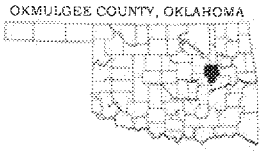
# MUSCOGEE (CREEK) NATION
# MEAT PROCESSING FACILITY
## WASTEWATER UTILITIES

OKMULGEE COUNTY, OKLAHOMA



FSB
MUSCOGEE (CREEK) NATION

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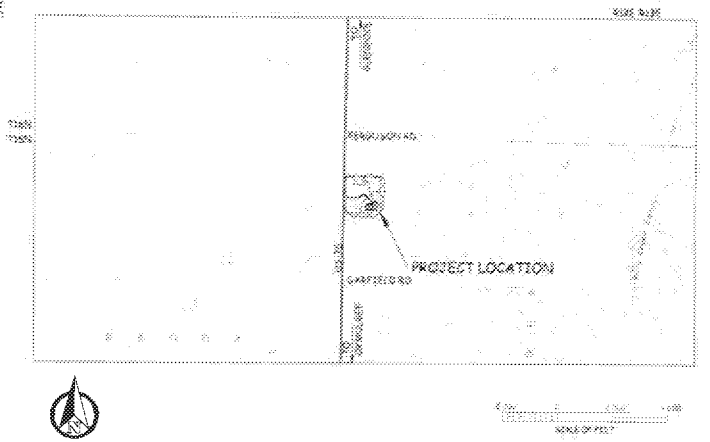



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Oklahoma C.A. No. 106 Renewal 6-30-21


ALL SURVEYING WORK WAS PERFORMED AND ENGINEERING DONE ON THE PLANS REFERENCE THE NAD83 OKLAHOMA STATE PLANE S. ZONE, US FOOT COORDINATE SYSTEM

Drawing for Review only unless Signature and Seal are Displayed

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## GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT REGULATIONS OF CONSTRUCTION STANDARDS, CHAPTER 656 OF THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY TITLE 252 OR, WHICH ADMINISTRATIVE CODE RULES, APPROVAL AND ACCEPTANCE OF ALL CONSTRUCTION WILL BE BY THE MUSCOGEE (CREEK) NATION.

2. THE CONTRACTOR SHALL CONSTRUCT THE IMPROVEMENTS IN ACCORDANCE WITH THE DETAILED AND SIGNED PLANS AND SPECIFICATIONS PROVIDED BY THE ENGINEER.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TIMELY MONITORING OF TEMPORARY HEDGING OR OTHER PROTECTIVE MEASURES TO PROVIDE LAND OWNER'S PATIO AND/OR SHEDS REMAIN FENCED AND PROTECTED FROM DAMAGE. THE COST FOR THE SAME TO BE INCLUDED IN THE BID PRICE.

4. ALL LABOR, MATERIALS AND SERVICE CHARGES BY UTILITIES REQUIRED TO PROVIDE ELECTRICAL, GAS, AND TELEPHONE SERVICE FOR THIS CONTRACT WILL BE INCLUDED IN THE BID PRICE FOR THE VARIOUS ITEMS.

5. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE SLAB SODDED WITH BERMUDA GRASS. THE COST OF THE SAME WILL BE INCLUDED IN THE PRICE BID.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL UNDERGROUND AND/OR OVERHEAD UTILITIES EITHER PUBLIC OR PRIVATE. THE COST OF THE SAME WILL BE INCLUDED IN THE PRICE BID INCLUDING ALL REQUIREMENTS RELATED TO TRENCH SAFETY.

7. ANY CONSTRUCTION PROCEDURE NOT COVERED BY THE PLANS AND SPECIFICATIONS WILL BE EXECUTED IN ACCORDANCE WITH PROPER CONSTRUCTION TECHNIQUES.

8. ALL AREAS DISTURBED DURING CONSTRUCTION INCLUDING PAVEMENT, SIDEWALKS, DRIVES, APPROACHES & PARKING AND FENCES SHALL BE RESTORED WITH EQUAL OR BETTER THAN ORIGINAL MATERIALS.

9. ALL CONSTRUCTION SHALL BE IN FULL CONFORMANCE WITH ODEQ AND LOCAL REQUIREMENTS AND APPLICABLE ELECTRICAL AND PLUMBING CODES.

10. ALL WORK NOT CLASSIFIED AS A "CONTRACT ITEM" SHALL BE CONSIDERED INCIDENTAL AND THE COST THEREON INCLUDED IN ITEMS CLASSIFIED FOR PAYMENT.

11. UPON COMPLETION OF SECTIONS OF WORK, AND PRIOR TO RECEIVING PAYMENT THEREFORE, THE CONTRACTOR SHALL REMOVE ALL MACHINERY, EQUIPMENT, TEMPORARY STRUCTURES, SURPLUS AND DISCHARGED MATERIALS, RUBBISH, STUMPS OR PORTIONS OF TREES RESULTING FROM HIS OPERATION. MATERIAL CLEANED FROM THE SITE AND DEPOSITED ON ADJACENT PROPERTY WILL NOT BE CONSIDERED AS HAVING BEEN DISPOSED OF SATISFACTORILY. CONTRACTOR MAY STACK AND BURN ON SITE ALL RUBBISH, STUMPS OR PORTIONS OF TREE AFTER ACQUIRING A BURN PERMIT FROM THE LOCAL MUNICIPALITY IF APPLICABLE AND ENGINEER'S APPROVAL. DISPOSAL SHALL BE IN LOCATIONS APPROVED BY THE ENGINEER BEFORE THE WORK BEGINS.

12. THE CONTRACTOR SHALL USE A REGISTERED LAND SURVEYOR AND PROVIDE ALL CONSTRUCTION STAKING FROM CONTROL SET BY THE ENGINEER.

13. THE LOCATION AND ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE APPROXIMATE BASED UPON AVAILABLE INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL VERIFY THE ELEVATION OF ALL EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCY.

14. THE CONTRACTOR SHALL MAINTAIN AND SUBMIT TO THE ENGINEER AT COMPLETION OF CONSTRUCTION A SET OF PLANS UPON WHICH ARE NOTED WITH ALL CHANGES.

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC FLOW AROUND CONSTRUCTION SITE AT ALL TIMES.

16. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE FINISHED TO A SMOOTH UNIFORM SURFACE PERMITTING DRAINAGE AND SLOPED IN SUCH CONDITION THAT ALL AREAS MAY BE MOWED WITH ROTARY TYPE MOWING EQUIPMENT.

17. IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS TO PROVIDE A COMPLETE FUNCTIONING SYSTEM. ANY ITEM NEEDED TO COMPLETE AN OPERATING SYSTEM SHALL BE FURNISHED BY THE CONTRACTOR WHETHER SPECIFICALLY CALLED FOR OR NOT. THE COST OF THE SAME WILL BE INCLUDED IN THE VARIOUS BID ITEMS.

18. EXTERIOR SLABS SHALL SLOPE AWAY FROM BUILDINGS OR OTHER STRUCTURES AT A MINIMUM OF 1" PER FOOT UNLESS OTHERWISE SPECIFIED AND ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".

19. ALL CONCRETE SLABS, SIDEWALKS, ETC. SHALL HAVE AT MINIMUM #4 BARS @ 12" O.C., E.W. FOR THICKNESS BETWEEN 4" & 7" AND #4 BARS @ 12" O.C., E.W., E.F. FOR THICKNESS BETWEEN 7" & 12" UNLESS OTHERWISE NOTED.

20. IF THE GRADES SUBSIDE AND/OR ERODE WITHIN 12 MONTHS OF COMPLETION, THE CONTRACTOR SHALL REWORK GRADES TO SPECIFIED TOLERANCES AS SOON AS WEATHER PERMITS.

21. ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3,500 PSI. ALL REINFORCING STEEL SHALL HAVE A YIELD STRENGTH OF 60,000 PSI, AND BE EPOXY COATED.

22. ALL METAL PIPING, VALVES, FITTINGS, AND SUPPORTS SHALL BE CLEANED, PRIMED AND PAINTED. THE PAINTING SYSTEM SHALL BE A LUSTERLESS EPOXY PAINT. TNEMEC SERIES 69 OR APPROVED EQUAL. ALL SYSTEMS SHALL BE APPLIED PER THE MANUFACTURER'S GUIDELINES.

23. ALL REBAR SHALL HAVE 2" OF CLEARANCE FROM EACH FACE.

24. ALL COLD POURED JOINTS SHALL HAVE A 6" NEOPRENE BARBELL SHAPED WATERSTOP.

25. ALL HORIZONTAL AND VERTICAL REINFORCING STEEL SHALL WRAP AROUND CORNERS A MINIMUM OF 24" OR THE MINIMUM DEVELOPMENT LENGTH (48 X BAR Ø), WHICHEVER IS GREATER. (EXAMPLE: FOR #5 BAR: 48 X 0.625" = 30") BAR SIZE AND SPACING SHALL BE EQUAL TO THE LARGEST BAR AT THE CORNER TO BE WRAPPED.

26. COMPACTION REQUIREMENTS: A) PAVED AREAS: 95% STANDARD PROCTOR DENSITY B) NON PAVED AREAS: 90% STANDARD PROCTOR DENSITY IF COVER DEPTH < 10'. 95% STANDARD PROCTOR DENSITY IF COVER DEPTH ≥ 10'.

27. ALL FITTINGS AND VALVES SHALL BE EPOXY COATED D.I.P. WITH T 316 STAINLESS STEEL BOLTS AND RESTRAINED JOINTS.

28. THE INTERIOR OF THE WET WELL AND ALL MANHOLES SHALL BE COATED WITH EPOXY PAINT. RUST OLEUM E9578 SYSTEM, TNEMEC SERIES 69 OR EQUAL. ALL SYSTEMS SHALL BE APPLIED PER THE MANUFACTURER'S GUIDELINES.

