSIDE DIMENSION (NOMINAL)
6' OR LESS	2.875" O.D. 2.5" SQ.
MORE THAN 6' TO 13'	4.0" O.D.
MORE THAN 13' TO 18'	6.625" O.D.
MORE THAN 18'	8.625" O.D.

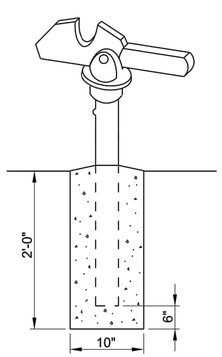
NOTES:
1. DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPES OF FENCE SECTIONS AND METHODS OF INSTALLATION.
2. SWING GATES SHALL BE CONSTRUCTED WITH DROP RODS, PADLOCKS, LATCH ASSEMBLY AND GATE KEEPERS EXCEPT AS NOTED.
3. ALL GATE FRAMES SHALL BE A MINIMUM OF 1.90" NOMINAL (ROUND) OR 2.00" NOMINAL (SQUARE). GATE FRAMES SHALL BE WELDED CONSTRUCTION OR SHALL BE ASSEMBLED USING HEAVY FITTINGS. AT CONSTRACTOR'S OPTION, A WELDED HORIZONTAL BRACE MAY BE USED IN LIEU OF TRUSS RODS TO BRACE ALL WELDED GATE FRAMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER RIGID CONSTRUCTION OF ALL GATES SUPPLIED.
4. GATES SHALL BE DESIGNATED AS FOLLOWS:
   - FENCE TYPE - FE5, FE6, ETC.
   - FENCE HEIGHT - INCHES
   - TYPE OPENING - SO (SINGLE)
     - DO (DOUBLE)
   - HINGE - RA (STANDARD)
     - HO (OFFSET)
   - OPENING - FEET (CLEAR OPENING BETWEEN GATE POSTS)
   - EXAMPLES: FE6-84-DO-RA-24
     FE5-48-SO-HD-6



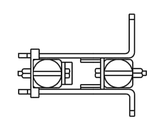
SECTION
GATE POST DETAIL
AT CURB AND GUTTER

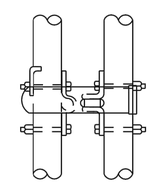


SECTION A
DROP ROD FOUNDATION

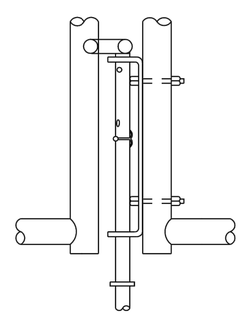


GATE KEEPER
(TO HOLD GATE OPEN)





LATCH ASSEMBLY



DROP ROD ASSEMBLY

SWING GATE DETAILS
NO SCALE

AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE
TINKER AFB, OK

35%

PROJECT INFORMATION
WWYK 250096
REPAIR STORMWATER SPILL GATE 11 STRUCTURE
TINKER AIR FORCE BASE, OKLAHOMA

REVISIONS

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DRAWN BY: SFF
CHECKED BY: BKT
DESIGN FILE LOCATION:

SHEET TITLE
STRUCTURAL GENERAL NOTES AND STRUCTURAL ABBREVIATIONS

SHEET NUMBER
C-504
SHEET OF

GENERAL STRUCTURAL NOTES (GSN)

GENERAL

1. SCOPE
THE NOTES ON THIS SHEET AND THE STANDARD STRUCTURAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT WHETHER SPECIFICALLY CALLED OUT OR NOT, EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY ON STRUCTURAL SHEETS. IF THERE ARE QUESTIONS, THEY SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER AND ANSWERED IN WRITING PRIOR TO CONSTRUCTION.

2. APPLICABLE SPECIFICATIONS AND CODES
A. INTERNATIONAL BUILDING CODE, IBC 2018 WITH APPLICABLE EDITIONS OF THE CODE REFERENCED STANDARDS.
B. ACI 318-14
C. UFC 3-301-01 (DATED 1 OCT 2019)
D. AISC 360-16

3. DESIGN CRITERIA
A. DEAD LOAD:
- ACTUAL TRIBUTARY STRUCTURE WEIGHT

B. WIND:
- BASIC DESIGN WIND SPEED; V_{ULT}: 109 MPH
- ALLOWABLE STRESS DESIGN WIND SPEED; V_{ASD}: 84 MPH
- RISK CATEGORY: II
- EXPOSURE: C

D. SEISMIC:
- RISK CATEGORY: II
- IMPORTANCE FACTOR: 1.00
- SPECTRAL RESPONSE ACCELERATION, S_S: 0.300g
- SPECTRAL RESPONSE ACCELERATION, S_1: 0.080g
- SITE CLASS: D
- SEISMIC DESIGN CATEGORY: B
- SPECTRAL RESPONSE COEFFICIENT, SD_S: 0.313g
- SPECTRAL RESPONSE COEFFICIENT, SD_1: 0.127g

E. SNOW LOAD:
- GROUND SNOW LOAD; P_g: 10 PSF
- FROST PENETRATION 18 IN

4. SAFETY
SAFETY AND STRUCTURE STABILITY DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURES HAVE BEEN DESIGNED TO RESIST THE DESIGN LIVE LOADS ONLY AS A COMPLETED STRUCTURE.

