ASPHALT RIDGE RESOURCE REPORT

Submitted to:
TAR SANDS HOLDING II, LLC

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EXECUTIVE SUMMARY

Asphalt Ridge is one of several bituminous sandstone deposits in the Uinta Basin that contains significant amounts of bitumen from which petroleum products may be extracted. Tar Sands Holding II, LLC (TSH2) controls significant tar sand deposits in its Asphalt Ridge property located in east-central Utah near the town of Vernal. The Asphalt Ridge property consists of two tracts of fee simple lands, South A Tract and D Tract. The combined land holding consists of 760 acres of which TSH2 has full rights to bituminous sands on 600 acres with the surface rights on the remaining 160 acres.

The South A Tract currently has a surface mine that has supplied Uintah County with natural asphalt material used in construction and maintenance of the county roads. Past developers of the property have also investigated technologies to extract bitumen from the tar sands for various petroleum products. Though there is evidence of surface disturbance Norwest Corporation (Norwest) is not aware of any significant mining on D Tract. D Tract was the location of in-situ recovery testing for bitumen in the 1980s.

Asphalt Ridge is a northwest trending hogback that extends for a distance of approximately 12 miles. Southwest dipping Cretaceous and Tertiary units containing bitumen saturated sandstones are exposed along the northeast facing cliffs of the hogback. The South A Tract is located in the northern third of the hogback. The D Tract is located in a relatively flat area about a mile north of the hogback proper.

Bitumen saturation occurs in the Asphalt Ridge Sandstone, the Rim Rock Sandstone, and the Duchesne River Formation. The Rim Rock Sandstone is the primary stratigraphic unit with bitumen saturation on both the South A and D Tracts. It varies in thickness from tens of feet to more than 300 feet (ft) as a result of variable erosion of the Mesaverde Group prior to the deposition of Tertiary units. The Asphalt Ridge Sandstone sits below the Rim Rock Sandstone separated by a tongue of the Mancos shale. Limited drilling into the Asphalt Ridge Sandstone has encountered weak to moderate bitumen saturation.

The Duchesne River Formation unconformably overlies the Rim Rock Sandstone. The sandstone and conglomerate within the Duchesne River Formation commonly contain sequences of bituminous saturation. Bitumen saturated horizons in the Duchesne River Formation are generally thinner and less continuous than the underlying Rim Rock Sandstone.

Cretaceous and Tertiary rock units strike northwest and dip southwest along Asphalt Ridge. The Cretaceous units, including the Rim Rock Sandstone, strike from about N80°W to N15°W and dip from 12° to 28° south to southwest. Tertiary beds strike in a more westerly direction and the dip of the bedding varies from nearly zero to about 20° southwest. There is an angular discordance of 3° to 8° between the steeper dipping Cretaceous beds and the Tertiary beds.

Two significant faults control the extents of bitumen saturation within Asphalt Ridge Property. A northwest trending fault on D Tract has significant displacement that downthrows the bitumen saturated units against older Mancos Shale. The second fault is a north-northwest trending, normal fault that extends along the eastern portion of the South A Tract. The fault limits the extent of the bitumen-bearing Rim Rock Sandstone on the east side of the tract. This fault is upthrown on the east side, although the amount of displacement is not known; only that it faults out the sandstone.

Norwest has developed geologic models for both the South A and D Tracts using the available drill hole, outcrop, topography, and previous mine data. The geologic models facilitate the assembly of this data for interpretation of the bitumen saturation and to calculate the volumes and tonnages for resource estimation, mine planning, and design.

The geologic models consist of a series of stacked grids representing the structural roofs and floors of the key ore horizons. The modeling software uses mathematical algorithms to create a dense rectangular grid of values interpolated between drill holes that represent various surfaces and ore grades of the tar sands. Volumetric calculations were performed by combining delineation boundaries determined from the quantification parameters with the respective grids representing the various attributes of the tar sand horizons. Volumes were converted to tonnage by the application of average density values derived from available drill hole data.

The primary source of geologic data for the South A Tract model is from 24 drill holes located within or in near proximity of the tract. This includes the information from drilling completed in 1997 and 2012 that Norwest assisted in completing and drilling completed in the 1950s by Standard Oil of Ohio (SOHIO).

From assay and section profiles, Norwest has identified four ore-bearing horizons in the Rim Rock tar sand for the South A Tract. Ore Horizon 3 is the thickest horizon and extends across the entire tract. Thickness for this horizon ranges from 28 to 141ft and carries an average grade at 38.9 gallons/cubic yard (gal/yd^3). Ore Horizons 1, 2, and 4 are less pervasive and extend across portions of the South A Tract. The thickest cumulative ore development occurs as a relatively wide zone extending from the east-west section line to the southwest corner of the tract and trends in a general northeast direction through the pit.

The geologic model for D Tract is based on 15 drill holes completed by SOHIO. From assay and section profiles, Norwest has identified two ore-bearing horizons in D Tract. The main horizon occurs in the Rim Rock Sandstone. The four distinct horizons recognized in the South A Tract coalesce into a less distinct, single horizon in D Tract with interburden waste horizons thinning and become discontinuous. The ore horizon in the Rim Rock ranges in thickness from 35 to 210 feet and carries an average grade of 35.10gal/yd^3.

