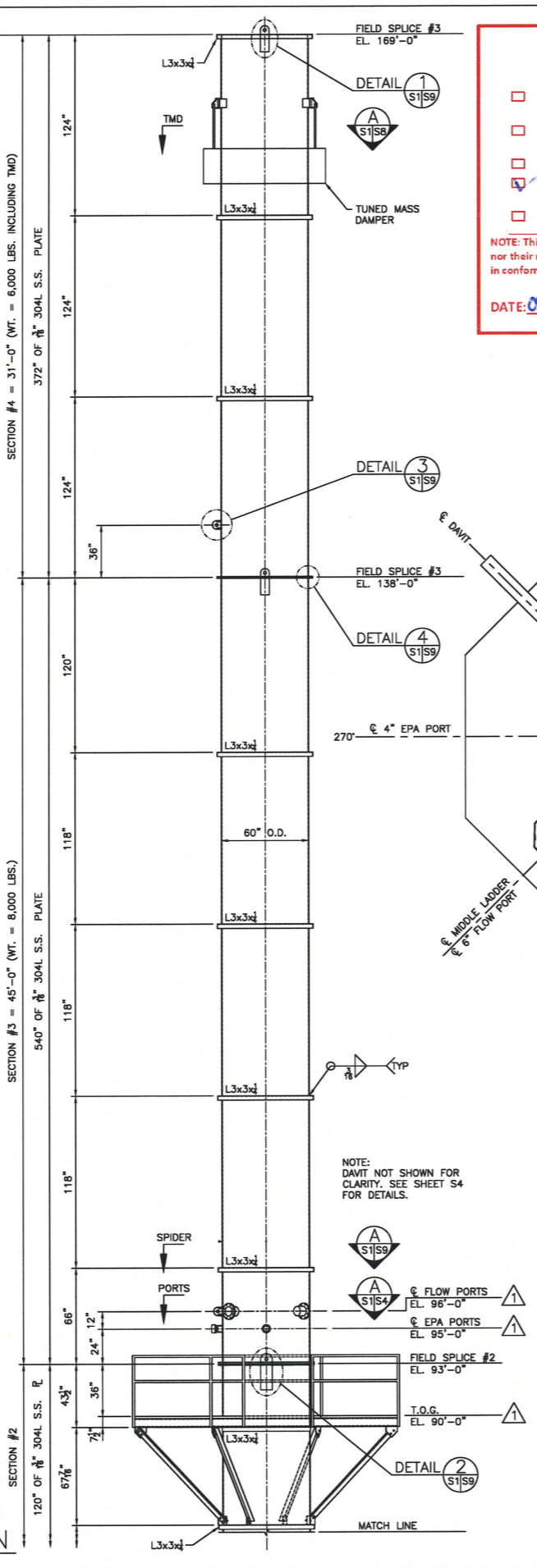


STACK ELEVATION
SCALE: 1/4" = 1'-0"



STACK PLAN
SCALE: 1/8" = 1'-0"

**EXCELSIOR ENGINEERING LTD.
VENDOR DOCUMENT REVIEW**

- V1 - CORRECT AND RESUBMIT; WORK MAY NOT PROCEED
- V2 - CORRECT AND RESUBMIT; WORK MAY PROCEED
- V3 - RECEIVED AS IS; FOR INFORMATION ONLY
- V4 - ACCEPTED FOR CONSTRUCTION/FABRICATION; SUBJECT TO INCORPORATION OF ANY COMMENTS
- V5 - ACCEPTED AS FINAL SUBMISSION

NOTE: This review does not relieve the vendor/contractor from their due diligence, nor their responsibility for errors in design/installation or the execution/detailing in conformance with the contract and regulatory requirements

DATE: 09/30/15 PRINT: Murray Keas SIGN: [Signature]

EXCELSIOR ENGINEERING LTD.