5. OPENINGS
OPENINGS FOR PIPES, DUCTS, CONDUITS, ETC. ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. COORDINATE AND PROVIDE OPENINGS AS REQUIRED TO ACCOMMODATE ALL WORK SHOWN OR SPECIFIED IN THE CONTRACT DOCUMENTS AND OTHERWISE REQUIRED FOR THE FURNISHING OF A FUNCTIONALLY COMPLETE PROJECT. REINFORCE AROUND OPENINGS PER STANDARD STRUCTURAL DETAILS UNLESS OTHERWISE SHOWN.

6. STANDARD DETAILS
THE STANDARD DETAILS DEPICT TYPICAL DETAILING TO BE USED ON THIS PROJECT. IF CONDITIONS ARE NOT EXPLICITLY SHOWN ON THE DRAWINGS THEY SHALL BE MADE SIMILAR TO THE STANDARD DETAILS. OBTAIN APPROVAL OF ENGINEER IN WRITING FOR SIMILAR CONDITIONS PRIOR TO CONSTRUCTION.

7. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION AS REQUIRED TO COORDINATE NEW CONSTRUCTION. SUBMIT REQUIRED CHANGES FOR APPROVAL.

CONCRETE

1. DESIGN STRENGTHS:
F'c = 4,000 PSI
Fy = 60,000 PSI

2. CONCRETE COVER
UNLESS OTHERWISE NOTED, PROVIDE CONCRETE COVER FOR REINFORCING AS FOLLOWS:
CONCRETE DEPOSITED AGAINST EARTH: 3"
ALL OTHER: 2"
SEE DRAWINGS FOR EXCEPTIONS

3. SEE SPECIFICATIONS FOR REINFORCING PLACEMENT REQUIREMENTS.

4. REFER TO OTHER DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION FOR EMBEDDED ITEMS AND PENETRATIONS NOT SHOWN ON STRUCTURAL DRAWINGS. REINFORCE AROUND OPENINGS PER STANDARD STRUCTURAL DETAILS UNLESS OTHERWISE SHOWN.

5. PROVIDE 3/4" CHAMFERS AT ALL EXPOSED EDGES AND 1/2" CHAMFERS AT JOINTS AS SHOWN. NOT ALL CHAMFERS MAY BE SHOWN ON DRAWINGS.

6. FIELD ADJUST REINFORCING AT OPENINGS AND EMBEDDED ITEMS AS INDICATED.

7. ANCHOR BOLTS NOT SPECIFIED BY ENGINEER SHALL BE DESIGNED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER, RETAINED BY THE CONTRACTOR, IN ACCORDANCE WITH APPLICABLE PROJECT AND CODE REQUIREMENTS. SUBMIT AS A SHOP DRAWING FOR REVIEW AND APPROVAL BY THE ENGINEER. COORDINATE LOCATION, SIZE AND EMBEDMENT PRIOR TO CASTING CONCRETE.

8. ABSOLUTELY NO WELDING OF REINFORCING BARS OR TORCHING TO BEND REINFORCING BARS SHALL BE ALLOWED WITHOUT SPECIFIC APPROVAL FROM THE STRUCTURAL ENGINEER.

9. ALL CAST-IN-PLACE AND POST-INSTALLED ANCHORS INDICATED IN THE STRUCTURAL DOCUMENTS SHALL COMPLY WITH ACI 318 (CHAPTER 17), AND CHAPTER 19 OF THE IBC. ALL EXPANSION AND ADHESIVE ANCHORS SHALL HAVE THE ICC REPORT SHOWING EQUIVALENT LOAD CAPACITY. SUBMIT AND INSTALL PER THE ICC EVALUATION REPORT.

10. PRIOR TO INSTALLING POST INSTALLED ANCHORS INTO CONCRETE, THE CONTRACTOR SHALL LOCATE REINFORCING. DO NOT DAMAGE CONCRETE REINFORCING.

11. DETAIL ALL STIRRUPS, HOOKS, AND BENDS PER CRSI MANUAL OF STANDARD PRACTICE, UNLESS NOTED OTHERWISE.

STEEL

1. DESIGN STRENGTHS:
WIDE FLANGE AND TEES: Fy=50 KSI
PIPES Fy=35 KSI
STAINLESS STEEL Fy=33 KSI
HSS SECTIONS Fy=46 KSI
ALL OTHER PLATES AND SHAPES: Fy=36 KSI

2. DIMENSIONS:
TO CENTERLINES OF COLUMNS AND BEAMS, TOP SURFACES OF BEAMS AND TUBES AND BACKS OF CHANNELS AND ANGLES UNO.

3. ELEVATIONS:
TOP OF STEEL REFERS TO TOP SURFACE OF MEMBER OR FLANGE UNO.

4. WHEN FILLET WELD SIZE IS NOT INDICATED, PROVIDE MAXIMUM WELD SIZE BASED ON MATERIAL THICKNESS IN ACCORDANCE WITH AISC SPECIFICATIONS.

5. ALL BOLTED STRUCTURAL CONNECTIONS ARE BEARING TYPE CONNECTIONS UNLESS OTHERWISE SPECIFIED TO BE SLIP-CRITICAL. PROVIDE COMPRESSIBLE WASHER TYPE DIRECT TENSION INDICATORS OR TWIST OFF TYPE. TENSION-CONTROL BOLTS CONFORMING TO RCSC, SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS SHALL BE PROVIDED AT ALL BOLTED CONNECTIONS.