(Drawing for Review only unless Signature and Date are Original)


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Oklahoma C.A. No. 795
Renewal 6-30-21


SHEET INDEX & GENERAL NOTES
Chickasaw Co., Oklahoma

SHEET 2

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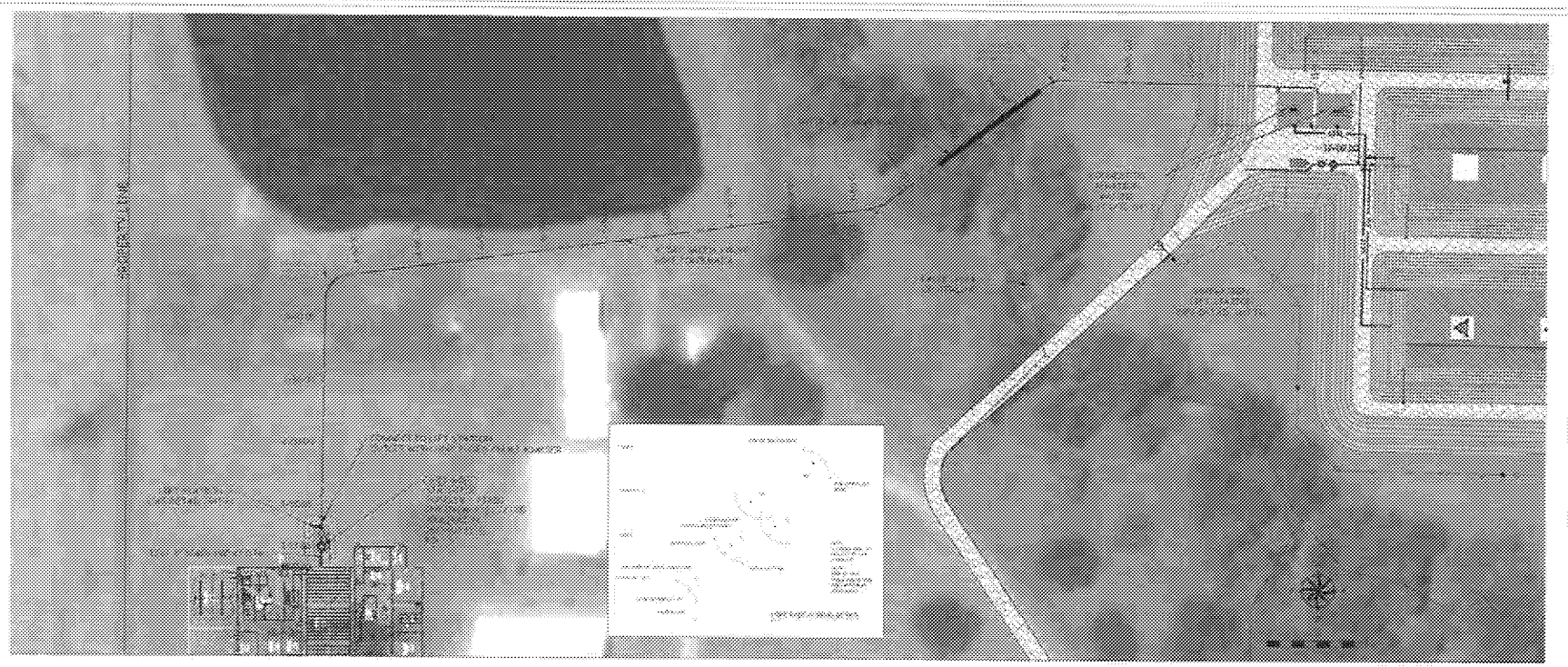

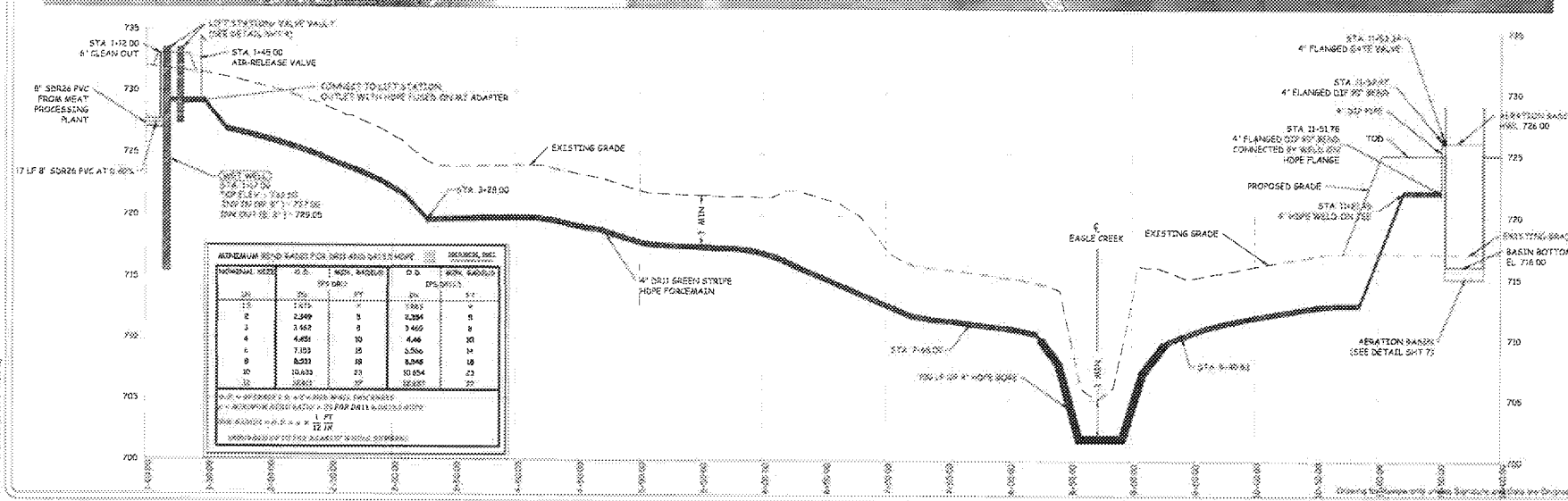


MINIMUM BEND RADII FOR DR11 AND DR13 HDPE

| NOMINAL SIZE | O.D. | MIN. RADIUS | O.D. | MIN. RADIUS |
|---|---|---|---|---|
| | IPS DR11 | | IPS DR13 | |
| IN | IN | FT | IN | FT |
| 1 | 1.675 | 7 | 1.683 | 9 |
| 2 | 2.349 | 5 | 2.384 | 8 |
| 3 | 3.462 | 8 | 3.460 | 8 |
| 4 | 4.851 | 10 | 4.46 | 10 |
| 6 | 7.153 | 15 | 5.566 | 14 |
| 8 | 8.531 | 18 | 8.846 | 18 |
| 10 | 10.633 | 23 | 10.654 | 23 |
| 12 | [illegible] | [illegible] | [illegible] | [illegible] |