SQUAD CHECK # SQV-0028-006
EXC # 4397KEY-POP-0028-GAD-001
TAG # TBA
DESIGN LEAD CHAD
RESPONSIBLE ENGINEER MURRAY
REVIEW DUE DATE 2015.09.30

- GENERAL NOTES
- MATERIAL
 - STACK SHELL PLATES AND ALL EXTERNAL AND INTERNAL COMPONENT PARTS SUCH AS ANCHOR BOLT CHAIR, STIFFENERS, TUNED MASS DAMPER AND LIFTING LUGS SHALL CONFORM TO ASTM A240 TYPE 304L STAINLESS STEEL UNLESS NOTED OTHERWISE.
 - ALL PLATFORMS AND LADDERS SHALL CONFORM TO ASTM A-36 AND SHALL BE HOT DIPPED GALVANIZED PER ASTM A-123 UNLESS NOTED OTHERWISE.
 - ALL FASTENERS FOR PLATFORMS, LADDERS, ACCESS DOORS, TEST PORTS, FIELD SPLICES AND ANY OTHER BOLTING REQUIREMENTS SHALL BE GALVANIZED ASTM A-325 FASTENERS UNLESS NOTED OTHERWISE.
 - FABRICATION

ALL WORK SHALL BE FABRICATED IN ACCORDANCE WITH AISC "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS", LATEST EDITION. ALL WELDS SHALL BE MADE ONLY BY WELDING OPERATORS WHO HAVE BEEN PREVIOUSLY QUALIFIED BY TESTS AS PRESCRIBED IN THE AWS "STRUCTURAL WELDING CODE" OR BY THE ASME WELDING CODE, TO PERFORM THE TYPE OF WORK REQUIRED. ALL BUTT WELDS SHALL BE PRE-QUALIFIED, FULL PENETRATION WELDS AND SHALL DEVELOP THE FULL STRENGTH OF THE SECTION. SHELL GIRTH AND VERTICAL SEAMS SHALL BE COMPLETE PENETRATION BUTT GROOVE WELDED AND TOTALLY WELDED EITHER AUTOMATICALLY OR SEMI-AUTOMATICALLY BY THE SUBMERGED ARC WELDING PROCESS. OTHER WELDING PROCESSES MUST BE APPROVED BY WARREN. ALL WELDING ELECTRODES AND FLUX SHALL CONFORM TO THE AWS CODE AND BE EQUIVALENT TO THE BASE METAL IN STRENGTH, CORROSION RESISTANCE, AND WEATHERED APPEARANCE.
 - TOLERANCES
 - BASE RING AND SPLICES MUST BE PERPENDICULAR TO THE STACK CENTERLINE SUCH THAT THE ERECTION OF THE STACK CAN BE PLUMBED TO WITHIN A MAXIMUM DEVIATION OF 1" PER 100' OF HEIGHT.
 - MAXIMUM OUT-OF-ROUNDNESS OF ANY SECTION - DIFFERENCE BETWEEN MINIMUM AND MAXIMUM DIAMETER - LESS THAN 1% OF THE NORMAL DIAMETER.
 - MAXIMUM MISALIGNMENT OF PLATES AT ANY JOINT SHALL NOT EXCEED 25% OF THE NORMAL THICKNESS OR 1/8", WHICHEVER IS LESS.
 - ADJOINING PLATE SECTIONS SHALL BE PAIRED FOR FULL 100% DEVELOPMENT.
 - PEAKING OF VERTICAL JOINTS SHALL NOT EXCEED 1/4" AS MEASURED FROM THE TRUE RADIUS OF THE STACK AS MEASURED FROM AN 18" LONG TEMPLATE CENTERED AT THE WELD.
 - LOCAL DENTS IN PLATES SHALL BE NO DEEPER THAN HALF THE PLATE THICKNESS.
 - TEST PORT FLANGES SHALL BE PERPENDICULAR TO THE CENTERLINE WITHIN 1/2 DEGREE. FIELD SPlice FLANGES MUST BE PERPENDICULAR TO THE STACK CENTERLINE WITHIN 1/32". THE FLANGE SHALL BE PERPENDICULAR TO THE STACK SHELL SO THAT FULL CONTACT ACROSS THE FLANGE CAN BE ACHIEVED DURING ASSEMBLY.
 - COMPANION FLANGES SHALL BE MATCH DRILLED TO ASSURE FIELD ALIGNMENT.
 - STRUCTURAL PLATES ARE TO BE PURCHASED OF SUFFICIENT LENGTH TO ALLOW FOR ONLY ONE VERTICAL SEAM PER GIRTH. VERTICAL SEAMS ON ADJACENT SECTIONS SHALL BE OFFSET BY MINIMUM 20 DEGREES (90 DEGREES PREFERRED). ADDITIONAL VERTICAL SEAMS MUST BE APPROVED BY WARREN BUT MUST MAINTAIN A MINIMUM OFFSET OF 90 DEGREES.
 - ALL APPURTENANCES, INCLUDING PLATFORMS AND LADDERS, SHALL BE SHOP ATTACHED TO ENSURE A GOOD FIT. ALL FIELD CONNECTIONS ARE TO BE CLEARLY MATCH MARKED ON THE INTERIOR AND EXTERIOR OF THE STACK SHELL(S). CENTER PUNCH MARKS SHALL BE IDENTIFIED WITH ADDITIONAL PAINT MARKINGS.
 - INSPECTION AND TESTING

