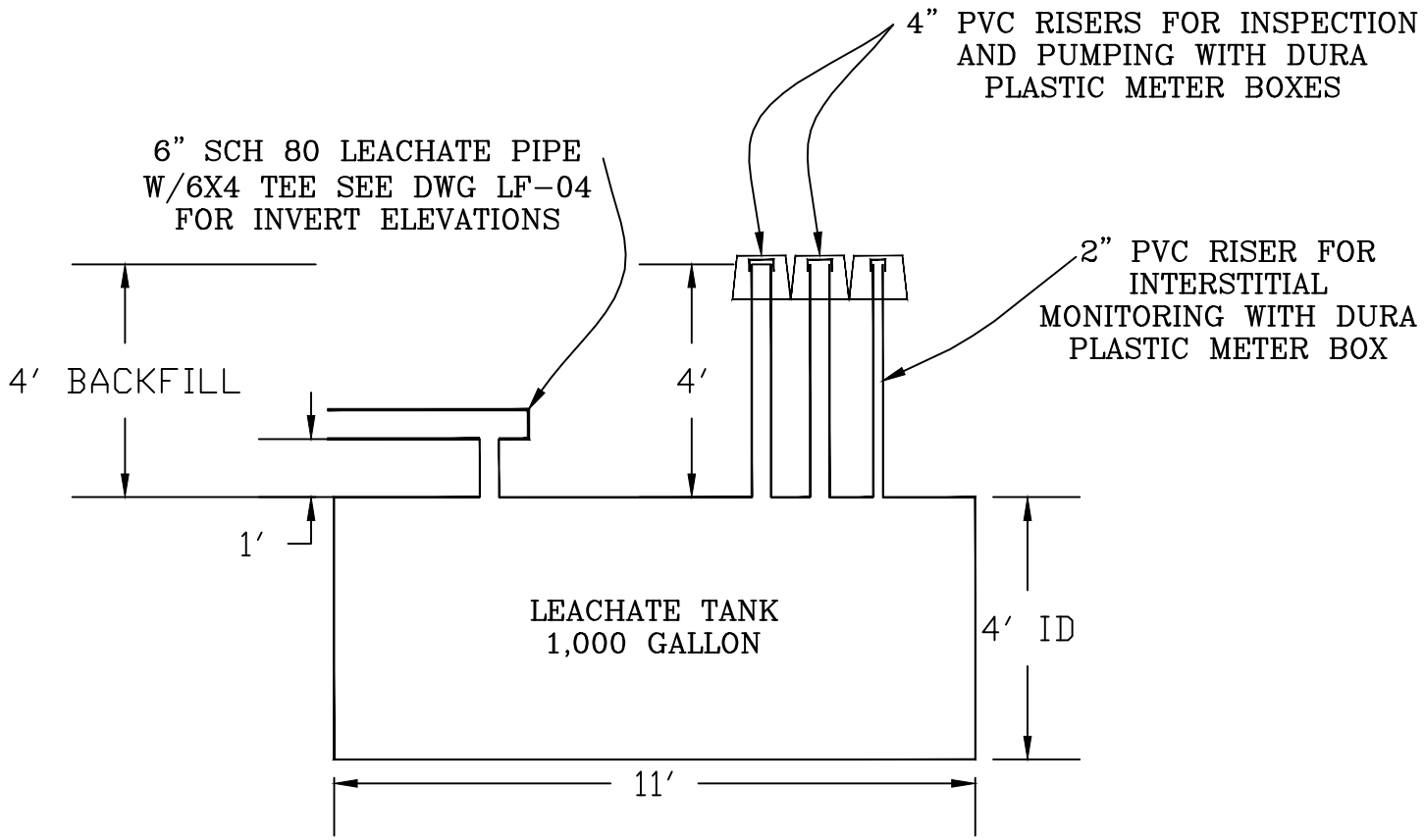
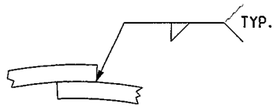
APPENDIX 16

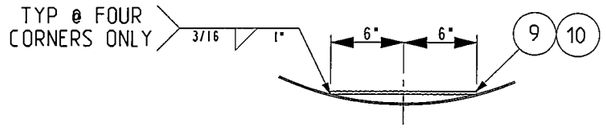
LEACHATE TANK DRAWING



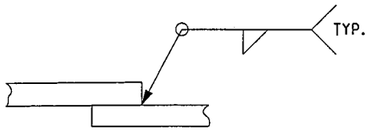
PREPARED FOR: T S LANDFILL, INC. BROAD CANYON LANDFILL 30120 HH31 ROAD NATURITA, CO 81422	N W E S ONE INCH	T S LANDFILL, INC. LEACHATE TANK DETAILS
PREPARED BY: J. E. STOVER & ASSOCIATES 2802 North 7th St Unit B Grand Jct., CO 81501	DESIGNED BY: DRAWN BY: J.E.S. 06/16 CHECKED BY:	SCALE: None DWG. NAME APPEN-16