6. CONFORM TO AISC 360, SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS AND AISC 341, SEISMIC DESIGN MANUAL.

7. ALL STEEL BEAMS SHALL RECEIVE STANDARD CAMBER PER THE SPECIFICATIONS UNLESS NOTED OTHERWISE ON THE PLANS. BEAMS REQUIRING SPECIAL CAMBER ARE DENOTED ON THE BEAMS SHOWN ON THE FRAMING PLANS. EXAMPLE:(+1/2") INDICATES 1/2".

8. ALL STEEL SHALL BE GALVANIZED. REFERENCE SPECIFICATION 05 12 00 FOR REQUIREMENTS.

STRUCTURAL ABBREVIATIONS

A/E	ARCHITECT/ENGINEER
AB	ANCHOR BOLT
ADDL	ADDITIONAL
ADH	ADHESIVE
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
ALUM	ALUMINUM
ANC	ANCHOR
APPROX	APPROXIMATE
APVD	APPROVED
ARCH	ARCHITECTURAL
BC	BOTTOM CHORD
BLDG	BUILDING
BLKG	BLOCKING
BM	BEAM
BOL	BOLLARD
BOT	BOTTOM
BP	BASE PLATE
BRG	BEARING
BTB	BACK TO BACK
BTW	BETWEEN
C	CHANNEL SHAPE
CHD	CHORD
CHKD	CHECKERED
CIP	CAST-IN-PLACE
CJ	CONSTRUCTION JOINT
CL	CENTERLINE
CLJ	CONTROL JOINT
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CTC	CENTER TO CENTER
CTR	CENTER
CY	CUBIC YARD
D	DEEP
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DEMO	DEMOLITION
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIST	DISTANCE
DL	DEAD LOAD
DT	DOUBLE TEE
DTL	DETAIL
DWG	DRAWING
DWL	DOWEL
E	EAST
EA	EACH
ECC	ECCENTRIC
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ENGR	ENGINEER
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
EW	EACH WAY
EWEF	EACH WAY, EACH FACE
EWTB	EACH WAY, TOP AND BOTTOM
EXP	EXPANSION
EXST	EXISTING
FAB	FABRICATOR
FD	FLOOR DRAIN
FDTN	FOUNDATION
FG	FINISHED GRADE
FIG	FIGURE
FIN	FINISH
FLR	FLOOR
FOC	FACE OF CONCRETE, FACE OF CURB
FR	FRAME
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET, FOOT
FTG	FOOTING
FV	FIELD VERIFY
GA	GAGE (METAL THICKNESS)
GALV	GALVANIZED
GEN	GENERAL
GR	GRADE
GRTG	GRATING
HC	HOLLOW CORE
HDR	HEADER
HK	HOOK
HORIZ	HORIZONTAL
HP	HIGH POINT
HS	HEADED STUD
HSS	HOLLOW STRUCTURAL SHAPE
HT	HEIGHT
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCH
INFO	INFORMATION
INT	INTERIOR, INTERSECTION
INV	INVERT
JF	JOINT FILLER
JST	JOIST
JT	JOINT
K	KIP
KB	KNEE BRACE
KLF	KIPS PER LINEAR FOOT
KSI	KIPS PER SQUARE INCH
L	ANGLE, LENGTH
LAD	LADDER
LB	POUND
LF	LINEAR FOOT
LG	LONG
LIN	LINEAR
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LNG	LONGITUDINAL
LOC	LOCATION
LP	LOW POINT
LWC	LIGHTWEIGHT CONCRETE
MAX	MAXIMUM
MBR	MEMBER
MC	MOMENT CONNECTION
MCJ	MASONRY CONTROL JOINT
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
ML	MASONRY LINTEL
N	NORTH
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OH	OVERHEAD
OPNG	OPENING
OPP	OPPOSITE
OVHG	OVERHANG
PAR	PARALLEL
PCF	POUNDS PER CUBIC FOOT
PCLJ	PARTIAL CONTROL JOINT
PEN	PENETRATION
PEMB	PRE ENGINEERED METAL BUILDING
PL	PLATE
PLBG	PLUMBING
PLF	POUNDS PER LINEAR FOOT
PREFAB	PREFABRICATED
PRELIM	PRELIMINARY
PS	PIPE SUPPORT, PUMP STATION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RECT	RECTANGULAR
REF	REFERENCE
REINF	REINFORCING
REQD	REQUIRED
REV	REVISION
RO	ROUGH OPENING
RTW	RETAINING WALL
S	SOUTH
SCH	SCHEDULE
SECT	SECTION
SF	SQUARE FOOT
SHT	SHEET
SIM	SIMILAR
SL	SLOPE
SLTD	SLOTTED
SOG	SLAB ON GRADE
SPA	SPACING
SPEC	SPECIFICATION
SQ	SQUARE
SST	STAINLESS STEEL
STD	STANDARD
STIR	STIRRUP
STL	STEEL
STR	STRUCTURAL, STRAIGHT
SUSP	SUSPENDED
T&B	TOP AND BOTTOM
T/	TOP OF
TD	TRENCH DRAIN
TEMP	TEMPORARY
THK	THICK
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOG	TOP OF GRATING
TOM	TOP OF MASONRY
TOS	TOP OF SLAB, TOP OF STEEL
TOW	TOP OF WALL
TPG	TOPPING, THROUGH PLATE GIRDER
TYP	TYPICAL
ULT	ULTIMATE
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VOL	VOLUME
W	WEST, WIDE, WIDE FLANGE BEAM
W/	WITH
W/O	WITHOUT
WF	WIDE FLANGE
WLD	WELDED
WM	WIRE MESH
WP	WORK POINT
WS	WATERSTOP
WT	WEIGHT
WWF	WELDED WIRE FABRIC