$\frac{1}{12}$ FT / IN

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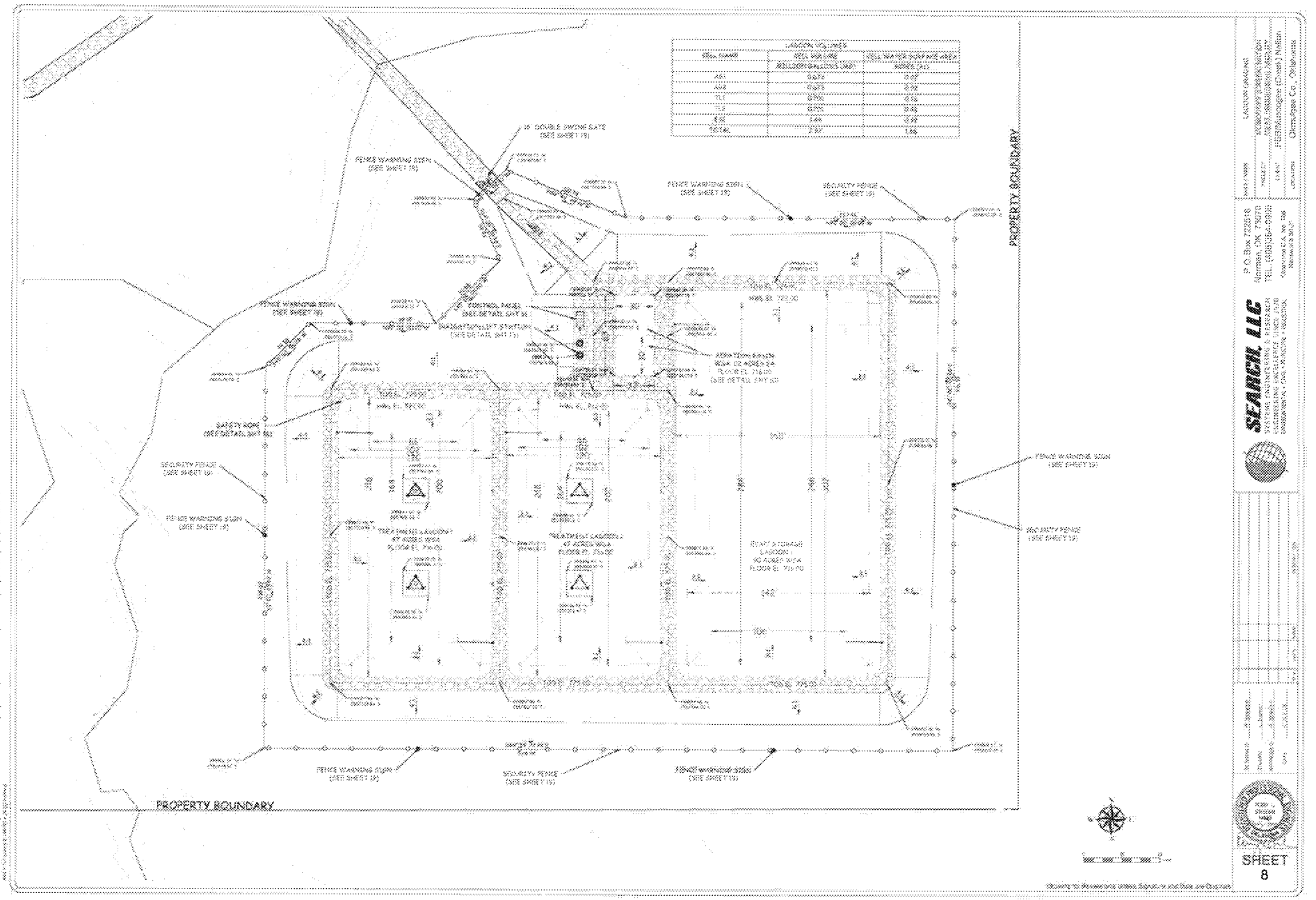
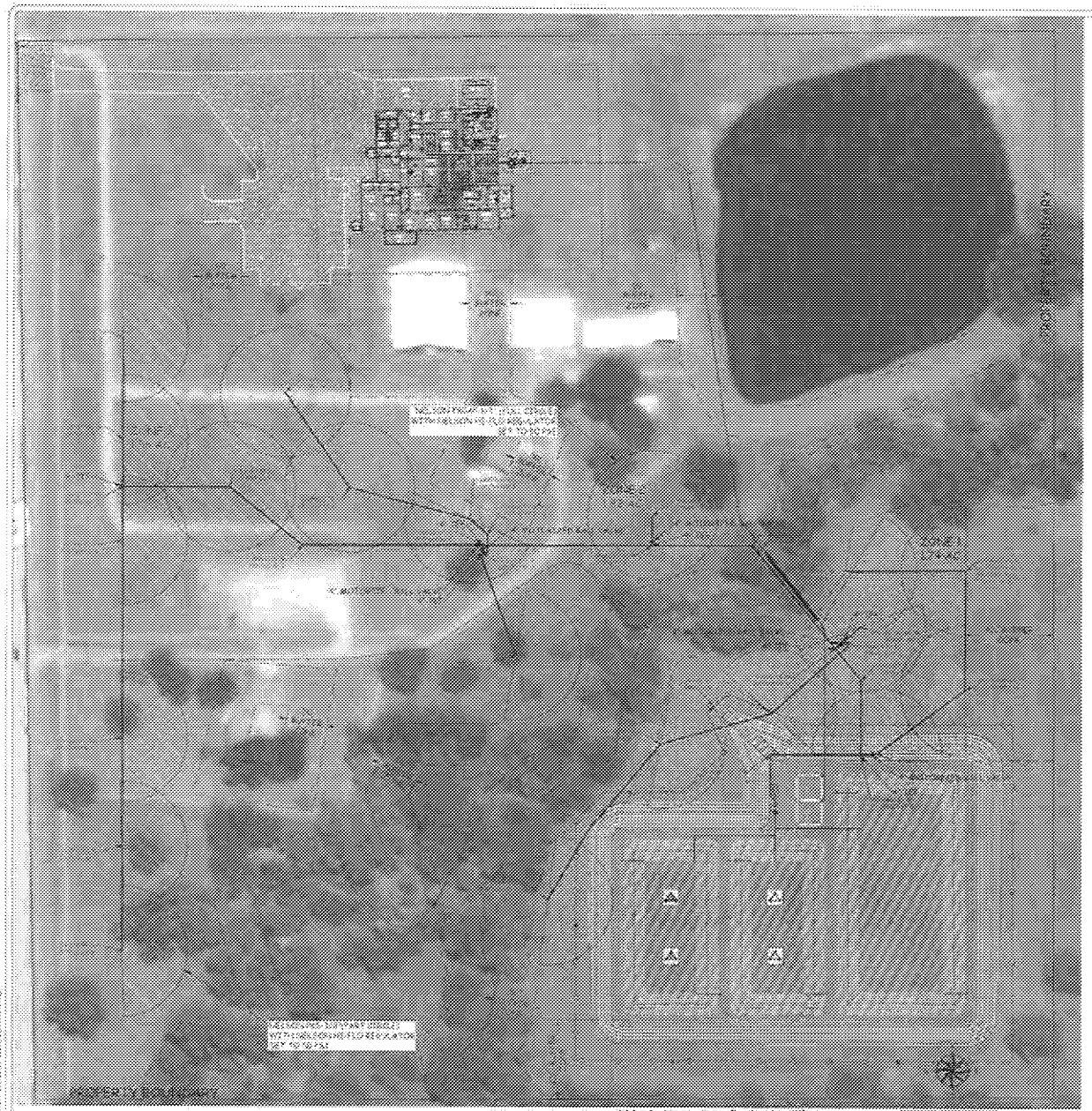
Renewal 6-30-21

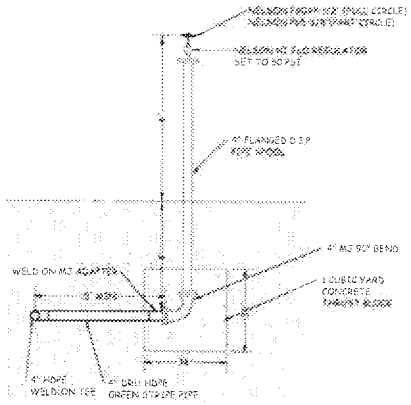
FORCEMAIN P&P
MUSCOGEE (CREEK) NATION
MEAT PROCESSING FACILITY
FSR/Muscogee (Creek) Nation
Okmulgee Co., Oklahoma

SHEET 6

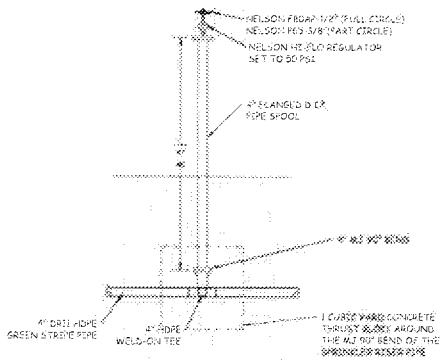

PROPERTY BOUNDARY
PROPERTY BOUNDARY
SEARCH, LLC
P.O. Box 722618
Norman, OK 73070
SHEET
8




IRRIGATION ZONES PLAN VIEW




SPRINKLER HEAD SIDE VIEW




SPRINKLER HEAD FRONT VIEW

Irrigation System Notes:

1. During the first phase of the project, the irrigation system will not be required. Only after the production exceeds 6 head per day will the irrigation system be required. However, the irrigation wet well and 6" gravity pipe running to the irrigation wet well will need to be installed during the construction of the lagoons. These items cannot be installed at a later time without taking the treatment system out of service.

2. Operational times: There are three zones each containing approximately 1.85 acres. The daily limit for each zone will be 0.5 inches per day. The zone should be rotated daily. At a maximum, each field should be irrigated once every three days. 0.5 inches of irrigation on a zone equals 50,181 gallons. At an irrigation rate of 200 gpm, it will take 250 minutes (4 hours and 10 minutes) to put 0.5 inches of water on the zone.

3. During inclement weather, the irrigation system shall not be used. The irrigation water will accumulate in the Treatment Lagoon (TL2) and the Evap/Storage Lagoon (ES1). These lagoons have volumes of 0.70 and 1.43 million gallons, respectively. This is a total volume of 2.13 million gallons or approximately 170 days of storage without evaporation considered. Considering evaporation, the storage volume will hold approximately 213 days of wastewater.

The irrigation pump will:

1. Alternate after each use
2. Be controlled by a 7 day, 24 hr. timer, fully programmable by the operator
3. Be operated on days where the low temperature is above 35 degrees F. There shall be a thermocouple installed on the control panel under the control panel owning to allow the irrigation pump to run if the temperature is warm enough.
4. Be operated on days where the rainfall is below 0.25". There shall be a rain gauge installed above the control panel cover to prevent the irrigation pump from running if there has been over 0.25 inches of rain in the last 24 hrs.
5. Be controlled by two floats in the irrigation wet well. The lower float will turn the pump off if the level in the irrigation wet well reaches a preset level. The higher float will allow the irrigation pump to run if the need in the irrigation wet well is above a preset level. Both floats will be field adjustable by the operator.