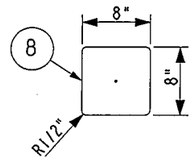
SHELL LONG SEAM

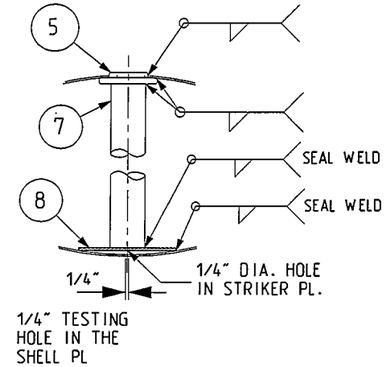


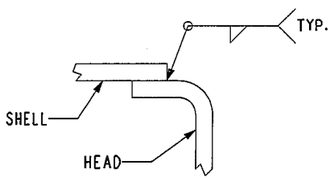
LOCATE STRIKER PLATES ON BOTTOM OF TANK DIRECTLY IN LINE WITH EACH FLANGE



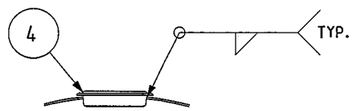
SHELL TO SHELL





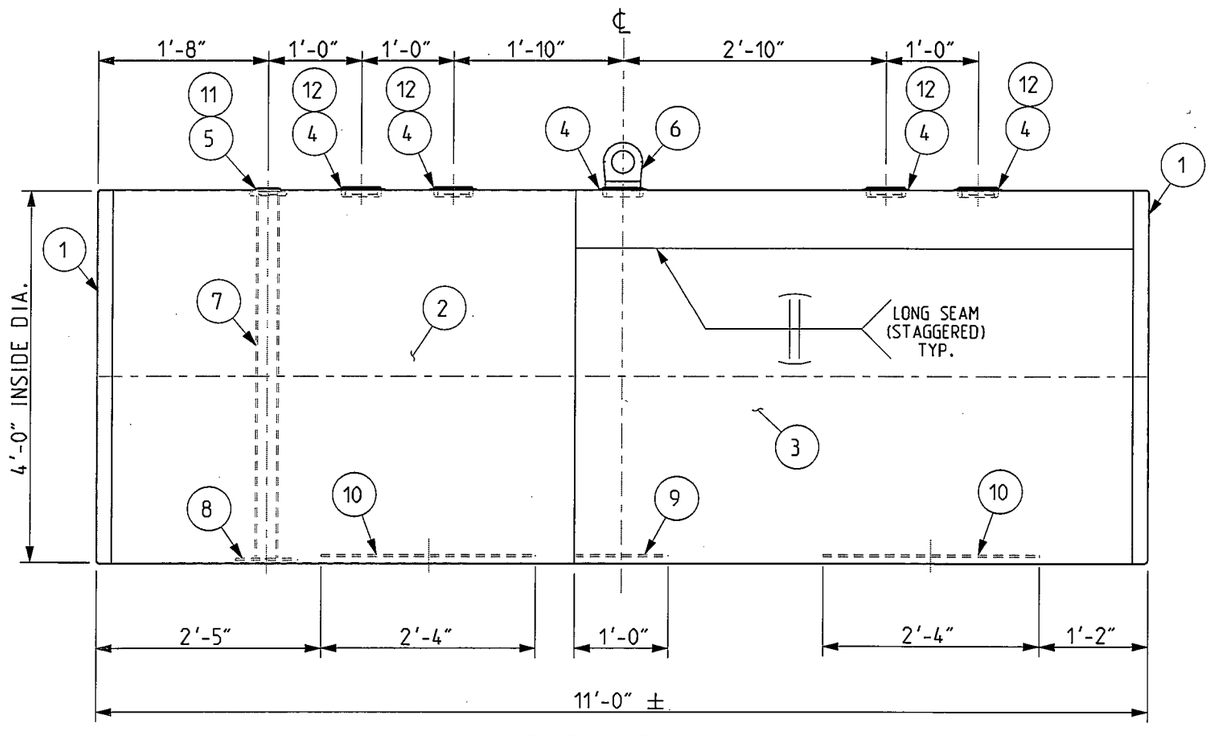


HEAD TO SHELL



BILL OF MATERIAL

Ship Pcs	Mark No.	Assy Pcs	Description	Length Inches	Material Spec	Weights	Component Part No.
	1000-1-1	2	HEAD 10GA x 48" ID FF		A-36	159	HD10GAx48
	1000-1-2	1	SHEET 10GA X 60" ROLL	151 1/4	A-36	346	SHT10GAx60x152
	1000-1-3	1	SHEET 10GA X 72" ROLL	151 1/4	A-36	417	SHT10GAx72x152
	1000-1-4	5	WELD FLANGE 4" LOW PRO		STEEL	14	PH0875 4" LOW
	1000-1-5	1	WELD FLANGE 2" LOW PRO		STEEL	2	PH0836 2" LOW
	1000-1-6	1	TC TYPE LIFT LOOP		STEEL	9	LIFTLUG-TC
	1000-1-7	1	PIPE 2 1/2" SCH 40 (.203 WALL)	46 7/8	STEEL	23	PIP-2.5x40-47
	1000-1-8	1	STRIKER PLATE 1/4" X 8"	8	A-36	5	PL1/4X8X8
	1000-1-9	1	STRIKER PLATE 1/4" X 12"	12	A-36	10	PL1/4X12X12
	1000-1-10	2	STRIKER PLATE 1/4" X 12"	28	A-36	20	PL1/4X12X28
	1000-1-11	1	THREAD PROTECTOR 2"		TIN	1	PHOTP-2
	1000-1-12	4	THREAD PROTECTOR 4"		TIN	11	PHOTP-4



ELEVATION

APPROVED
FOR CONSTRUCTION
DATE 5/5/08 BY PDW

NOTES:

1.TANK SHALL BE CONSTRUCTED IN ACCORDANCE WITH UNDERWRITERS LAB INC. STANDARDS FOR UNDERGROUND STORAGE TANKS SUBJECT TO UL-58 LATEST REVISION (U.L. LABEL APPLIED).

2.LEAK TEST AT MORE THAN 3 P.S.I AND LESS THAN 5 P.S.I.

3.TANK IS DESIGNED FOR ZERO PRESSURE FOR ATMOSPHERIC CONDITION ONLY.

4.ALL OPENINGS SHALL BE COVERED TO PREVENT THE ENTRANCE OF DIRT & MOISTURE DURING SHIPMENT.

3/16" FILLET WELD TYPICAL UNLESS OTHERWISE NOTED

No.	Date	By	Chk'd	Revision Description

EATON SALES & SERVICE LLC
DENVER

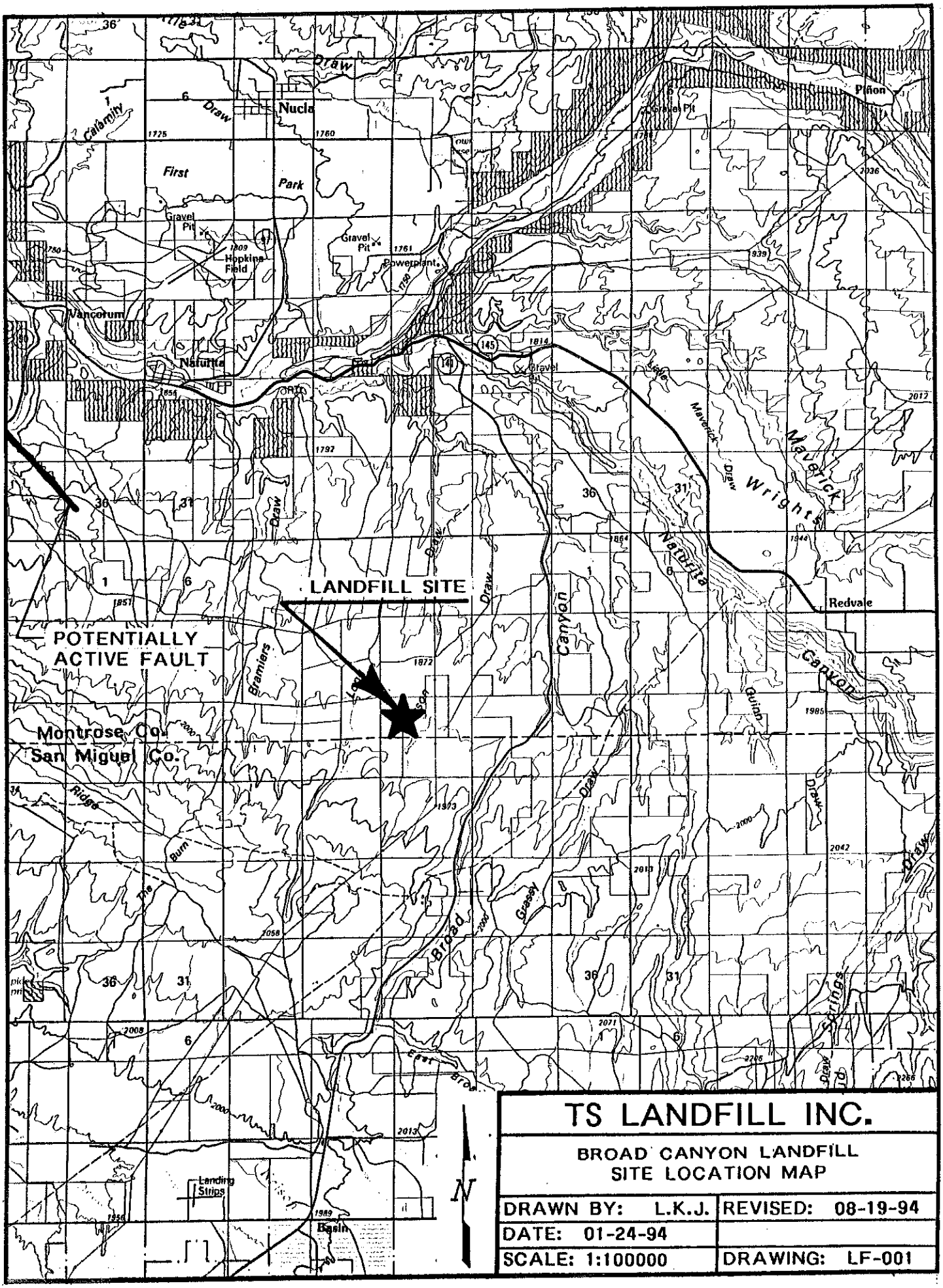
48" DIA x 11' 0" - LONG 1000 GAL TITAN TANK
HORIZONTAL UNDER GROUND STORAGE TANK UL-58