ABBREVIATIONS NOTES:

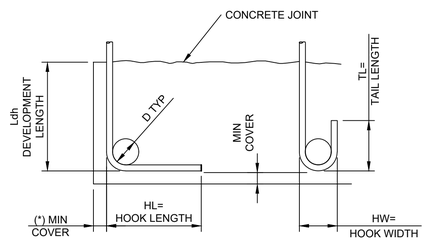
1. THESE ABBREVIATIONS APPLY TO THE STRUCTURAL SET OF CONTRACT DRAWINGS.

2. LISTING OF ABBREVIATIONS DOES NOT IMPLY THAT ALL ABBREVIATIONS ARE USED IN THE CONTRACT DRAWINGS.

3. ABBREVIATIONS SHOWN ON THIS SHEET INCLUDE VARIATIONS OF A WORD. FOR EXAMPLE, "MOD" MAY MEAN MODIFY OR MODIFICATION; "INC" MAY MEAN INCLUDED OR INCLUDING AND "REINF" MAY MEAN EITHER REINFORCE OR REINFORCING.

BAR SIZE	f'c = 4.0 - 5.0 ksi, fy = 60.0 ksi			
	LAP LENGTH (IN.)		DEVELOPEMENT LENGTH L_d (IN.)	
	TOP	OTHER	TOP	OTHER
#3	16	16	12	12
#4	19	16	15	12
#5	24	20	19	15
#6	29	23	22	18
#7	42	33	33	25
#8	48	38	37	29
#9	60	47	46	36
#10	74	57	57	44
#11	89	69	68	53

1 S-002 LAP LENGTHS
SCALE: NTS



90 DEG STD HOOK 180 DEG STD HOOK

BAR SIZE GRADE 60	HL	HW	TL	D	f'c=4.0 OR 4.5 KSI Ldh *
#3	6"	3"	3"	2 1/4"	6"
#4	8"	4"	4 1/2"	3"	7"
#5	10"	5"	5"	3 3/4"	9"
#6	1'-0"	6"	6"	4 1/2"	10"
#7	1'-2"	7"	7"	5 1/4"	12"
#8	1'-4"	8"	8"	6"	14"
#9	1'-7"	11 3/4"	10 1/2"	9 1/2"	15"
#10	1'-10"	1'-1 1/4"	11 1/2"	10 3/4"	17"
#11	2'-0"	1'-2 3/4"	1'-1"	12"	19"

*COMPLYING WITH MINIMUM COVER REQUIREMENTS OF ACI 318. OTHERWISE Ldh MUST BE RE-CALCULATED.

NOTES:

1. LAP LENGTHS SHOWN ARE FOR CLASS "B" TENSION SPLICES.

2. LAP LENGTHS AND EMBEDMENTS SHOWN ARE FOR BARS SPACED LATERALLY ≥ FIVE TIMES THE BAR DIAMETER (CENTER TO CENTER) AND FOR MINIMUM COVER IN ACCORDANCE WITH ACI-318.

3. IF SPACING IS < 5 TIMES BAR DIAMETER (CENTER TO CENTER), INCREASE LAP LENGTH AND EMBEDMENT PER ACI-318.

4. TOP REINFORCING IS HORIZONTAL STEEL SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE REINFORCING.

2 S-002 REINFORCING HOOK SCHEDULE
SCALE: NTS

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TINKER AFB, OK

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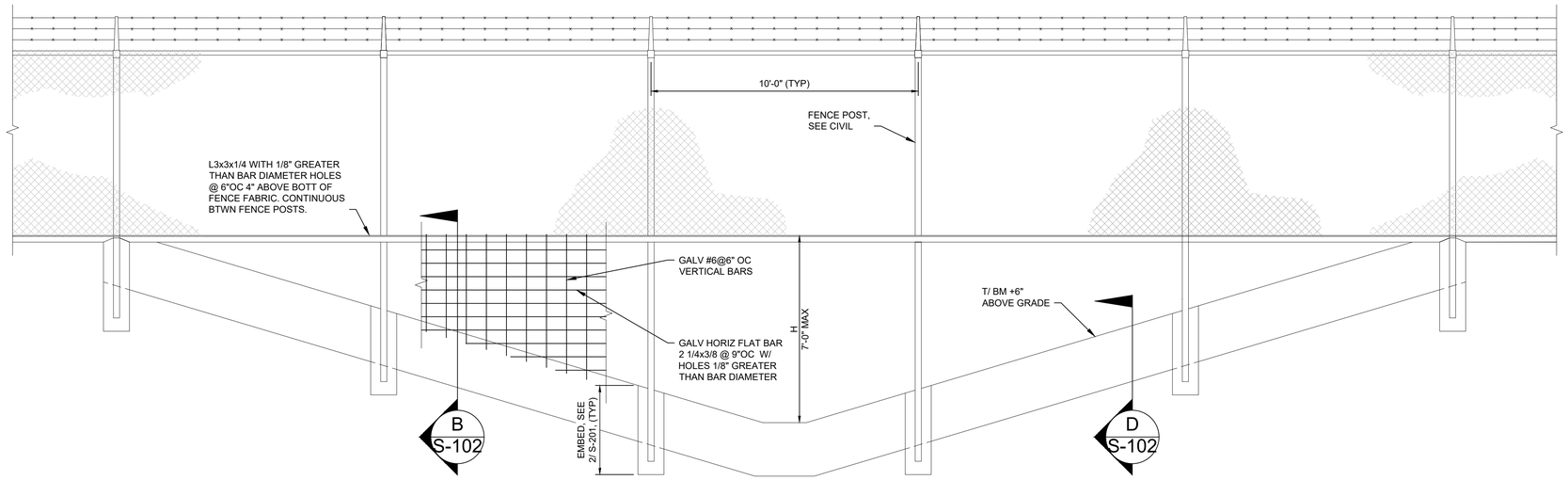
PROJECT INFORMATION
WWYK 250096
REPAIR STORMWATER SPILL GATE 11 STRUCTURE
TINKER AIR FORCE BASE, OKLAHOMA