(Drawing for Reference only. Consult Engineer and Check for Updates)

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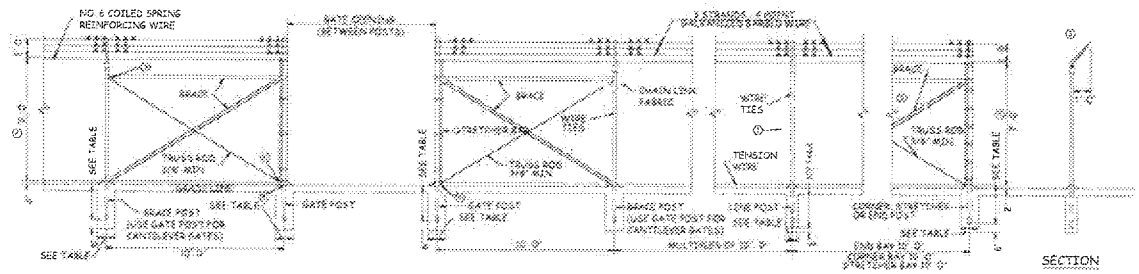
Oklahoma C.A. No. 1968
Expires 6/30/

| | |
|---|---|
| PROJECT NAME | Poultry Waste Management Facility Wanette |
| PROJECT NO. | 2006-0 |
| DATE | 2/2/07 |
| LOCATION | Pottawatomie County, Oklahoma |

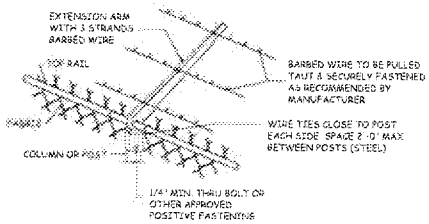
SHEET
14

NOTES:

1. BOTTOM EDGES TO BE TWISTED AND BARBED
2. HEIGHT (H) OF SECURITY FENCE TO BE 7' 0" WITH 3 STRANDS OF 4 POINT BARBED WIRE SECURELY ATTACHED TO SINGLE EXTENSION ARMS ALONG TOP OF FENCE. TOP STRAND TO BE 1' -0" ABOVE CHAIN LINK FABRIC
3. SINGLE EXTENSION ARMS SHALL POINT OUTWARD AT A 45 ANGLE
4. PROVIDE SLOPED CONCRETE BASE
5. DETAIL TYPICAL AT BOTH SIDES OF CORNER AND STRETCHER POST
6. TRUSS ROD SHALL BE ATTACHED TO BRACE CLAMP AT UPPER CORNER. AT LOWER CORNER, A SHORT LENGTH OF TRUSS ROD WITH THREADED END SHALL BE CLAMPED TO POST. LOWER END OF TRUSS ROD SHALL BE ATTACHED TO THIS SHORT LENGTH WITH A SWIVEL ADAPTOR AND NUT

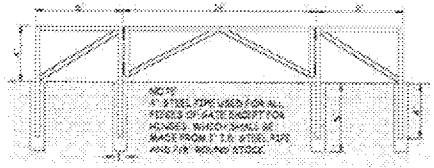



CHAIN LINK FABRIC FENCE
NO SCALE

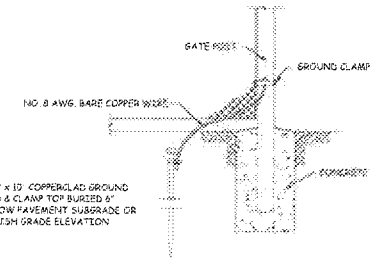



(SHOWN WITH RAIL. SIMILAR WITH TOP TENSION WIRE)

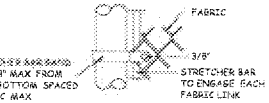
EXTENSION ARM FOR BARBED WIRE
NO SCALE



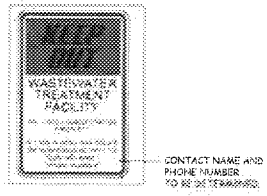

ACCESS ROAD GATE DETAIL
SCALE 1" = 4'




FENCE GROUNDING
NO SCALE

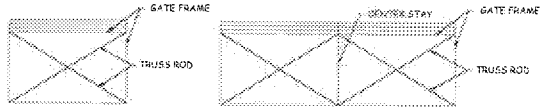



END OR GATE POST




NOTES
FENCE WARNING SIGNS SHALL BE
1. MINIMUM OF 130 $IN^2$
2. SHEET ALUMINUM W/ MINIMUM THICKNESS OF 60 MILS
3. SILK SCREEN PRINTED

FENCE WARNING SIGN
NO SCALE




GATE LEAVES THRU 10'-0" WIDE

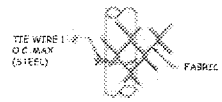
GATE LEAVES OVER 10' TO 18' WIDE

GATE FRAME CONSTRUCTION DETAILS
NO SCALE

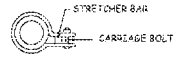
WIRE TIES FOR TOP OR BRACE RAIL

GATE LEGEND

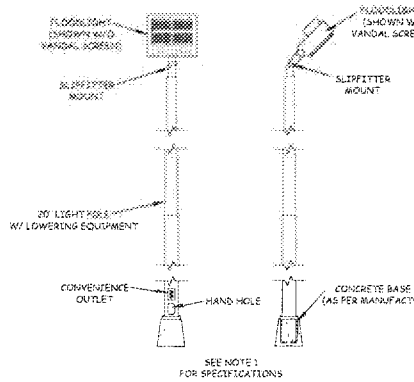
| GATE WIDTH | GATE NUMBER | TOTAL WIDTH | GATE TYPE | GATE LOCATION |
|---|---|---|---|---|
| FT | QTY | FT | | |
| 8 | 2 | 16 | CHAIN LINK | LIFT STATION |
| 8 | 2 | 16 | CHAIN LINK | GRAVITY STORAGE TANK AREA |
| 8 | 2 | 16 | CHAIN LINK | MAIN LAGOON ENTRANCE |
| 8 | 2 | 16 | CHAIN LINK | SE LAGOON GATE |
| 7 | 2 | 14 | WELDED STEEL PIPE | LAGOON ACCESS ROAD |




WIRE TIES FOR POST




PLAN AT BANDS



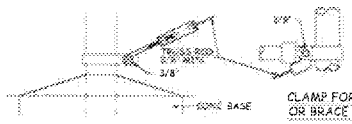

NOTES:

1. ALL LIGHTS ARE TO BE AS FOLLOWS
   20' ELECTRICAL POLE - COOPER LIGHTING - RHTS6A205YTXXC,
   LOWERING EQUIPMENT - COOPER LIGHTING - RHSSLOW
   FLOODLIGHT - MCGRAW EDISON - AGLEON-AF-04-LED-EI-RW-BK-ADJS

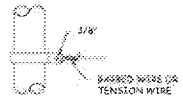
FLOOD LIGHT DETAILS
SCALE 1/2" = 1'

POST & FRAMEWORK SCHEDULE

| | LINE POST | END FOR ON STRETCHER POST | GATE POST FOR GATES OVER 6' WIDE | | | TOP RAIL OR POST BRACE RAIL | GATE FRAMES | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 6 & LESS | OVER 6' - 12' | OVER 12' | | 6 & LESS | OVER 6' - 10' | OVER 10' - 18' |
| SHAPE | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| NOMENCLATURE | 2" PIPE | 2 1/2" PIPE | 2 1/2" PIPE | 3 1/2" PIPE | 6" PIPE | 1 1/4" PIPE | 1 1/4" PIPE | 1 1/2" PIPE | 1 1/2" PIPE |
| DIMENSIONS | 2.38" OD 2.07" ID 0.154" THK | 2.88" OD 2.47" ID 0.203" THK | 2.88" OD 2.47" ID 0.203" THK | 4.00" OD 3.55" ID 0.226" THK | 6.63" OD 6.07" ID 0.280" THK | 1.66" OD 1.38" ID 0.140" THK | 1.66" OD 1.38" ID 0.140" THK | 1.90" OD 1.61" ID 0.145" THK | 1.90" OD 1.61" ID 0.145" THK |
| CRITICAL AXIS SEC MODULUS | 0.561 $IN^3$ | 1.06 $IN^3$ | 1.06 $IN^3$ | 2.39 $IN^3$ | 8.50 $IN^3$ | 0.235 $IN^3$ | 0.235 $IN^3$ | 0.326 $IN^3$ | 0.326 $IN^3$ |
| WEIGHT | 3.65 LBS/LIN FT | 5.79 LBS/LIN FT | 5.79 LBS/LIN FT | 9.11 LBS/LIN FT | 18.97 LBS/LIN FT | 2.27 LBS/LIN FT | 2.27 LBS/LIN FT | 2.72 LBS/LIN FT | 2.72 LBS/LIN FT |
| LENGTH FOR SEVEN FENCE FABRIC HEIGHT | 8' | 8' | 8' | 8' | 8' | 8' | 8' | 8' | 8' |
| EMBEDMENT FOR SEVEN FENCE FABRIC HEIGHT | 2' | 2' | 2' | 2' | 2' | 2' | 2' | 2' | 2' |
| POST HOLE SIZE (DIA X DEPTH) | 10" DIA | 16" DIA | 16" DIA | 20" DIA | 24" DIA | | | | |
| FOOTING SIZE (DIA X DEPTH) | 8" DIA 10" DEPTH | 12" DIA 12" DEPTH | 12" DIA 12" DEPTH | 16" DIA 12" DEPTH | 20" DIA 12" DEPTH | | | | |




CLAMP FOR TOP OR BRACE RAIL




BAND FOR WIRE STRETCHING

(6) TRUSS ROD AND BAND

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Oklahoma C.A. No. 1166
Renewal 6-30-21

PROJECT NAME: FENCE AND LIGHTING DETAILS
PROJECT: WASTEWATER TREATMENT FACILITY
SITE AT: [illegible] Nation
DATE: K 5/8/19
LOCATION: Okmulgee Co., Oklahoma