MATERIAL TEST REPORTS FOR ALL MATERIAL UTILIZED FOR MAJOR COMPONENTS AND FASTENERS SHALL BE SUBMITTED TO WARREN. THE MATERIAL TEST REPORTS ARE TO BE REQUESTED WHEN THE MATERIAL IS ORDERED AND FORWARDED TO WARREN IMMEDIATELY UPON RECEIPT. THE MSDS SHEETS ON THE TOUCH-UP PAINTS, THINNERS AND ANY OTHER HAZARDOUS MATERIAL IS TO BE INCLUDED WITH THE SHIPMENT OF THE ITEMS. ALL WELDS SHALL BE 100% VISUALLY INSPECTED BY A CERTIFIED WELDING INSPECTOR. THE STACK SHELL IS TO BE SPOT RADIOGRAPHED A MINIMUM OF ONE RADIOGRAPH PER EACH THREE SHOP CIRCUMFERENTIAL SEAMS PREFERABLY AT THE VERTICAL WELD INTERSECTIONS. ANY DEFECTS DETECTED IN THE RADIOGRAPHS SHALL BE REPAIRED AND RE-RADIOGRAPHED. ACCEPTANCE CRITERIA FOR THE RADIOGRAPHS AND VISUAL INSPECTION SHALL BE IN ACCORDANCE WITH AWS D1.6 ACCEPTANCE CRITERIA. FINAL INSPECTION REPORTS, WELDING INSPECTION REPORT, AND RADIOGRAPH MAPS SHALL BE SUBMITTED.
 - SURFACE PREPARATION
 - ALL SHARP PROJECTIONS SHALL BE GROUND SMOOTH
 - ALL DISCOLORATION MUST BE REMOVED FROM STACK WELDS.
 - CARE SHALL BE TAKEN IN THE HANDLING OF MATERIALS AND FINISHED PRODUCTS TO AVOID CARBON CONTAMINATION.
 - ALL WELD FLUX AND SPATTER SHALL BE REMOVED BY POWER TOOL CLEANING.
 - ALL SURFACES ARE TO BE ACID PASSIVATED.
 - INSULATION AND LAGGING

STACK TO BE FIELD INSULATED (BY OTHERS) WITH ELECTRICAL TRACING (BY OTHERS) FROM ELEVATION 12'-0" TO ELEVATION 15'-0".
 - LOADING AND SHIPPING

THE STACK WILL BE LOADED AND SECURED ON TRUCKS SUCH THAT PLATES ARE NOT DEFORMED. STACK LOADS ARE TO BE DISTRIBUTED OVER LARGE AREAS. POINT LOADS ON PLATES ARE TO BE AVOIDED. TIMBERS USED TO SECURE LOADS ARE TO BE PLACED LONGITUDINALLY, SPANNING AT LEAST TWO STIFFENERS. THE ERECTOR IS TO REMOVE ALL TEMPORARY SPACERS AND BRACES BEFORE COMPLETING THE ERECTION.
 - FIT-UP