REVISIONS
MARK | DATE | DESCRIPTION

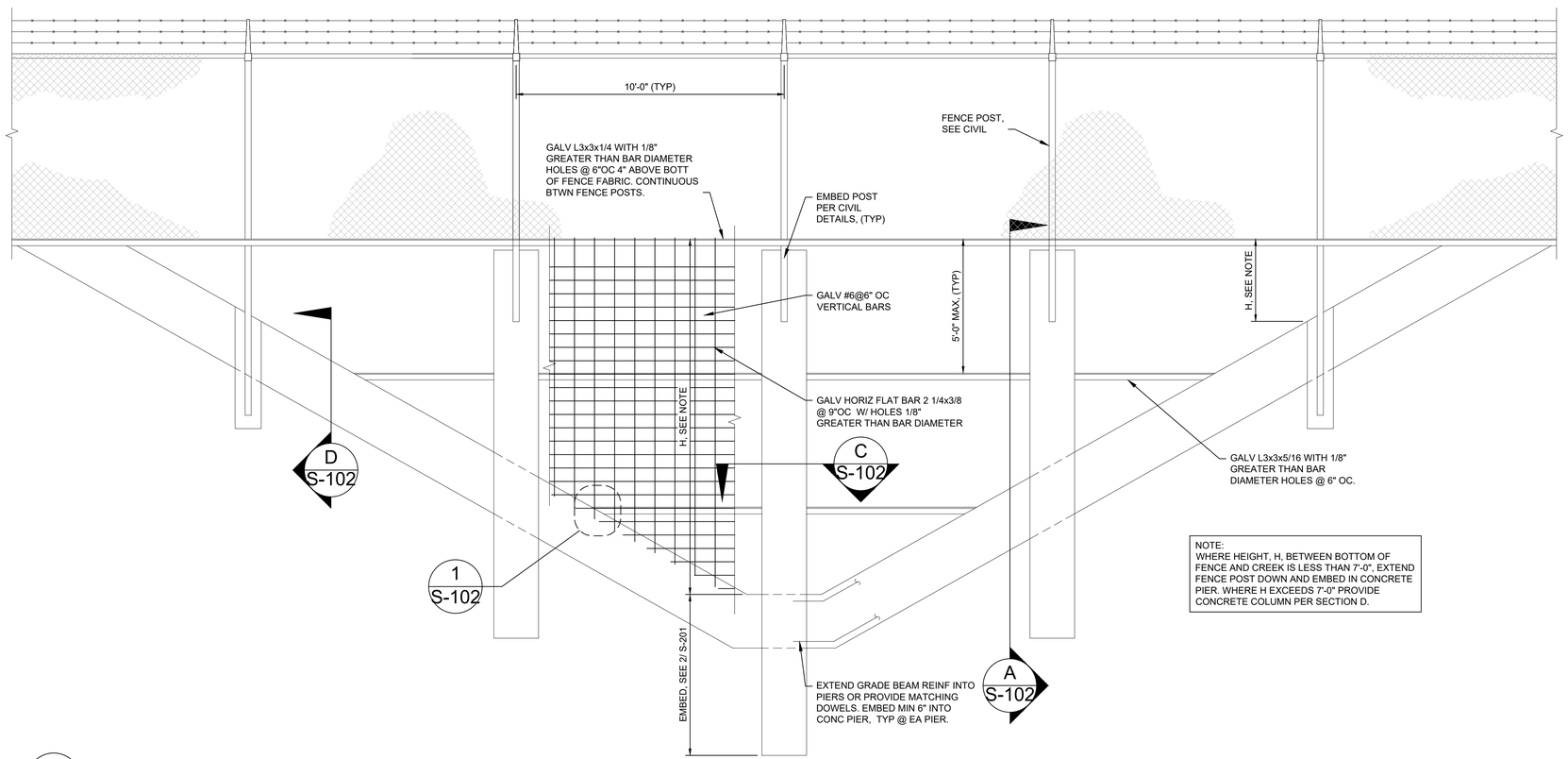
MANAGEMENT INFORMATION
ISSUE DATE: 30 MARCH 2026
DESIGN GROUP: TEPA/HDR
DESIGNED BY: LEM
DRAWN BY: SFF
CHECKED BY: BKT
DESIGN FILE LOCATION:

SHEET TITLE
STRUCTURAL GENERAL NOTES AND STRUCTURAL ABBREVIATIONS

SHEET NUMBER
S-001
SHEET OF



1 S-101 TYPICAL SECURITY BARS AT DRAINAGE CROSSINGS (H < 7'-0")
SCALE: NTS



NOTE:
WHERE HEIGHT, H, BETWEEN BOTTOM OF FENCE AND CREEK IS LESS THAN 7'-0", EXTEND FENCE POST DOWN AND EMBED IN CONCRETE PIER. WHERE H EXCEEDS 7'-0" PROVIDE CONCRETE COLUMN PER SECTION D.

2 S-101 TYPICAL SECURITY BARS AT DRAINAGE CROSSINGS (H ≥ 7'-0")
SCALE: NTS

SHEET NOTES:

1. REFERENCE CIVIL DRAWINGS FOR LOCATIONS AND PROFILES FOR ALL DRAINAGE CROSSINGS.
2. GENERIC PROFILES ARE SHOWN. ALL PROFILES AND DIMENSIONS SHALL BE FIELD VERIFIED.
3. ALL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH SPECIFICATIONS. CONTRACTOR MAY SHOP FABRICATE SECURITY PANELS TO GREATEST EXTENT POSSIBLE BASED ON FIELD MEASUREMENTS. WHERE GALVANIZED STEEL IS WELDED OR DAMAGED, PROVIDE GALVANIZING REPAIR PAINT PER SPECIFICATION 05 12 00.

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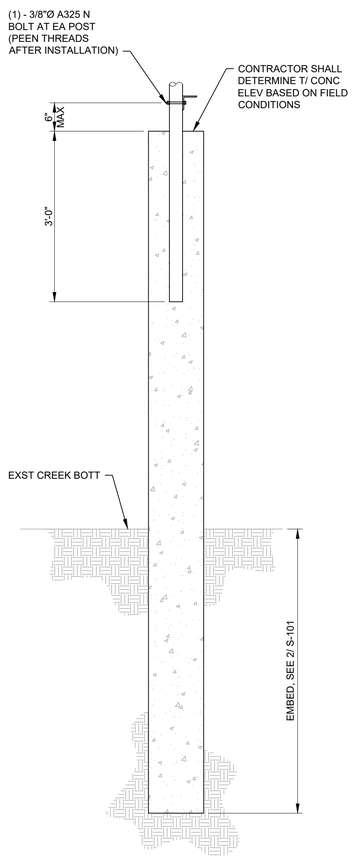
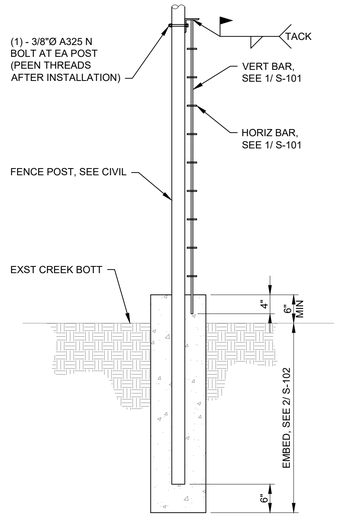
SHEET TITLE
STRUCTURAL
TYPICAL SECURITY BARS AT DRAINAGE CROSSINGS

SHEET NUMBER
S-101
SHEET OF

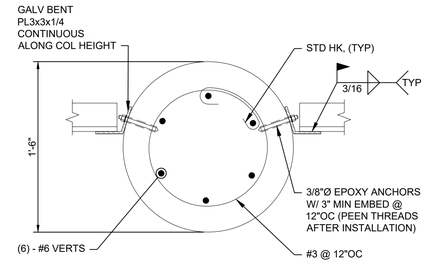


NOTE:
BAR GRILLE NOT SHOWN FOR CLARITY.

A S-101 TYPICAL SECURITY BARS DETAIL H > 7'-0"
SCALE: 3/4" = 1'-0"

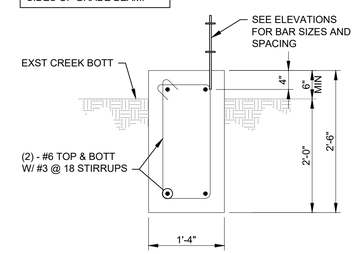


B S-101 TYPICAL SECURITY BARS DETAIL H < 7'-0"
SCALE: 3/4" = 1'-0"

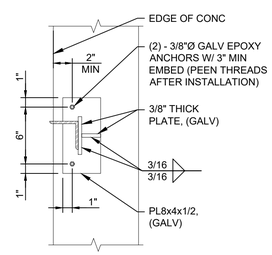


C S-101 COLUMN SECTION
SCALE: 1 1/2" = 1'-0"

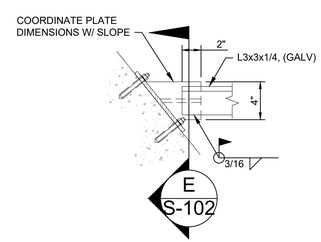
NOTE:
RIP RAP NOT SHOWN FOR
CLARITY. REF CIVIL FOR RIP
RAP REQUIREMENTS BOTH
SIDES OF GRADE BEAM.