SHEET 19

Drawing for Review only unless Signature and Seal are Original

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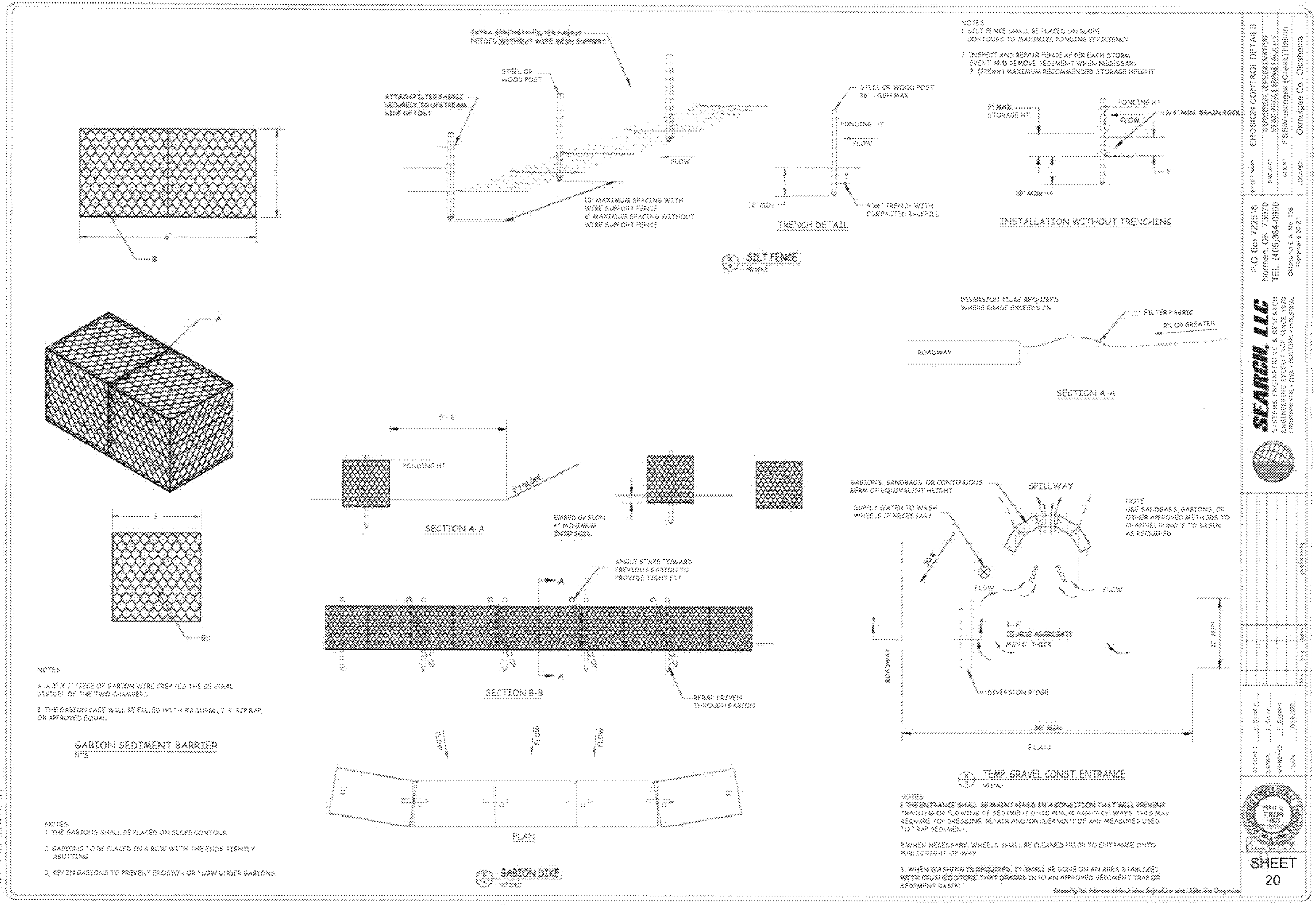
NOTES
1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
2. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
9" (225mm) MAXIMUM RECOMMENDED STORAGE HEIGHT
STEEL OR WOOD POST
ATTACH FILTER FABRIC SECURELY TO UPSTREAM SIDE OF POST
EXTRA STRENGTH FILTER FABRIC NEEDED WITHOUT WIRE MESH SUPPORT
10' MAXIMUM SPACING WITH WIRE SUPPORT FENCE
6' MAXIMUM SPACING WITHOUT WIRE SUPPORT FENCE
FLOW
PONDING HT.
TRENCH DETAIL
INSTALLATION WITHOUT TRENCHING
SILT FENCE
DIVERSION RIDGE REQUIRED WHERE GRADE EXCEEDS 2%
FILTER FABRIC
2% OR GREATER
ROADWAY
SECTION A-A
SECTION B-B
ANGLE STAKE TOWARD PREVIOUS GABION TO PROVIDE TIGHT FIT
REBAR DRIVEN THROUGH GABION
PLAN
GABION DIKE
NOTES
1. THE GABIONS SHALL BE PLACED ON SLOPE CONTOUR
2. GABIONS TO BE PLACED IN A ROW WITH THE ENDS TIGHTLY ABUTTING
3. KEY IN GABIONS TO PREVENT EROSION OR FLOW UNDER GABIONS
NOTES
A. A 3' X 3' PIECE OF GABION WIRE CREATES THE CENTRAL DIVIDER OF THE TWO CHAMBERS.
B. THE GABION CASE WILL BE FILLED WITH #3 SURGE, 3"-4" RIP RAP, OR APPROVED EQUAL.
GABION SEDIMENT BARRIER
NTS
GABIONS, SANDBAGS, OR CONTINUOUS BERM OF EQUIVALENT HEIGHT
SUPPLY WATER TO WASH WHEELS IF NECESSARY
SPILLWAY
NOTE:
USE SANDBAGS, GABIONS, OR OTHER APPROVED METHODS TO CHANNEL RUNOFF TO BASIN AS REQUIRED
DIVERSION RIDGE
PLAN
TEMP. GRAVEL CONST. ENTRANCE
NO SCALE
NOTES
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
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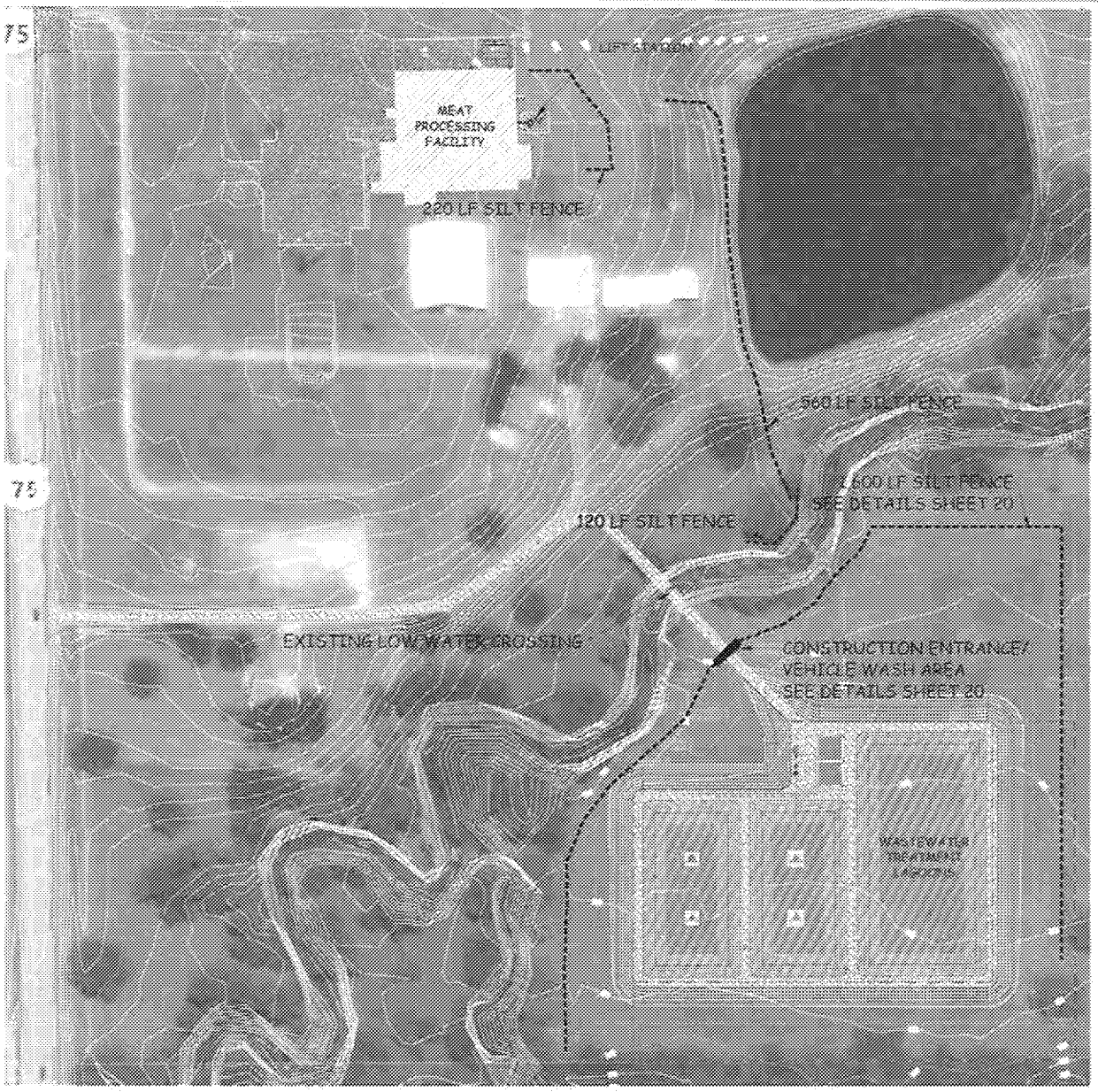
ENGINEERING EXCELLENCE SINCE 1978
ENVIRONMENTAL • CIVIL • MUNICIPAL • INDUSTRIAL
P.O. Box 722518
Norman, OK 73070
TEL. (405)364-0300
EROSION CONTROL DETAILS
F.S.B. Muscogee (Creek) Nation
Okmulgee Co., Oklahoma
SHEET
20

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P.O. Box 722516
Norman, OK 73070
TEL (405)364-0900
Oklahoma C.A. No. 106
Renewal 6-30-21

SHEET NAME: EROSION CONTROL PLAN
PROJECT: MUSCOGEE (CREEK) NATION MEAT PROCESSING FACILITY
CLIENT: FSB/Muscogee (Creek) Nation
LOCATION: Okmulgee Co., Oklahoma

DESIGNED: P. Stewart
DRAWN: [illegible]
APPROVED: P. Stewart
DATE: 10/15/2020

SHEET 21

# STRUCTURAL – GENERAL NOTES

## GENERAL REQUIREMENTS

DESIGN AND SPECIFICATIONS: Bridge design and construction to conform with AASHTO LRFD Bridge Design Specification, 8th Edition and approved state amendments.