Drawn By: K.P
Date: 02/14/08
Chk'd By: PDW
Date: 5/5/08

Loc: DENVER, COLORADO
Cust: EATON SALES & SERVICE
EMP
Job No.
Dwg. No. EAT1000TITAN
REV

MAP INDEX

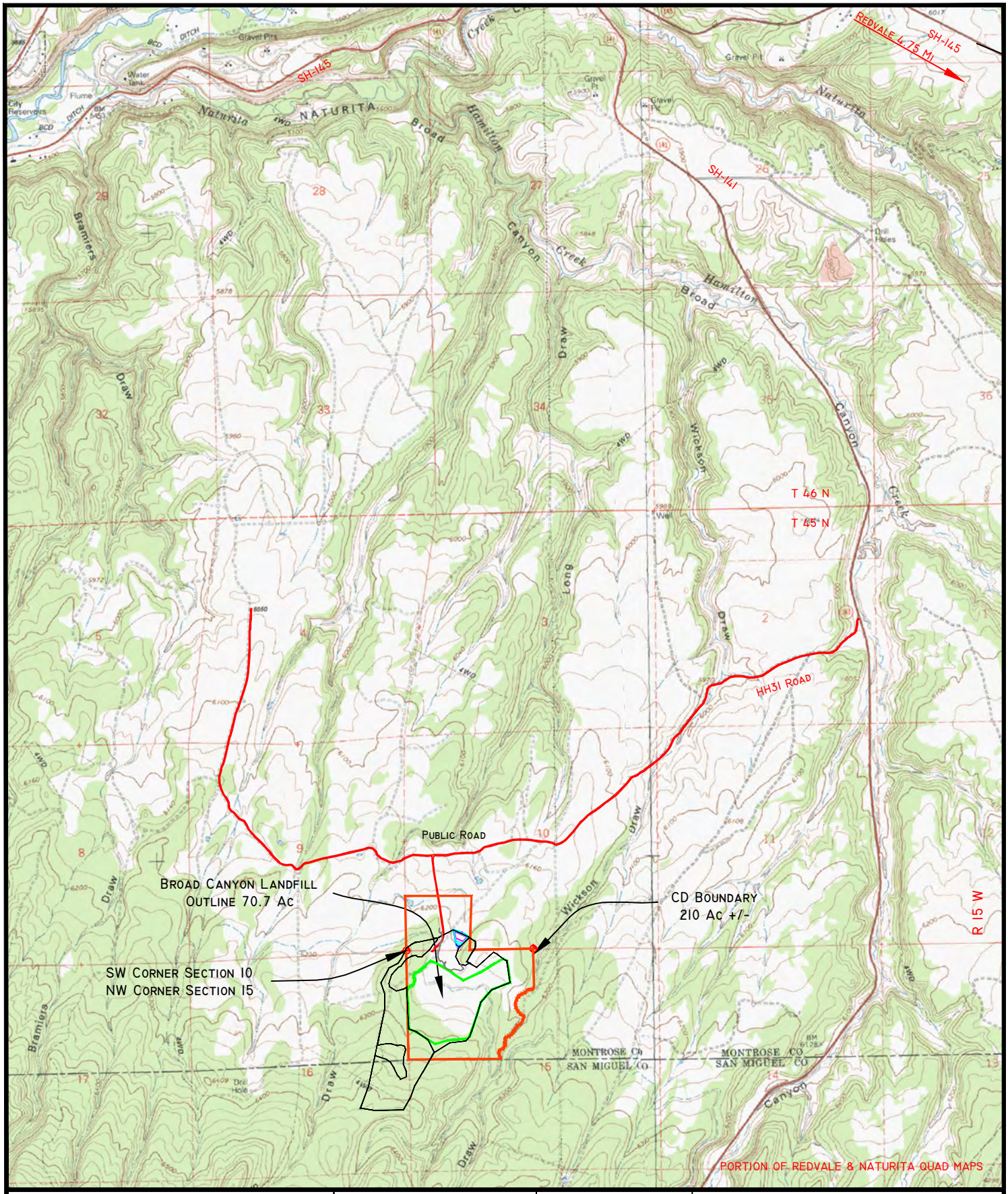
Map #	Description	Update
LF-001	Site Location Map	1994
LF-01	General Location Map	2016
LF-02	Facilities Area	2016
LF-03	Hydrologic Area Map	2016
LF-04	Final Drainage and Details	2016
LF-05	Drill Hole and Soil Logs (Digital in 2014)	1994
LF-06	Sediment Pond and Ditch Details	2016
LF-07	Barrier Layer and Liner Details	2016



TS LANDFILL INC.

BROAD CANYON LANDFILL
SITE LOCATION MAP

DRAWN BY: L.K.J.	REVISED: 08-19-94
DATE: 01-24-94	
SCALE: 1:100000	DRAWING: LF-001



Legend:

- T S Landfill Private Land 210 AC & Certificate of Designation Boundary
- Landfill Outline
- Drainage Areas

PREPARED FOR:
T S LANDFILL, INC.
BROAD CANYON LANDFILL
30120 HH31 ROAD
NATURITA, CO 81422

PREPARED BY: J. E. STOVER & ASSOCIATES
2962 North 7th St Unit B
Grand Jct., CO 81501

N W E S

ONE INCH

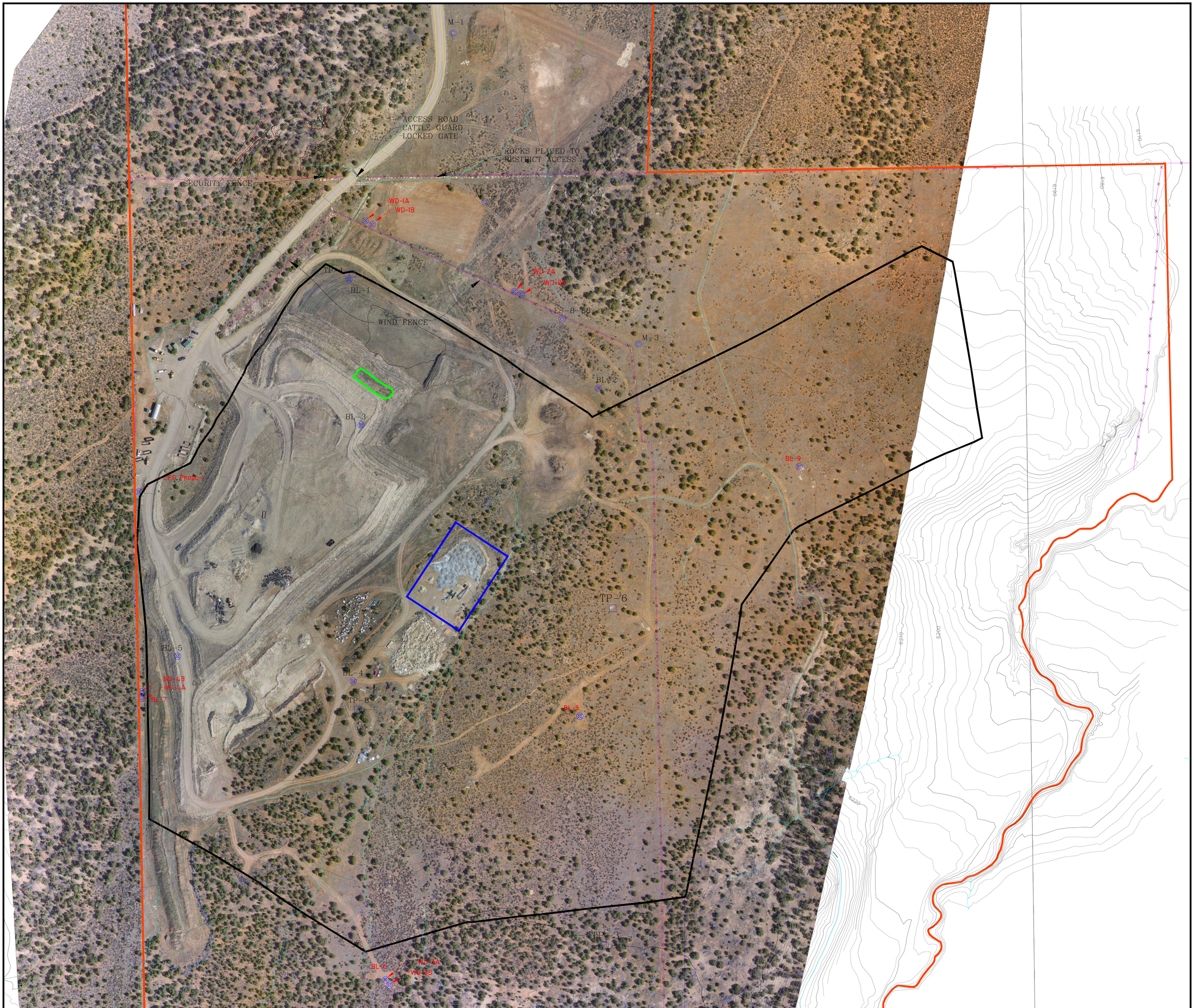
DESIGNED BY:		
DRAWN BY:	J.E.S.	06/16
CHECKED BY:		

T S LANDFILL, INC.