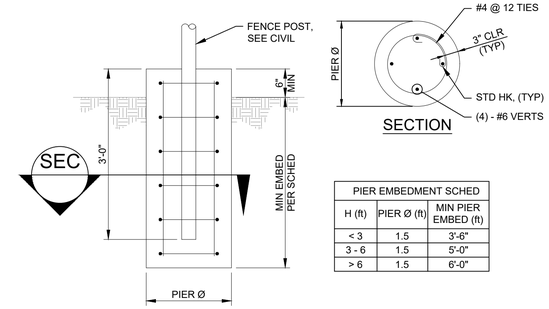
D S-101 TYPICAL GRADE BEAM
SCALE: 3/4" = 1'-0"



E S-101 SECTION
SCALE: 1 1/2" = 1'-0"



1 S-101 DETAIL
SCALE: 1 1/2" = 1'-0"



PIER EMBEDMENT SCHED		
H (ft)	PIER Ø (ft)	MIN PIER EMBED (ft)
< 3	1.5	3'-6"
3 - 6	1.5	5'-0"
> 6	1.5	6'-0"

2 S-101 PIER DETAIL
SCALE: 3/4" = 1'-0"

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PROJECT INFORMATION
WWYK 250096
REPAIR STORMWATER
SPILL GATE 11
STRUCTURE
TINKER AIR FORCE BASE, OKLAHOMA

REVISIONS

MARK	DATE	DESCRIPTION

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SHEET TITLE
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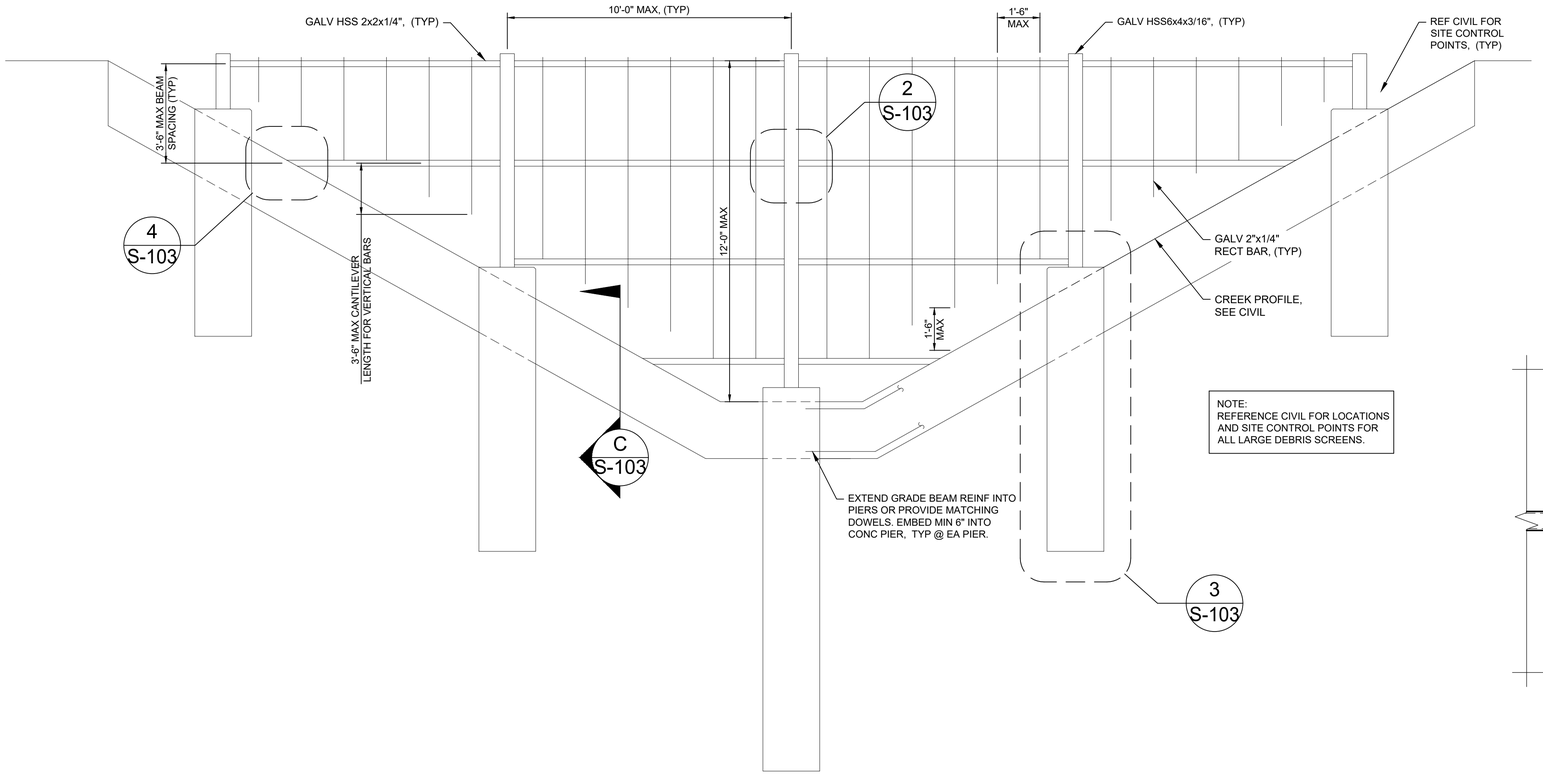
SECURITY BARS
SECTIONS AND
DETAILS