[illegible]: The contractor is responsible for the means and methods of construction and all job related safety standards such as OSHA and DOSH (Department of Occupational Safety and Health). The contractor is responsible for means and methods of construction related to the intermediate structural conditions (i.e. movement of the structure due to moisture and thermal effects, construction sequence, temporary bracing, etc)

[illegible]: The contractor is [illegible] for the strength and stability of the structure during construction [illegible] temporary [illegible] and other elements required to maintain stability [illegible]. It is the [illegible] to be familiar with the work required in the [illegible] requirements for [illegible].

DISCREPANCIES: In case of discrepancies between the General Notes, Specifications, Plans/Details or Reference Standards, the Engineer shall determine which shall govern. Discrepancies shall be brought to the attention of the Engineer before proceeding with the work.

SITE VERIFICATION: The contractor shall verify all dimensions and conditions at the site. Conflicts between the drawings and actual site conditions shall be brought to the attention of the Engineer before proceeding with the work.

ADJACENT UTILITIES: The contractor shall determine the location of all adjacent underground utilities prior to earthwork, foundations, shoring, and excavation. Any utility information shown on the drawings and details is approximate and not necessarily complete.

GUARDRAILS: Design of any guardrails, crash barriers and pedestrian railings is by others. Owner/contractor is responsible to retain Civil Engineer to coordinate the design and layout of any guardrail and pedestrian railing systems. All connections to the structure to be reviewed and approved by Premier Steel Services.

## SOILS AND FOUNDATIONS

FOUNDATIONS: Foundations shall bear either on competent native soil or compacted structural fill. Tops of footings shall be as shown on plans with vertical changes as indicated with steps in footings; locations of steps shown as approximate and shall be coordinated with the civil grading plans.

CONTRACTOR'S RESPONSIBILITIES: Contractor shall be responsible for all subgrade preparation, temporary excavation, retention, groundwater management and all other aspects associated to the geotechnical preparation.

[illegible]: Design of the foundations have been based upon assumed conditions without use of a site-specific Geotechnical Report. DD recommends the Owner/Contractor retain a Geotechnical Consultant to inspect all sub-grades and prepared soil bearing surfaces, prior to placement of foundation reinforcing steel and concrete. Owner/Contractor Geotechnical Consultant shall provide a letter to the owner stating that soils are adequate to support the "Allowable Foundation Bearing Pressure(s)" shown below. Assumed values shall be field verified by the Authority Having Jurisdiction or the Geotechnical Engineer prior to placing concrete.

ASSUMED DESIGN SOIL VALUES:

| | |
|---|---|
| Allowable Foundation Bearing Pressure | 3000 PSF – Native or Structural Fill |
| Active Lateral Pressure (unrestrained) | 45 PSF/FT |
| At-Rest Lateral Pressure (restrained) | 65 PSF/FT |
| Surcharge Lateral Pressure | .8h PSF |
| Coefficient of Sliding Friction | 0.35 |
| Modulus of Subgrade | 150 PCI |

[illegible]

## CAST-IN-PLACE CONCRETE

REFERENCE STANDARDS: Conform to:
(1) AASHTO LRFD Bridge Specification, Section 5 – "Concrete Structures"
(2) AASHTO Standard Specification for Materials and Methods of Sampling and Testing
(3) ACI 301 – "Specifications for Structural Concrete"
(4) ACI 117 – "Specifications for Tolerances for Concrete Construction and Materials"

MATERIALS: Conform to AASHTO Standard Specification M43, M157 & M194 or ACI 301 for requirements for cementitious materials, aggregates, mixing water and admixtures.

| | |
|---|---|
| Concrete Bridge Deck & Beams | fc = 4000 psi at 28 days, Class B |
| Retaining Walls and Footings | fc = 4000 psi at 28 days, Class B |
| Miscellaneous Concrete | fc = 3000 psi at 28 days, Class B |

MEASURING, MIXING, AND DELIVERY: Conform to ACI 301.

[illegible]: Conform to ACI 301 Section 5. In addition, hot weather concreting shall conform to ACI 305R-10 and cold weather concreting shall conform to ACI 306R-10.

[illegible]: Obtain samples and conduct tests in accordance with AASHTO T-23 of ACI 301 Section 1.6.3.2. Additional samples may be required to obtain concrete strengths at alternate intervals than shown below.

a. Cure 4 cylinders for 28-day test age test 1 cylinder at 7 days, test 2 cylinders at 28 days, and hold 1 cylinder in reserve for use as the Engineer directs. After 56 days, unless notified by the Engineer to the contrary, the reserve cylinder may be discarded without being tested for specimens meeting 28-day strength requirements.

b. The number of cylinders indicated above reference 6 by 12 in. cylinders. If 4 by 8 in. cylinders are to be used, additional cylinders must be cured for testing of 3 cylinders at test age per the table of this design requirements.

[illegible]: Strength is satisfactory when:
[illegible] averages of all sets of 3 consecutive tests equal or exceed the specified strength.
[illegible] test falls below the specified strength by more than 500 psi.

A "test" for acceptance is the average strength of two 6 by 12 in. cylinders or three 4 by 8 in. cylinders tested at the specified test age.

SURFACE FINISH: Unless otherwise specified, provide ordinary surface finish on formed surfaces.

[illegible]: Conform to ACI 117-10 for concrete placement tolerance.

EMBEDDED ITEMS: Position and secure in place expansion joint material, anchors and other structural and non-structural embedded items before placing concrete. Contractor shall refer to mechanical, electrical, plumbing and architectural drawings and coordinate other embedded items.

## CONCRETE REINFORCEMENT

REFERENCE STANDARDS: Conform to:

(1) ACI 301-16 "Standard Specifications for Structural Concrete", Section 3 "Reinforcement and Reinforcement Supports."
(2) CRSI MSP-09, 28th Edition "Manual of Standard Practice"
(3) ANSI/AWS D1.4 2005 "Structural Welding Code – Reinforcing Steel"
(4) AASHTO LRFD Bridge Specification, Section 5 – "Concrete Structures"
(5) ACI 117-10 "Specifications for Tolerances for Concrete Construction and Materials"

MATERIALS:

| | |
|---|---|
| Reinforcing Bars | ASTM A615, Grade 60, deformed bars<br>ASTM A615, Grade 75, deformed bars for #11<br>ASTM A706, Grade 60, deformed bars |
| Epoxy Coated Reinforcing Bars | ASTM A775 or A934 |
| Smooth Welded Wire Fabric | ASTM A1064 |
| Deformed Welded Wire Fabric | ASTM A1064 |
| Bar Supports | CRSI MSP-09, Chapter 3 "Bar Supports" |
| Tie Wire | 16 gage or heavier, black annealed |
| Headed Deformed Bars | ASTM A970 |

FABRICATION: Conform to ACI 301, Section 3.2.2. "Fabrication" and ACI SP-66 "ACI Detailing Manual"

WELDING: Bars shall not be welded unless authorized. When authorized, conform to ACI 301, Section 3.2.2.2 "Welding", AWS D1.4, and provide ASTM A706 grade 60 reinforcement.

PLACING: Conform to ACI 301, Section 3.2.2. "Placing." Placing tolerances shall conform to ACI 117.

CONCRETE COVER: Conform to AASHTO LRFD, Table 5.10.1-1 Cover for Unprotected Main Reinforcing Steel

SPLICES, [illegible]: Conform to AASHTO LRFD, Bridge Specification, Section 5.10.8

## STRUCTURAL STEEL

REFERENCE STANDARDS: Conform to:

(1) AASHTO LRFD Bridge Specification, Section 6 – "Steel Structures"
(2) ANSI/AISC 303-16 – "Code of Standard Practice for Steel Buildings & Bridges"
(3) AISC – "[illegible] of Steel Construction", [illegible] Edition (2016)
(4) AWS D1.5 – 2015 – "Bridge Welding Code"
(5) 2014 [illegible] – "Specification for Structural Joints using High-Strength Bolts"

MATERIALS:
Structural steel materials shall conform to AASHTO M270 Standard Specification for Structural Steel

| | |
|---|---|
| Wide Flange (W), Tee (WT) Shapes | ASTM A992, Fy = 50 ksi |
| Channel (C), Angle (L) & Misc Shapes | ASTM A36, Fy = 36 ksi |
| Structural Plate (PL) | ASTM A36, Fy = 36 ksi |
| High Strength Plate (Gr 50 PL) | ASTM A572, Fy = 50 ksi |
| Hollow Structural Section – Square/Rect (HSS) | ASTM A500, Grade B = 46 ksi |
| Structural Pipe (PIPE) 12" dia and less | ASTM A53, Grade B = 35 ksi |
| Heavy Strength Heavy Hex Structural Bolts | ASTM A325/F1852, Type 1 or 3, Plain |
| Heavy Hex Nuts | ASTM A563, Grade and Finish per RCSC Table 2.1 |
| [illegible] | [illegible] |
| [illegible] | ASTM F959, GR 55 (weldable) per Supplement S1 |
| [illegible] | ASTM A36, Fy = 36 ksi |
| High Strength Threaded Rods | ASTM A193, Grade B7, Fy = 100 ksi |
| Welded Headed (shear) Stud Anchors | ASTM A108 – Nelson/TRW S3L |
| Welded Headed Stud (H4S) Anchors | ASTM A108 – Nelson/TRW H4L |
| Dowel Bar Anchors (DBA) | ASTM A496 – Nelson/TRW D2L, Fy = 70 ksi |

FABRICATION & QUALITY CONTROL:
Fabrication shall conform to AISC 303 Section 8 and Quality Control shall conform to AISC 303 Section 8

WELDING:
All welding shall conform to AWS D1.5 – Bridge Welding Code. Use 70 ksi strength, low-hydrogen type electrodes (E7018) or E71T as appropriate for the welding process selected.