BROAD CANYON LANDFILL
GENERAL LOCATION MAP

SCALE: 1" = 3000'

DWG. NAME LF-01



LEGEND:

- DRILL HOLE LOCATION
- BARRIER LAYER TEST HOLE
- TOPSOIL TEST PIT
- WET DRY WELL PAIR
- LFG PROBE
- CD BOUNDARY
- OUTLINE OF REFUSE BOUNDARY
- Glass Recycling Area
- Friable Asbestos Disposal Area

NOTE:

EXISTING CONTOURS AS OF 04-22-16

ENGINEER'S CERTIFICATION

I hereby certify that this drawing was done by me or under my direct supervision and that all of the information presented on this drawing is true and correct to the best of my knowledge and belief.

James E. Stover
Colorado P.E. 19230

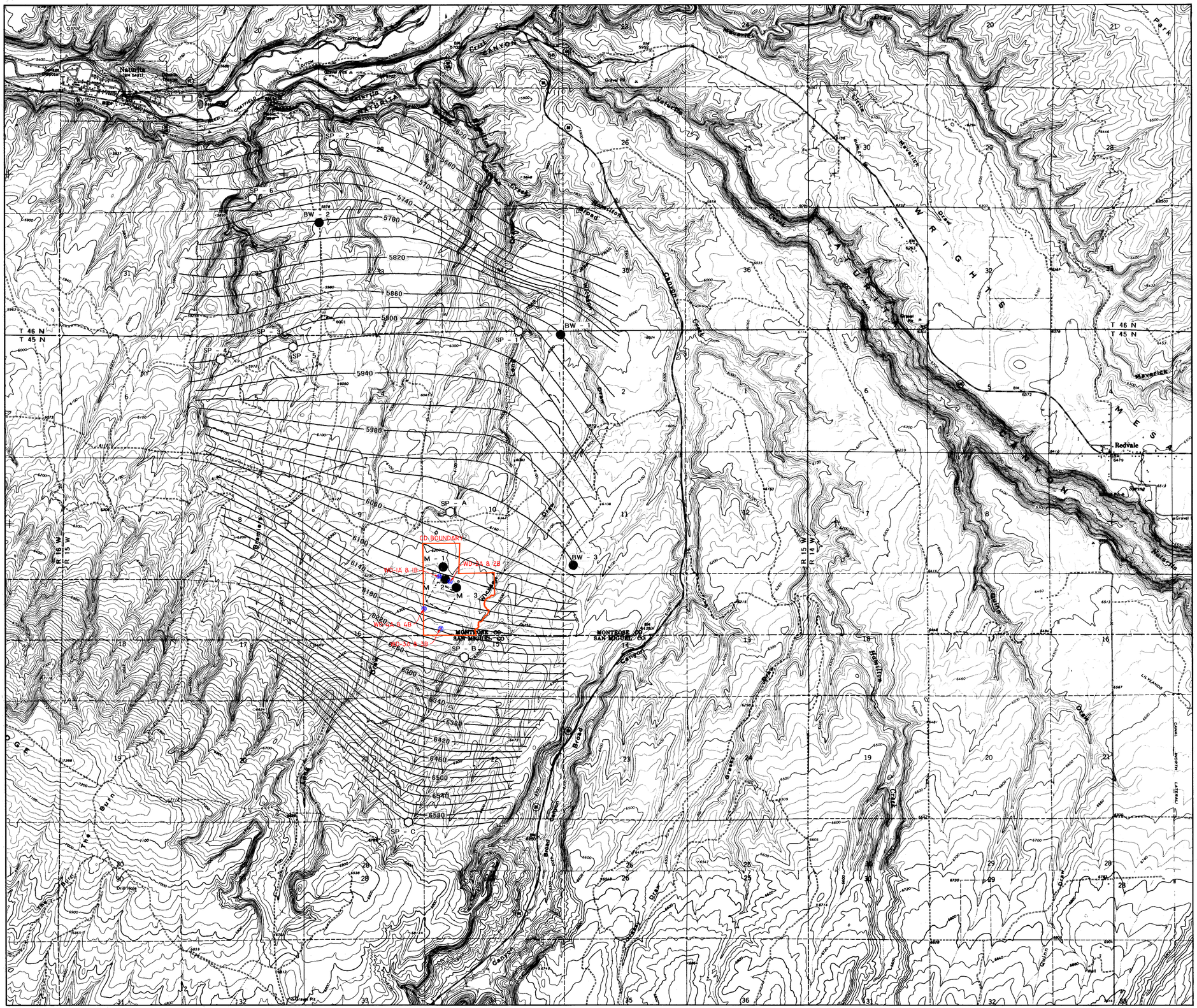
Date

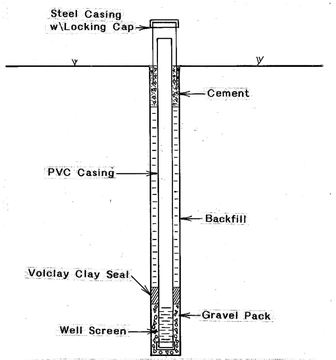
N

TS LANDFILL INC.

BROAD CANYON LANDFILL
FACILITIES AREA (April 22, 2016)

DRAWN BY: J.E.S.	REVISED: 06-10-2016
DATE: 04-16-14	
SCALE: 1" = 100'	LF-02





BEDROCK WELL COMPLETION
Typical
NOT TO SCALE

LEGEND

- Spring Location
- Bedrock Well Location
- Landfill Location

5620
5660

Potential Water Bearing Zone
Surface Contours
C.I. = 20'

ENGINEER'S CERTIFICATION

I hereby certify that this drawing was done by me or under my direct supervision and that all of the information presented on this drawing is true and correct to the best of my knowledge and belief.