SHEET NUMBER
S-102
SHEET OF

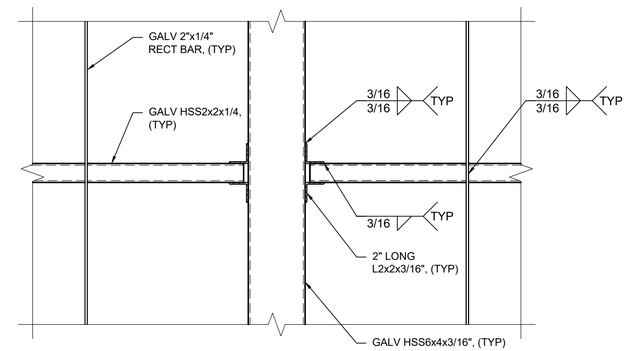


NOTE:
REFERENCE CIVIL FOR LOCATIONS AND SITE CONTROL POINTS FOR ALL LARGE DEBRIS SCREENS.

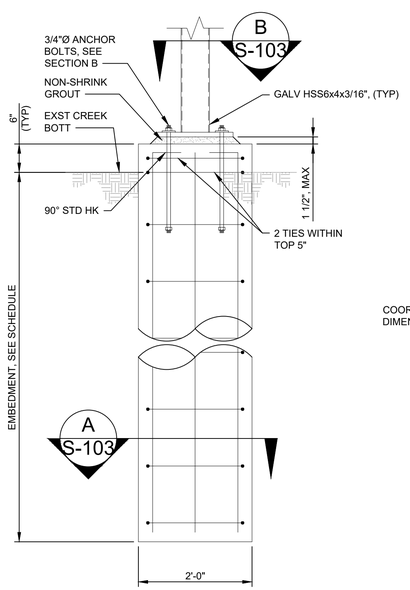
1 S-103 LARGE DEBRIS SCREEN
SCALE: NTS

SHEET NOTES:

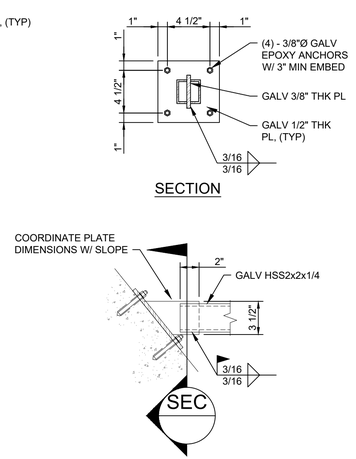
1. REFERENCE CIVIL DRAWINGS FOR LOCATIONS AND PROFILES FOR ALL DEBRIS SCREENS.
2. GENERIC PROFILES ARE SHOWN. ALL PROFILES AND DIMENSIONS SHALL BE FIELD VERIFIED.
3. ALL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH SPECIFICATIONS. CONTRACTOR MAY SHOP FABRICATE LARGE DEBRIS SCREEN PANELS TO MAXIMUM EXTENT POSSIBLE BASED ON FIELD MEASUREMENTS. WHERE GALVANIZED STEEL IS WELDED OR DAMAGED, PROVIDE GALVANIZING REPAIR PAINT PER SPECIFICATION 05 12 00.



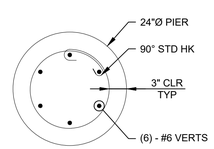
2 S-103 DETAIL
SCALE: 1 1/2" = 1'-0"



3 S-103 PIER DETAIL
SCALE: 3/4" = 1'-0"

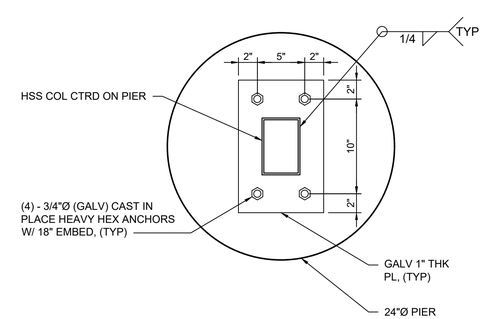


4 S-103 DETAIL
SCALE: 1 1/2" = 1'-0"



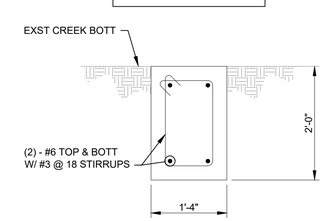
	PIER DIA	PIER EMBED
END COLUMN	2'-0"	5 FT
INTERMEDIATE COLUMN <8 FT	2'-0"	5 FT
INTERMEDIATE COLUMN >8 FT	2'-0"	6.5 FT

A S-103 PIER DETAIL
SCALE: 3/4" = 1'-0"



B S-103 BASEPLATE DETAIL
SCALE: 1 1/2" = 1'-0"

NOTE:
RIP RAP NOT SHOWN FOR CLARITY. REF CIVIL FOR RIP RAP REQUIREMENTS BOTH SIDES OF GRADE BEAM.



C S-103 TYPICAL GRADE BEAM
SCALE: 3/4" = 1'-0"

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STRUCTURAL LARGE DEBRIS SCREEN SECTIONS AND DETAILS

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SHEET OF