NORMAL ERECTION PROCEDURES INCLUDE THE CORRECTION OF MINOR MISFITS BY MODERATE AMOUNTS OF STRAIGHTENING, SHIMMING, REAMING, CUTTING AND/OR GRINDING FOR PROPER FIT-UP. MISFITS WHICH CANNOT BE CORRECTED BY THESE MEANS OR WHICH REQUIRE MAJOR CHANGES IN THE EQUIPMENT ARE TO BE REPORTED TO WARREN ENVIRONMENT IMMEDIATELY. THE ERECTOR WILL PROVIDE INFORMATION AS REQUIRED TO EITHER CORRECT THE MISFIT OR PRESCRIBE THE MOST EFFICIENT AND ECONOMIC METHOD TO CORRECT THE MISFIT.
 - ERECTION
 - THE INDIVIDUAL STACK SECTIONS SHALL BE LIFTED IN THE HORIZONTAL POSITION USING TWO CRANES. THE TAILING CRANE SHALL BE ATTACHED TO THE STACK TAILING LUGS OR THE ANCHOR BOLT CHAIR FOR SECTION #1. THE TOP OF EACH SECTION SHALL BE LIFTED USING A SPREADER BEAM THAT IS ATTACHED TO THE LIFTING LUGS. THE STACK SHELL AND LIFTING/TAILING LUGS ARE SIZED TO ALLOW THE STACK TO BE ERECTED IN TWO SECTIONS. STACK SECTION #1 AND #2 CAN BE FIT TOGETHER AND FULLY BOLTED OUT ON THE GROUND. STACK SECTION #3 AND #4 CAN BE FIT TOGETHER AND FULLY BOLTED OUT ON THE GROUND. THE PLATFORM AND LADDERS CAN ALSO BE FIT UP TO THE STACK SECTIONS ON THE GROUND. USE EXTREME CARE WHEN FITTING THE STACK SECTIONS TOGETHER BOTH ON THE GROUND AND IN THE AIR TO INSURE THAT THE SECTIONS ARE PROPERLY ALIGNED. OTHERWISE, THE STACK CANNOT BE ERECTED WITHIN THE PLUMBNESS TOLERANCE REQUIRED. THE STACK SHIPPING SPIDERS AT THE TOP OF SECTIONS #2 AND #4 AS WELL AS THE SPIDER LOCATED AT THE BOTTOM OF SECTION #3 MUST BE LEFT IN PLACE UNTIL THE COMBINED STACK SECTIONS ARE LIFTED INTO THE VERTICAL POSITION. THE OTHER INTERMEDIATE SPIDERS MUST BE REMOVED PRIOR TO FITTING THE STACK SECTIONS ON THE GROUND.
 - FIELD SPlice INSPECTION: THE BOLTS IN THE BOLTED FIELD SPlice FLANGES SHALL BE INSTALLED AND TIGHTENED IN ACCORDANCE WITH THE AISC "TURN-OFF-THE-NUT" METHOD. THE STACK FLANGES MUST BE IN FULL CONTACT AROUND THE STACK ONCE THE BOLTS HAVE BEEN PROPERLY TIGHTENED. A FIELD REPORT SHALL BE GENERATED CONFIRMING THE PROPER INSTALLATION OF THE FIELD SPlice BOLTS AND CLOSURE OF THE FLANGES. THIS REPORT SHALL BE SUBMITTED TO WARREN FOR EACH COMPLETED FIELD SPlice.
 - DESIGN CONDITIONS
 - STACK DESIGN IN ACCORDANCE WITH ASME STS-1-2011
 - DESIGN TEMPERATURE(F): 200(MAX) 195(OPERATION)
 - DESIGN CORROSION ALLOWANCE: NONE
 - LIGHTNING PROTECTION

LIGHTNING PROTECTION SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 780-18 CHAPTER 6.
 - INSPECTION & MAINTENANCE

THE STACK SHOULD BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE RECOMMENDATIONS OF ASME STS-1-2011.

CERTIFIED FOR CONSTRUCTION

X-703 STACK

KEYERA VITASUL FACILITY
P.O. # C26-15269-B1-G020
BAGHOUSE EXHAUST STACK

STRACHAN ALBERTA

STACK ELEVATION & NOTES

WARREN ENVIRONMENT, INC.
5075 ROSWELL ROAD ATLANTA, GA 30342

NO.	DATE	REVISION	MADE	CHK'D.
3	09-29-15	MODIFIED DRAIN / ADDED 3" PORT	KHK	IBP
2	08-12-15	CERTIFIED FOR CONSTRUCTION	KHK	IBP
1	07-23-15	GENERAL REVISIONS	KHK	IBP

DRAWN:	MADE:	CHK'D.:	DATE:
KHK	IBP	IBP	05-01-14

CUSTOMER DWG. NO. WARREN DWG. NO. D14-18-S1-3

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