James E. Stover
Colorado P.E. 19230

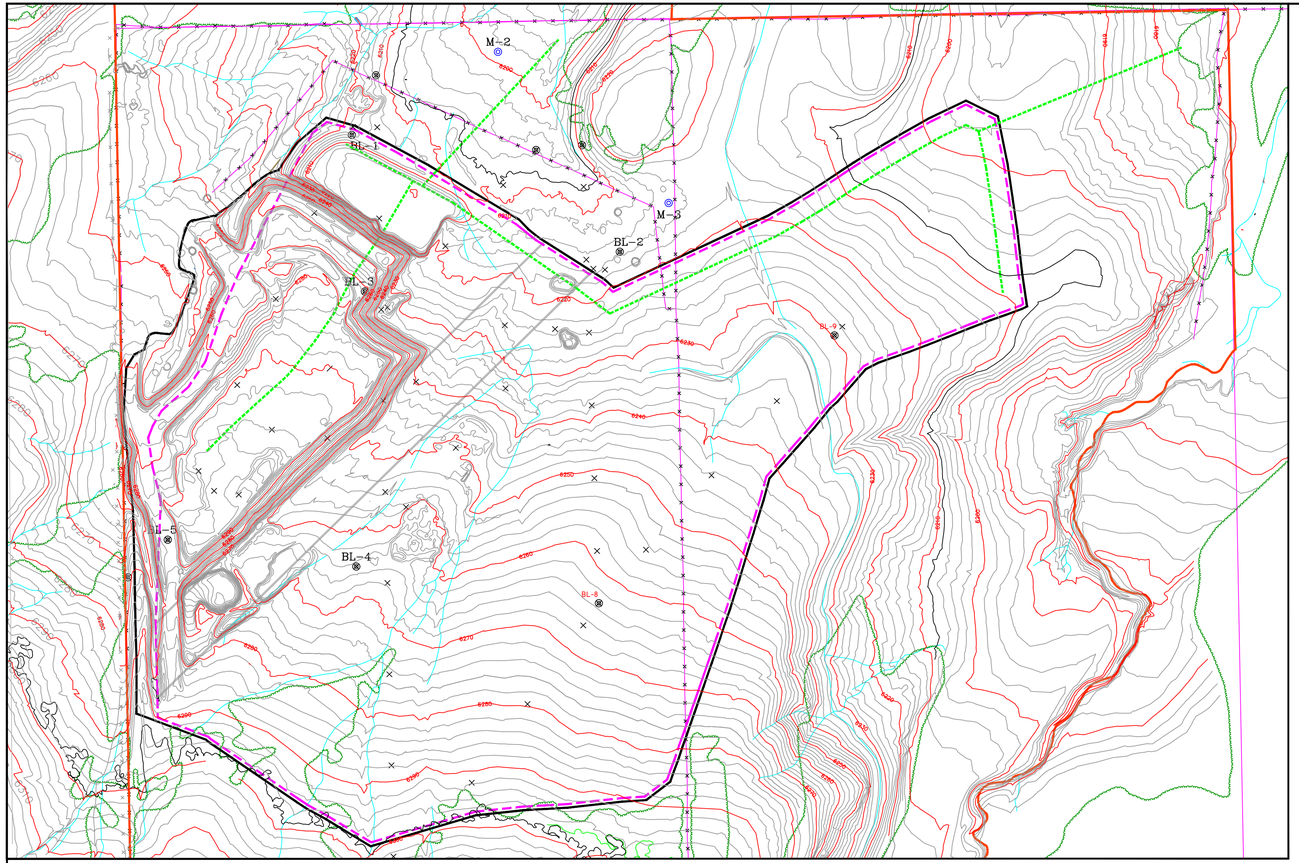
Date

N

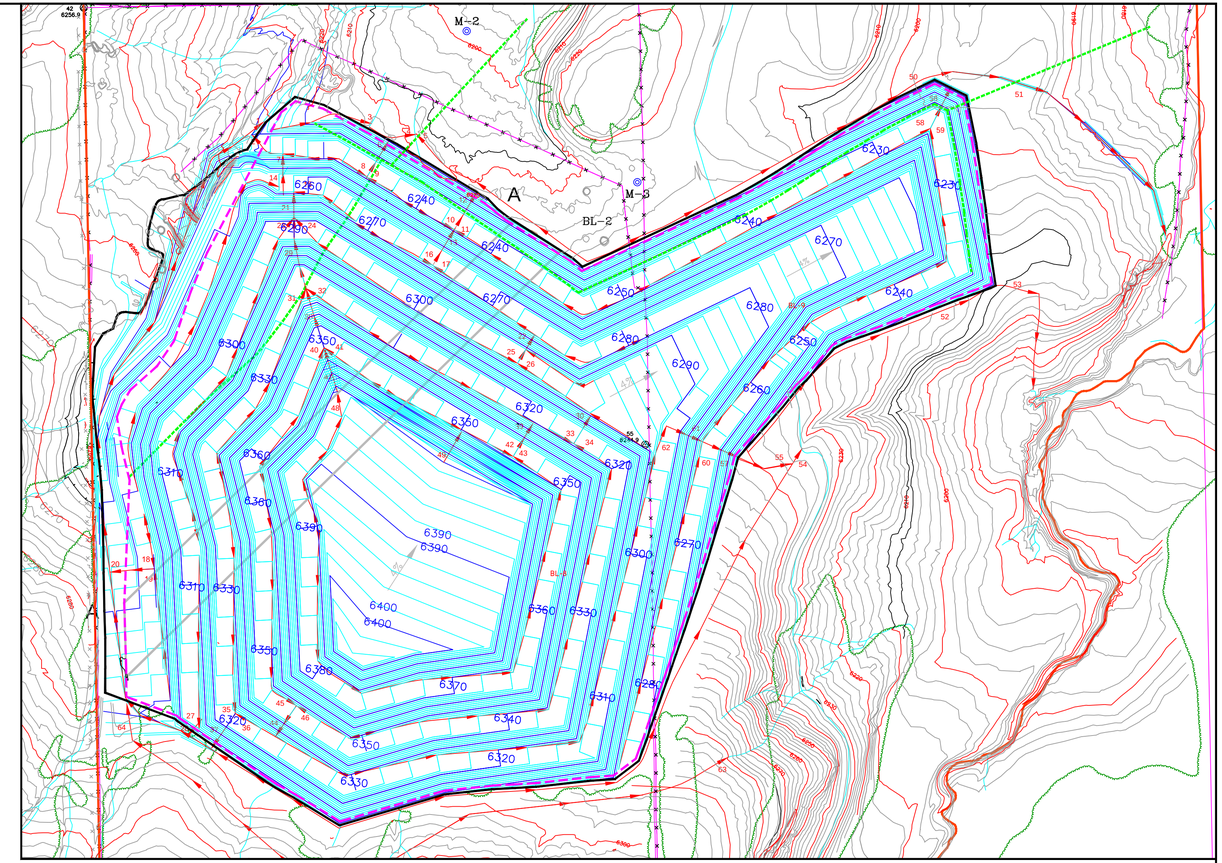
TS LANDFILL INC.

BROAD CANYON LANDFILL HYDROLOGIC AREA MAP

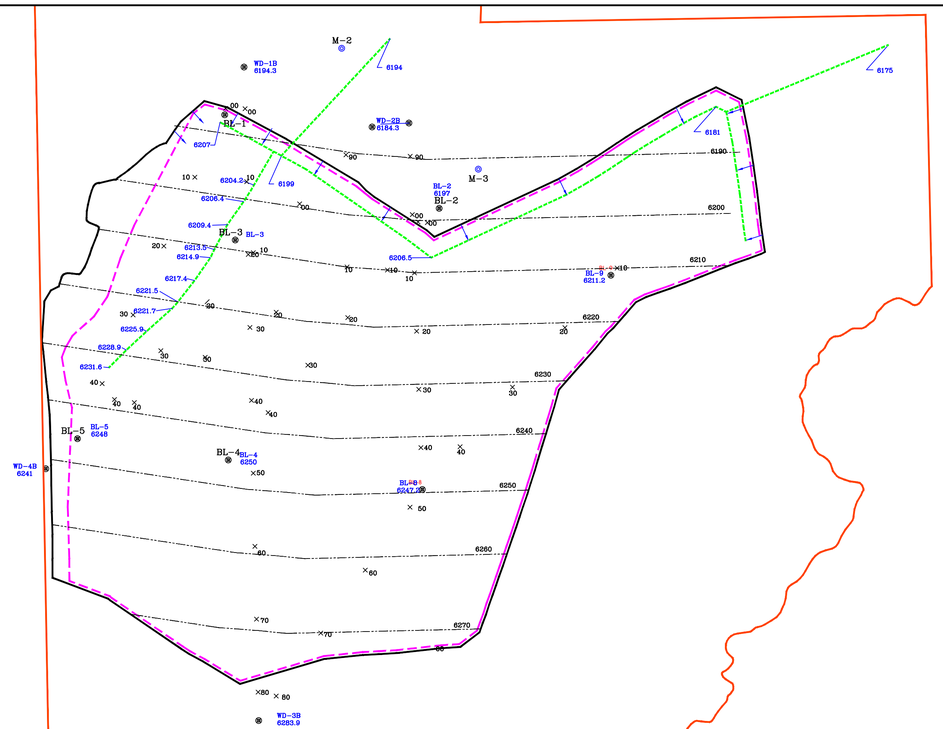
DRAWN BY: J.E.S.	REVISED:
DATE: 06-10-2016	
SCALE: 1" = 300'	LF-03



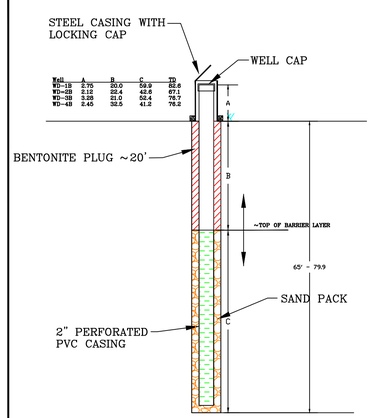
EXISTING CONTOURS 04-22-16



FINAL CONTOURS

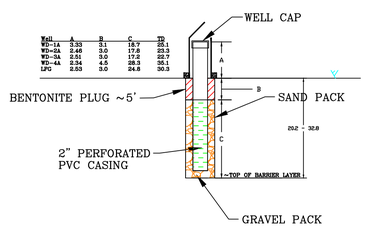


GRADING PLAN FOR LEACHACTE PIPE



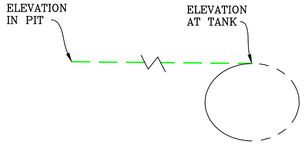
Well	A	B	C	TD
WD-1B	2.75	20.0	56.9	62.6
WD-2B	2.12	32.4	42.6	67.1
WD-3B	3.38	21.0	52.4	76.7
WD-4B	2.45	32.5	41.2	76.2

WET DRY WELL
COMPLETED IN BARRIER LAYER
N.T.S



Well	A	B	C	TD
WD-1A	3.33	3.1	18.7	29.1
WD-2A	2.48	3.0	17.8	23.3
WD-3A	2.61	3.0	17.2	22.7
WD-4A	2.34	4.5	28.3	35.1
LFG	2.53	3.0	24.8	30.3