PROTECTIVE COATING REQUIREMENTS:

(1) SHOP PAINTING: Conform to AISC 303 Section 6.5 unless otherwise specified by the project specifications.
(2) EXPOSED STEEL: shall be protected by either multi-coat paint or galvanizing.

## METAL DECK

MATERIAL: ASTM A653 – SS Designation, Grade 33. Minimum yield strength shall be 33 ksi. Steel deck and accessories shall be galvanized to G60 minimum in accordance with ASTM A653.

TYPE: Deck shall be as shown on the structural drawings.

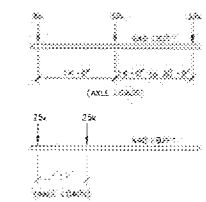
INSTALLATION: Install deck in accordance with supplier's instructions. Attachments shall resist the uplift forces and the diaphragm shear forces shown on the drawings. Welding shall conform to AWS D1.3. Welders shall have current Light Gage Certification. Minimum end lap shall be 2" centered over supports. Minimum bearing shall be 2".

ACCESSORIES: Deck manufacturer shall furnish shoring plans, closure plates, ridge and valley plates, sump strips, sump pans, flashing and all other light gage steel material required to complete the work.

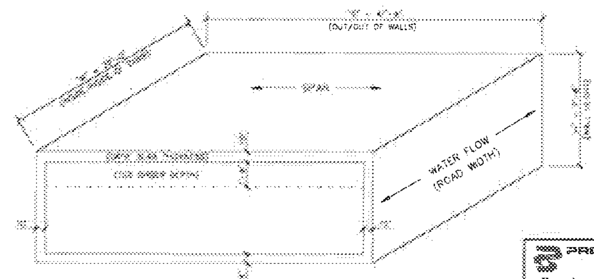
DECK FASTENING: Minimum deck fastening shall be as follows unless noted otherwise on drawings:

- [illegible]
- ¾" diameter puddle welds at 12" OC at longitudinal supports
- Side lap connections necessary to develop the shear loading indicated on the diaphragm schedule, but not less than 300 PLF.

## DESIGN LOADING




1. DESIGN LIVE LOAD: HL93 (GVW 36 TONS)
2. SUPERIMPOSED DEAD LOAD: 75 PSF
3. DESIGN IS BASED ON AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 8TH EDITION AND ALL INTERIM REVISIONS
4. [illegible]




WALL HEIGHT "H" = 5'-2" = BOTTOM OF TUB GIRDER TO FLOOR (4'-6)
SPAN "S" = [illegible] = INSIDE OF WALL TO WALL (40'-0)
WIDTH "W" = [illegible] = OUT TO OUT OF CURB (21'-4)

APPROXIMATE CONCRETE OF 97 CUBIC YARDS REQUIRED, BY OTHERS. CONCRETE IS BASE ON THEORETICAL AMOUNTS MORE OR LESS MAY BE REQUIRED BASED ON SOIL PREPARATIONS

APPROVAL/SIGNATURE OF THE OWNER CONSTITUTES ACCEPTANCE OF THE DIMENSIONAL SIZES SHOWN ON THE ATTACHED DRAWINGS. OWNER ACCEPTS THE FAST CAST™ BRIDGE IS DESIGNED STRUCTURALLY TO AASHTO HL93 LOADS FOR VEHICULAR TRAFFIC AND REDUCED LOADS FOR PEDESTRIAN BRIDGES. STAMPED/SEALED DRAWINGS AND CALCULATIONS WILL BE PROVIDED BY PREMIER STEEL SERVICES UPON RECEIPT OF FINAL PAYMENT. OWNER IS RESPONSIBLE TO EMPLOY IT'S OWN CIVIL ENGINEERING FOR DESIGN OF SITE AND SUITABILITY OF THE MODEL OF FAST CAST™ BRIDGE MODEL SELECTED AND SHOWN ON THIS DRAWING.

SIGNATURE OF APPROVER ______________ DATE ______________

PREMIER
For Approval

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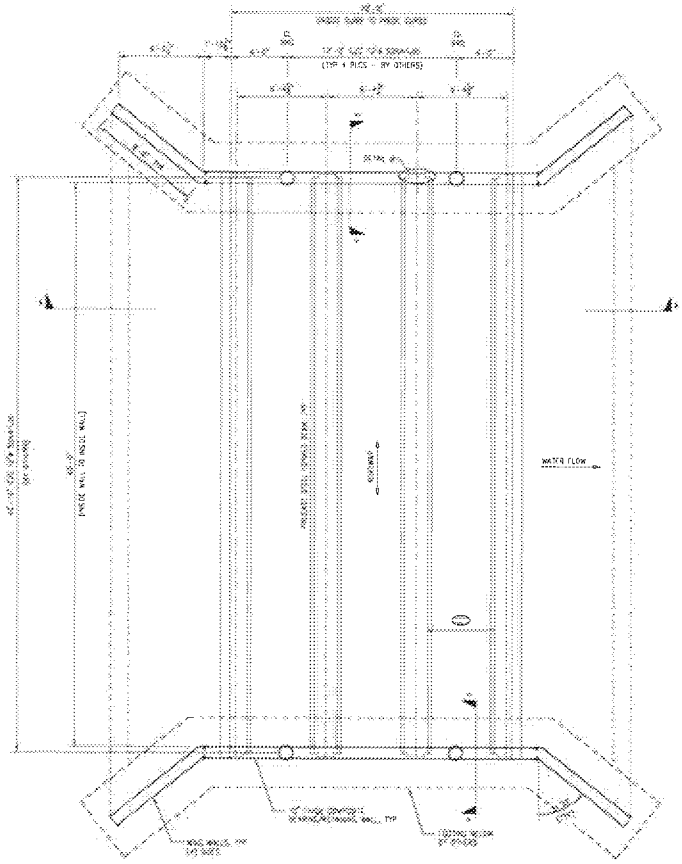
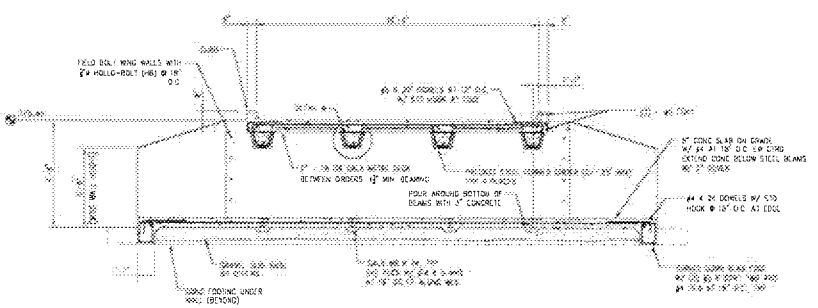
ENGINEER'S STAMP

PREMIER Steel

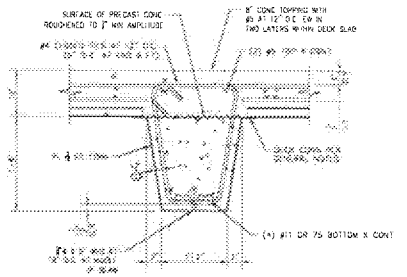
| | |
|---|---|
| CUSTOMER: | THOMPSON CONSTRUCTION |
| PROJECT: | [illegible] |
| LOCATION: | [illegible] |
| [illegible] | [illegible] FAST CAST BRIDGE |
| [illegible] | 0538 |



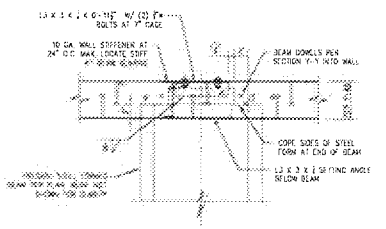

PLAN



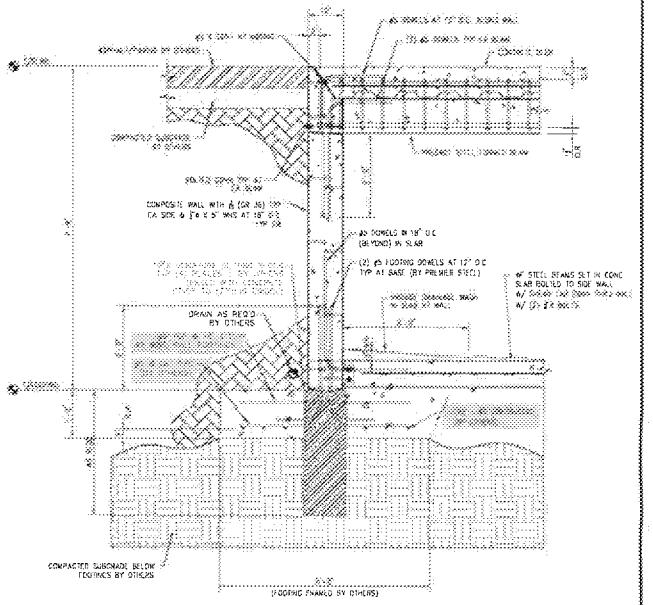
SECTION X-X



DETAIL A



DETAIL B




SECTION Y-Y

NOTES:

1. GENERAL NOTES AND SPECIFICATIONS PER CS-1
2. CONTRACTOR IS RESPONSIBLE TO VERIFY ALL DIMENSIONS, SITE ELEVATIONS AND EXISTING CONDITIONS ARE IN COMPLIANCE WITH DESIGN SPECIFICATIONS
3. EXCAVATION AND SUBGRADE PREPARATION IS BY OTHERS
4. FOOTINGS SHALL BEAR ON COMPETENT NATIVE SOIL AND/OR STRUCTURAL FILL PROVIDING MINIMUM ALLOWABLE BEARING PRESSURE AND SUBGRADE MODULUS AS SPECIFIED IN GENERAL NOTES
5. BRIDGE SLABS, WALL AND FOUNDATIONS TO BE A MONOLITHIC POUR

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PREMIER For Approval

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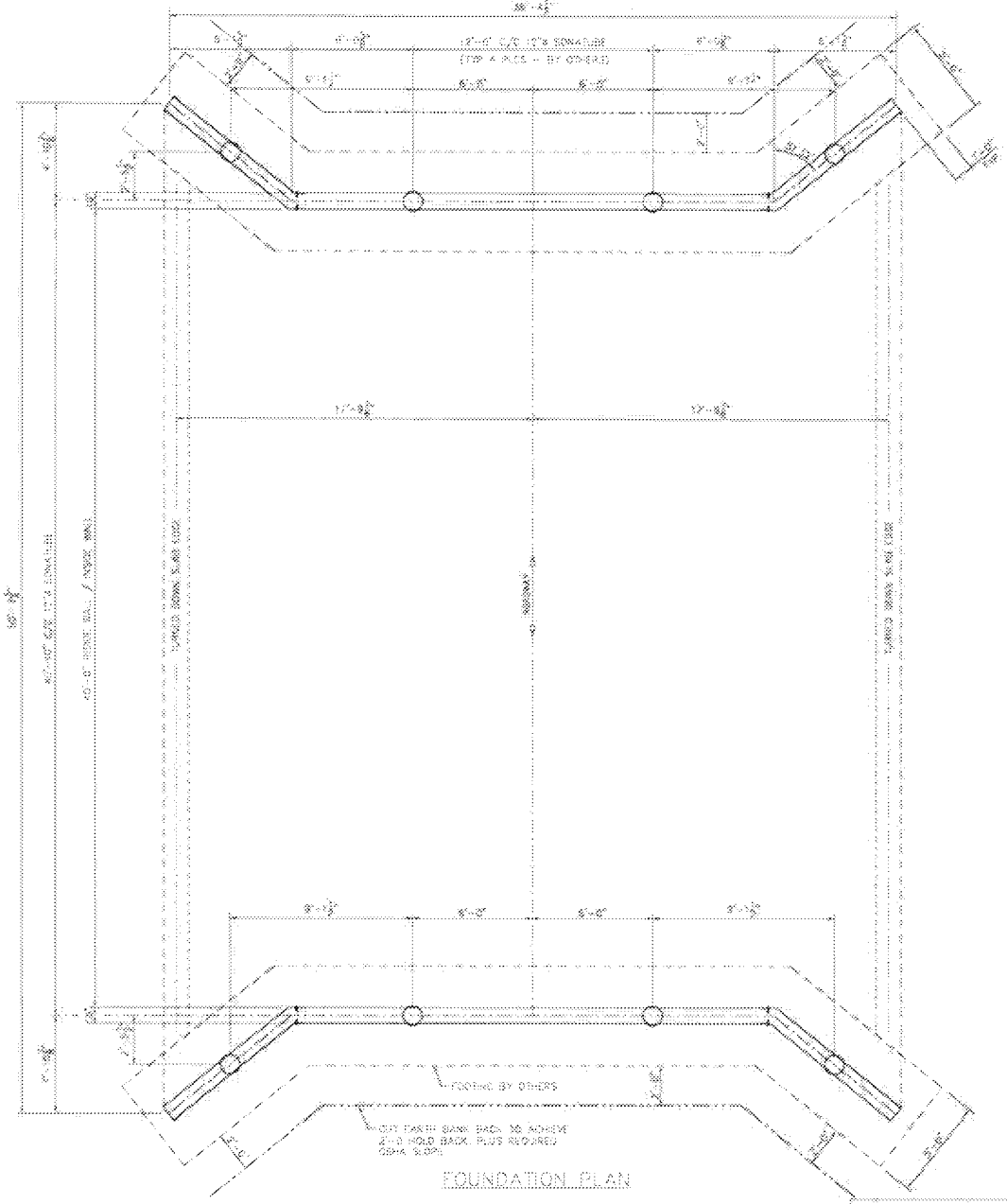
SIGNATURE OF APPROVER _____ DATE _____

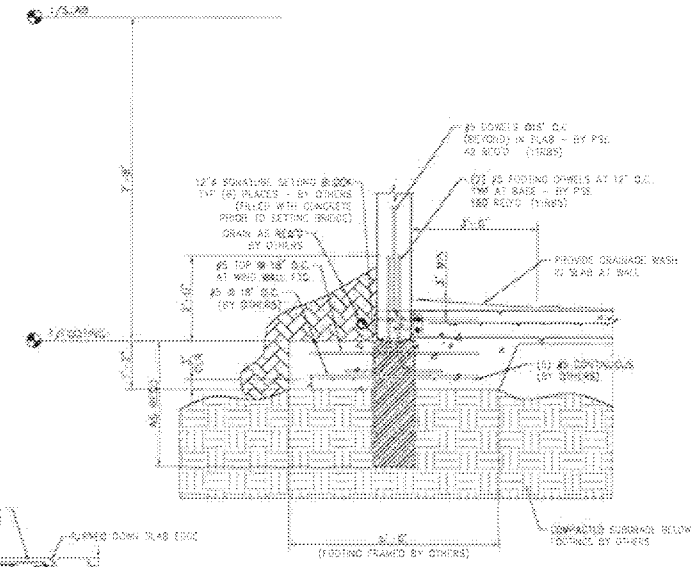
APPROVAL BY THE OWNER OF SHOP DRAWINGS PREPARED BY THE FABRICATOR INDICATES THAT THE FABRICATOR HAS CORRECTLY INTERPRETED THE CONTRACT DRAWINGS. APPROVAL DOES NOT RELIEVE THE FABRICATOR OF THE RESPONSIBILITY FOR ACCURACY OF DETAIL DIMENSIONS, NOR THE GENERAL FIT-UP OF PARTS TO BE ASSEMBLED IN THE FIELD. UNLESS SPECIFICALLY STATED TO THE CONTRARY, ANY ADDITIONS, DELETIONS OR CHANGES INDICATED ON THE APPROVAL OF THE SHOP AND ERECTION DRAWINGS ARE AUTHORIZATIONS

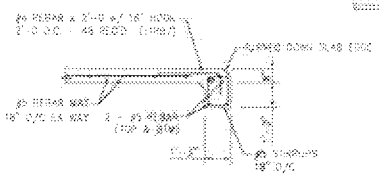
PREMIER Steel

| | |
|---|---|
| CUSTOMER: | THOMPSON CONSTRUCTION |
| PROJECT: | MON-MEATPACKING PLANT |
| LOCATION: | GLENPOOL, OKLAHOMA |
| DESCRIPTION: | BH-20W-40L FAST CAST BRIDGE |

DATE: 6/28/19 | DRAWN BY: | DATE: 6/28/19 | JOB NO. 0538 | SHEET NO. CS-2




NOTES:

1. GENERAL NOTES AND SPECIFICATIONS PER G0-1.
2. CONTRACTOR IS RESPONSIBLE TO VERIFY ALL DIMENSIONS, SITE ELEVATIONS AND EXISTING CONDITIONS ARE IN COMPLIANCE WITH DESIGN SPECIFICATIONS.
3. EXCAVATION AND SUBGRADE PREPARATION IS BY OTHERS.
4. FOOTINGS SHALL BEAR ON COMPETENT NATIVE SOIL AND/OR STRUCTURAL FILL PROVIDING MINIMUM ALLOWABLE BEARING PRESSURE AND SUBGRADE MODULUS AS SPECIFIED IN GENERAL NOTES.
5. BRIDGE SLABS, WALL AND FOUNDATIONS TO BE A MONOLITHIC POUR.

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**APPROVAL/REVIEW AUTHORITY:**

APPROVAL BY THE OWNER OF SHOP DRAWINGS PREPARED BY THE FABRICATOR INDICATES THAT THE FABRICATOR HAS CHECKED AND REVIEWED THE CONTENT OF DRAWINGS. APPROVAL DOES NOT RELIEVE THE FABRICATOR OF THE RESPONSIBILITY FOR ACCURACY OF DETAIL DIMENSIONS, FOR THE CONTENT OF PARTS TO BE ASSEMBLED IN THE FIELD UNLESS SPECIFICALLY STATED TO THE CONTRARY, ANY ADDITIONS, DELETIONS OR CHANGES INDICATED ON THE APPROVAL OF THE SHOP AND CONTROL DRAWINGS ARE AUTHORIZATIONS BY THE OWNER TO MODIFY THE ORIGINAL CONTRACT DRAWINGS FOR CONSTRUCTION.

| NO. | DATE | REVISION | APPROVED |
|---|---|---|---|
| | | | |
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PREMIER Steel

| | |
|---|---|
| CUSTOMER: | THOMPSON CONSTRUCTION |
| PROJECT: | MCN MEAT PROCESSING FACILITY |
| LOCATION: | BEGGS, OKLAHOMA |
| DESCRIPTION: | BH-20W-40L FAST CAST BRIDGE |
| DRAWN BY: | CHECKED BY: DATE: 05/08 SHT: F-3 |