WET DRY WELL
COMPLETED IN FORMATION
ABOVE BARRIER LAYER
N.T.S



LEACHATE LINE/TANK DETAILS

WEST LINE
- IN PIT 6199
- AT TANK 6194
- LENGTH 545
- SLOPE 0.9%

EAST LINE
- IN PIT 6181
- AT TANK 6175
- LENGTH 600
- SLOPE 1.0%

DOUBLE WALL TANK
- DEPTH 51"
- WIDTH 62"
- LENGTH 133"
- CAPACITY 1060 GALLONS

LEGEND:
- LANDFILL BOUNDARY
- CD BOUNDARY
- REFUSE BOUNDARY
- PROPOSED CONTOURS 10'
- PROPOSED CONTOURS 2'
- EXISTING CONTOURS 10'
- EXISTING CONTOURS 2'
- BARRIER LAYER ELEVATION
- BARRIER LAYER SPOT ELEV ×40 INTERPOLATED
- LEACHATE PIPE
- NEXT LINE OF PITS
- LEACHATE PIPE EL TOP 6208.9
- DENOTES 3H:1v SLOPE INTO PIT

ENGINEER'S CERTIFICATION

I hereby certify that this drawing was done by me or under my direct supervision and that all of the information presented on this drawing is true and correct to the best of my knowledge and belief.

James E. Stover
Colorado P.E. 19230

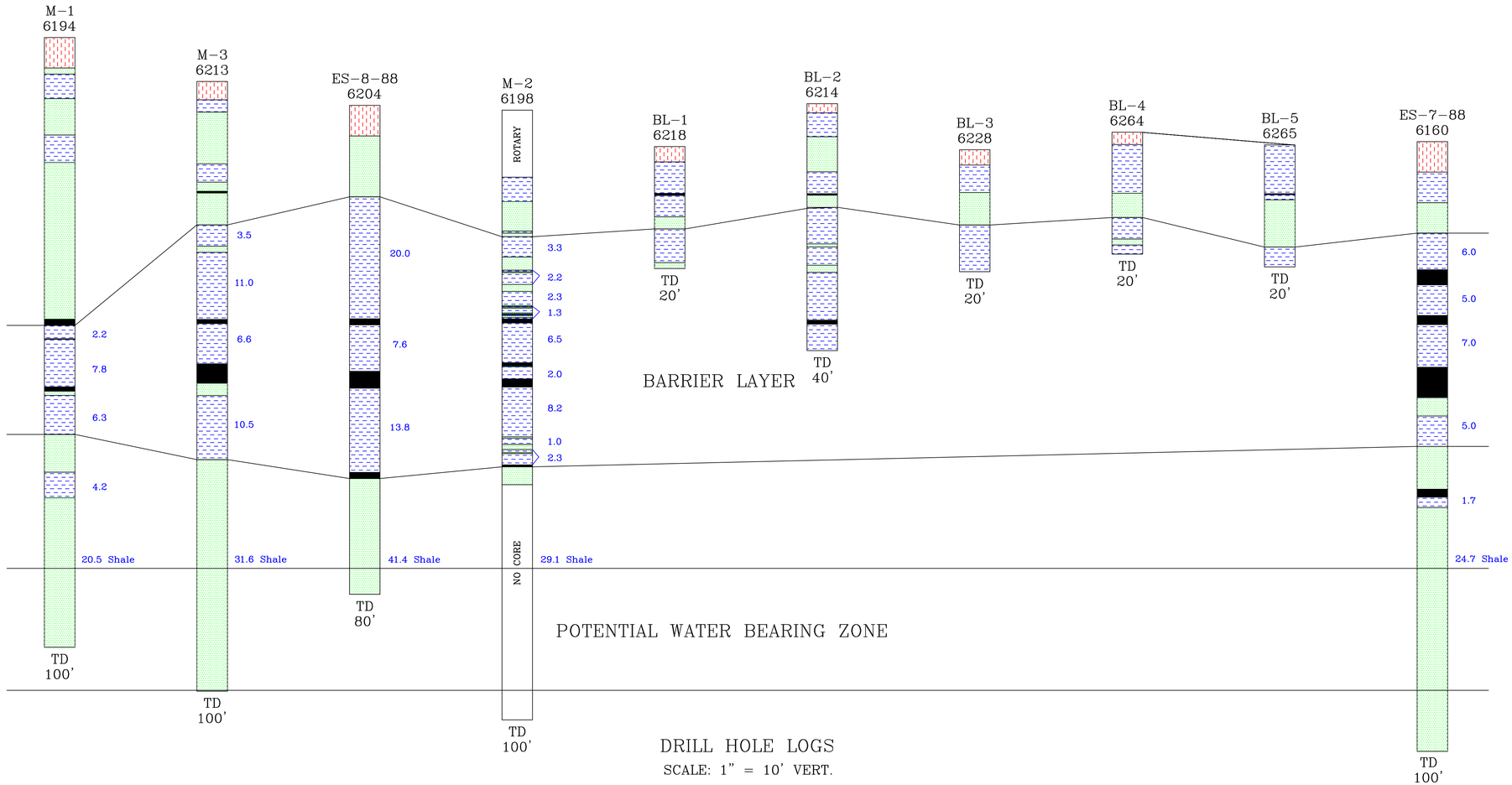
Date

N

TS LANDFILL INC.

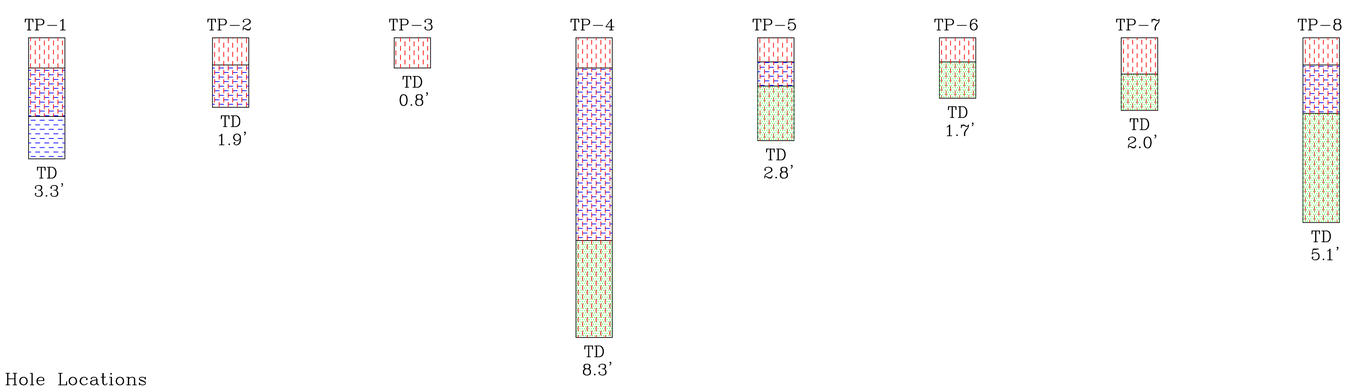
BROAD CANYON LANDFILL
FINAL DRAINAGE AND DETAILS

DRAWN BY: J.E.S.	REVISED: 06-10-2016
DATE: 04-16-14	
SCALE: 1" =200'	LF-04



DRILL HOLE LOGS

SCALE: 1" = 10' VERT.



TOPSOIL LOGS

SCALE: 1' = 5' VERT.

LEGEND:

- TOPSOIL
- SUB-SOIL
- CALICHE
- SHALE
- MUDSTONE
- SANDSTONE
- COAL
- SHALE/COAL

Notes:

1. See Drawing LF-02 for Drill Hole Locations
2. See Appendix 11 for 2015 Site Characterization Results

ENGINEER'S CERTIFICATION

I hereby certify that this drawing was done by me or under my direct supervision and that all of the information presented on this drawing is true and correct to the best of my knowledge and belief.

James E. Stover
Colorado P.E. 19230

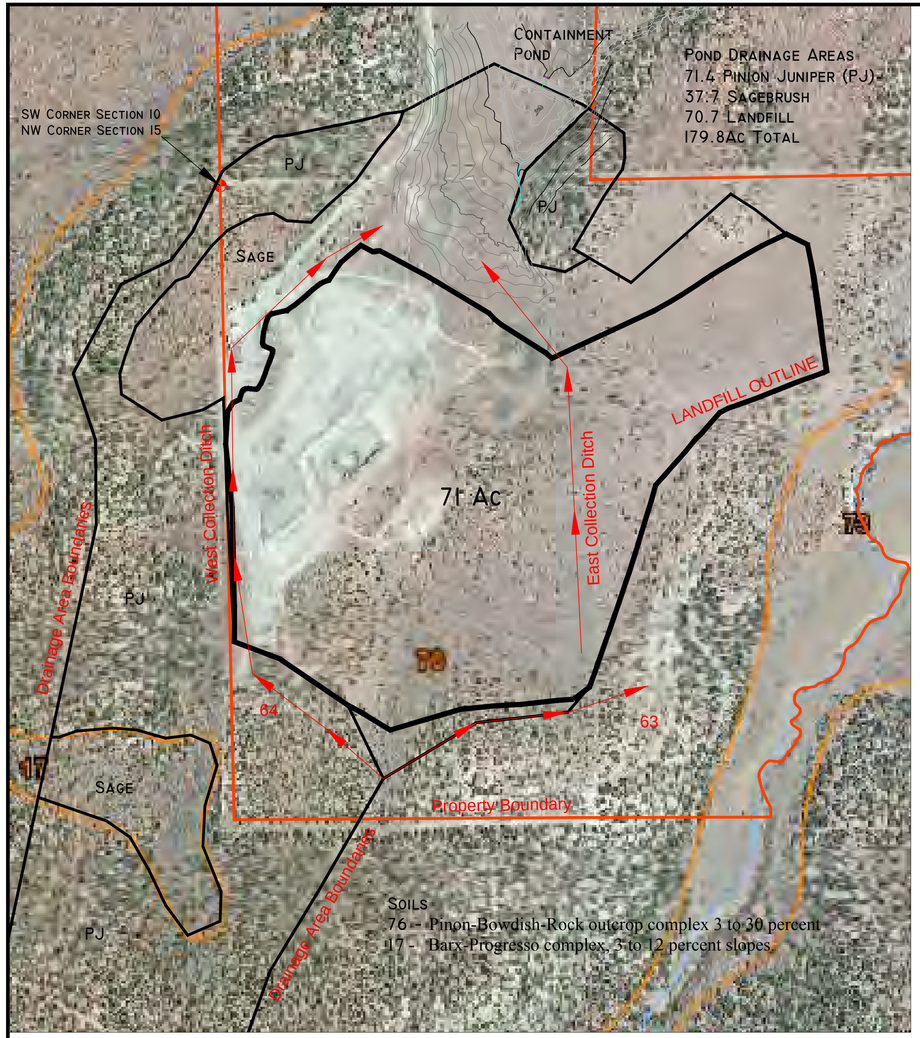
Date

N

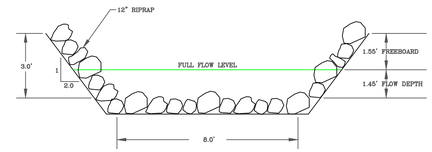
TS LANDFILL INC.

BROAD CANYON LANDFILL
DRILL HOLE AND SOIL LOGS

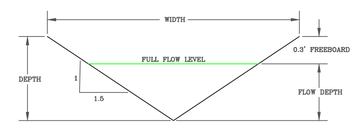
DRAWN BY: J.E.S.	REVISED:
DATE: 04-15-2014	
SCALE: AS NOTED	LF-05



DRAINAGE AREAS, SOILS &
DITCH LOCATIONS
SCALE ~1'=300'

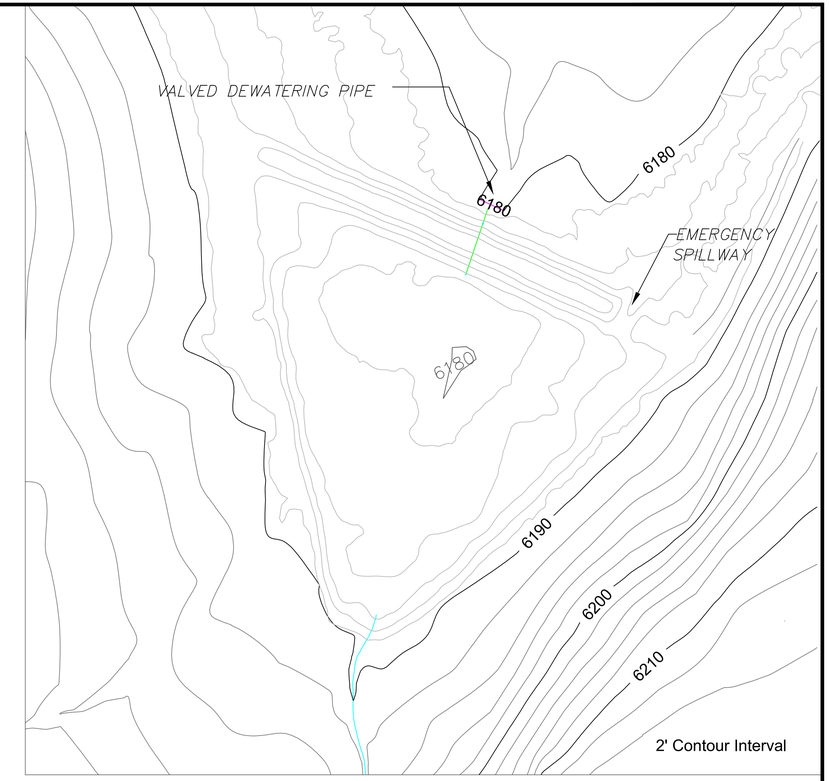


EMERGENCY SPILLWAY DETAILS

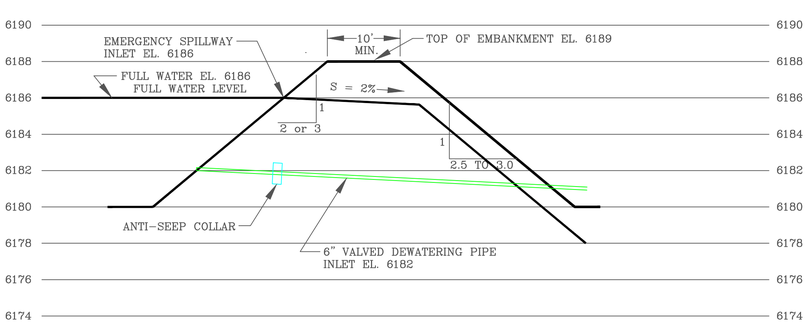


DITCH	DEPTH	FLOW DEPTH	WIDTH
West Diversion Ditch (64)	1.5'	1.2'	4.4'
East Diversion Ditch (63)	1.9'	0.9'	9.4'
West collection Ditch	1.9'	1.6'	6.7'
East Collection Ditch	1.9'	1.6'	6.7'

SITE DITCH DETAILS



CONTAINMENT POND PLAN VIEW
SCALE 1"=60'



CONTAINMENT POND
SECTION THROUGH EMBANKMENT

HORIZONTAL SCALE 1" = 10'
VERTICAL SCALE 1" = 4'

NOTES:

1. For pond and ditch sizing calculations see Appendix 1.
2. Riprap shall consist of hard, dense, rough fractured stone. Stone shall be well graded in order that the voids can be filled, at at least 50 percent of the mass shall be stones equal to or larger than the specified riprap size.
3. A geotextile fabric shall be placed under all riprap.
4. Pond dewatering pipe shall be plastic irrigation pipe, PIP, 80 psi rated, with bell and spigot joints and a valve on the outlet end.

ENGINEER'S CERTIFICATION

I hereby certify that this drawing was done by me or under my direct supervision and that all of the information presented on this drawing is true and correct to the best of my knowledge and belief.

James E. Stover
Colorado P.E. 19230

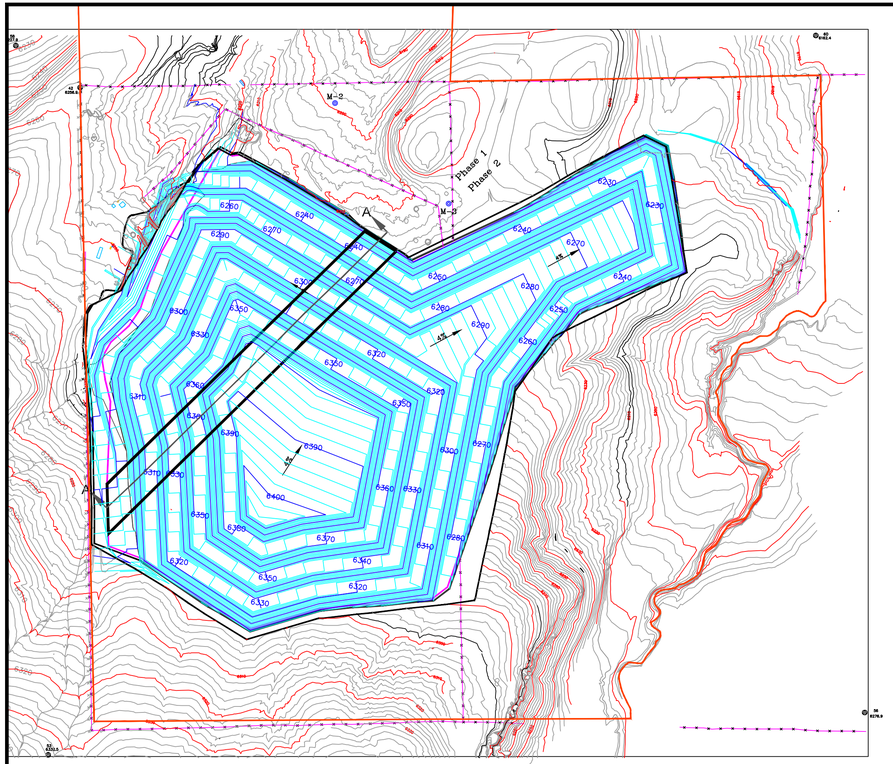
Date

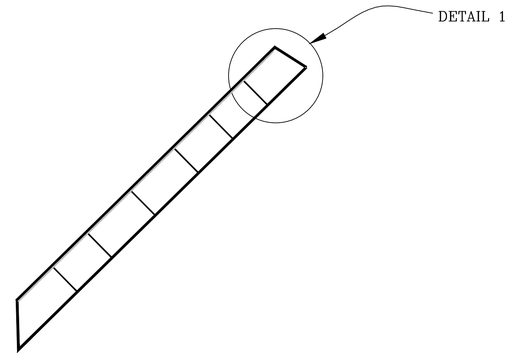
N

TS LANDFILL INC.

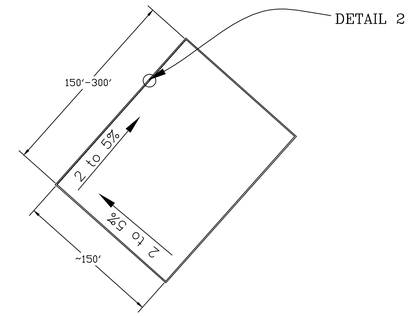
BROAD CANYON LANDFILL
CONTAINMENT POND AND DITCH DETAILS

DRAWN BY: J.E.S.	REVISED: 06-10-2016
DATE: 04-15-2014	
SCALE: 1" = 300'	LF-06

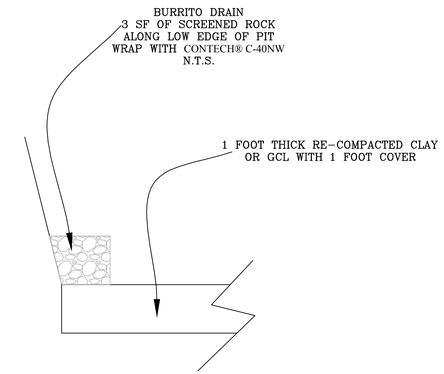




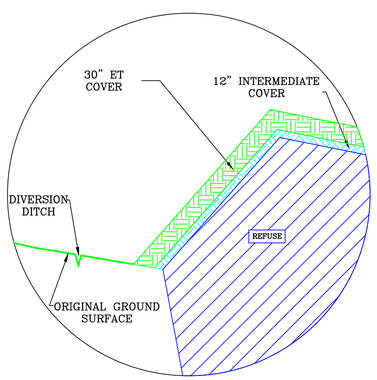
TYPICAL LINE OF CELLS
~150' WIDE BY
150 TO 300' LONG
N.T.S



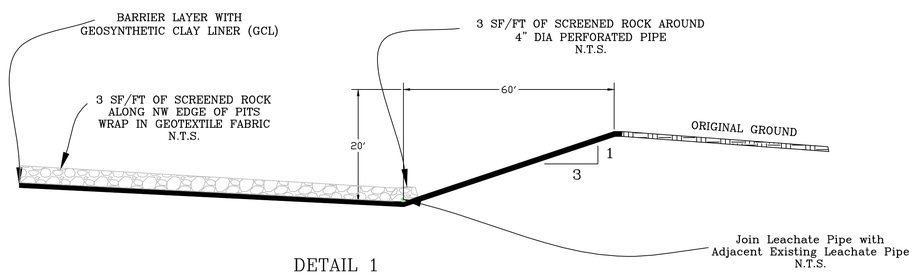
TYPICAL DRAINAGE
WITHIN CELL
N.T.S.



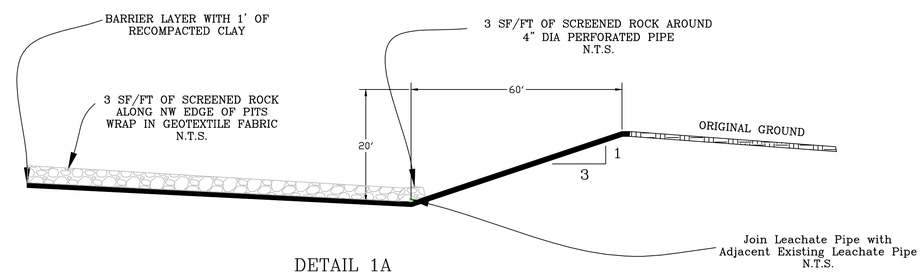
DETAIL 2
N.T.S



FINAL COVER DETAIL (TYPICAL)
N.T.S.



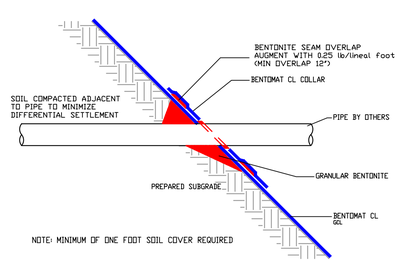
DETAIL 1
LAST (NORTH) CELL
DETAILS
N.T.S



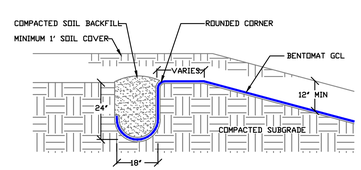
DETAIL 1A
LAST (NORTH) CELL
DETAILS
N.T.S

LEGEND:

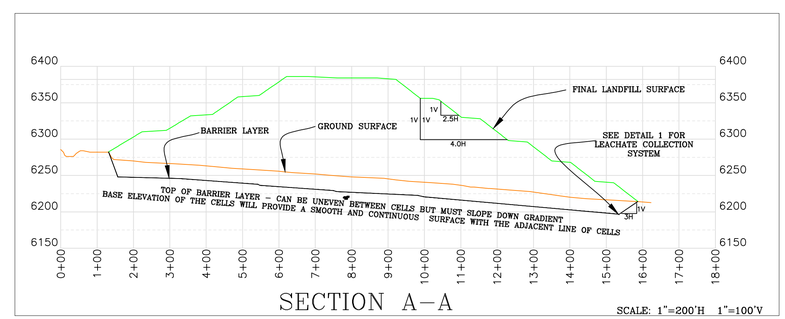
- LANDFILL BOUNDARY
- REFUSE BOUNDARY
- LINE OF PITS
- CD Boundary



GEOSYNTHETIC CLAY LINER DETAILS



GEOSYNTHETIC CLAY LINER DETAILS



SECTION A-A
SCALE: 1"=200'H 1"=100'V

ENGINEER'S CERTIFICATION

I hereby certify that this drawing was done by me or under my direct supervision and that all of the information presented on this drawing is true and correct to the best of my knowledge and belief.

James E. Stover
Colorado P.E. 19230

Date

N

TS LANDFILL INC.

BROAD CANYON LANDFILL
BARRIER LAYER AND LINER DETAILS

DRAWN BY: J.E.S.	REVISED: 06-10-2016
DATE: 04-15-2014	
SCALE: 1" = 300'	LF-07