The second horizon is located above the Rim Rock Sandstone in the overlying Duchesne Formation. This horizon ranges from 0 to 41 ft in thickness and carries an average grade of 23.09gal/yd^3.

Resources for the Asphalt Ridge Property are presented in Table E.1. From the geologic model, Norwest estimates an in-place total of approximately 19.1 million barrels (MMbbls) of bitumen in the oil sands for South A Tract and 25.6MMbbls of bitumen in D Tract. This estimate does not include any deductions for mine recovery, pit design parameters, or processing yield. The combined 44.7MMbbl bitumen resource is a volumetric calculation and is approximately 12% lower than the calculation based on tonnage. Much of the historical data lacks density information so average values have been applied in tonnage estimates. Tonnage estimates are provided to facilitate calculation of a strip ratio. On an in-place basis both tracts have favorably low strip ratios.

Table E.1 Combined In-place Resources for South A and D Tracts

Horizon	Volume (yds3)	Bitumen Grade		Ore Tons	Barrels Bitumen		Strip Ratio
		Gal/Yd	Gal/Ton		By Volume	By Tons	
Overburden & Waste	342,954,361						
South A Tract	22,812,823	35.20	20.20	44,194,141	19,098,608	21,297,300	4.22
D Tract	31,968,520	33.62	19.78	61,931,015	25,588,329	29,171,797	2.01
Total		**34.27**	**19.95**	**106,125,156**	**44,686,937**	**50,469,097**	**3.23**

The combined in-place resource of 44.7MMbbls of bitumen for the Asphalt Ridge property represents a significant resource or tar sands with an average grade of 34.27gal/yd^3.

Future resource characterization and mining of the bitumen horizons on the Asphalt Ridge property could benefit from collecting accurate survey locations of the historic drilling completed by SOHIO and obtaining the drilling data from the in-situ testing completed on D Tract in the 1980s. Future characterization of the tar sands should include analytical work on physical attributes (density, particle size, etc.) and possible drill testing into the Asphalt Ridge Sandstone underlying the Rim Rock Sandstone. Consideration should be given to completing mine planning and design work initiated in 2012 but suspended when previous property owner went into bankruptcy. Completing this work on the South A Tract and possibly expanding the work to the D Tract could help advance the property towards development.

INTRODUCTION

Asphalt Ridge is a northwest trending ridge of clastic sedimentary rock. The ridge forms the natural western boundary to Ashley Valley and the greater Vernal community in east-central Utah. Several layers of sandstone within the Asphalt Ridge stratigraphy contain significant quantities of bitumen saturation that can be extracted from the rock for commercial use. Current technological advances brought about by large-scale extraction of bitumen saturated sands in Canada have led to commercially viable extraction processes producing a suite of hydrocarbon products. The refinement of mining and processing methods combined with the relatively high worldwide oil prices have combined to create a renewed interest in tar sand property development.

The Asphalt Ridge property is currently owned by Tar Sands Holdings II, LLC (TSH2). TSH2 gained ownership of the Asphalt Ridge Property following the bankruptcy of Crown Asphalt Ridge, LLC in 2012. The property has been mined in the past by Uintah County, producing a natural asphalt product used in construction and maintenance of county roads. Past developers have speculated on producing various asphaltic products as well as hydrocarbon-based products such as diesel fuel. A surfactant-based extraction plant was built by CEntry, a technique which ultimately proved unfeasible. In 2000, a pilot demonstration plant was developed and field tested to demonstrate a modified hot water extraction process, which was conducted by CANMET, the science and technology arm of the Minerals and Metals Sector of Natural Resources Canada.

Norwest Corporation (Norwest) is an energy, mining, and environmental consultancy with extensive experience in the Athabasca Oil Sands projects in northern Alberta, Canada. Norwest has also provided consulting services to a few of the entities that have previously been involved with the Asphalt Ridge property. Most recently, Norwest was assisting the previous property owner with a drilling program in 2012 to collect analytical, geotechnical, and preliminary hydrologic data to support a resource study and a mining study on a portion of the property. Norwest completed a draft report on the in-place resources for a portion of the property known as the South A Tract prior to their bankruptcy.

Norwest has been retained by TSH2 to complete a report on the in-place bitumen resources for the entire Asphalt Ridge property. The report essentially finalizes the results presented of the draft report on the South A Tract along with completing a resource estimate on the D Tract following the same procedures and criteria used on the South A Tract. This report is based on the existing geologic data available to Norwest. No new drilling or sampling was conducted in the preparation of this report.

The accuracy of resource and reserve estimates are, in part, a function of the quality and quantity of available data and of engineering and geological interpretation and judgment. Given the data available at the time this report was prepared, the estimates presented herein are considered reasonable. However, they should be accepted with the understanding that additional data and analysis available subsequent to the date of the estimates may necessitate revision. These revisions may be material. There is no guarantee that all or any part of the estimated resources will be recoverable.

PROPERTY DESCRIPTION

The Asphalt Ridge property consists of fee simple land divided into two tracts, the South A Tract and the D Tract as illustrated on Figure 2.1. Table 2.1 describes land currently controlled by TSH2.

Table 2.1 Description of TSH2 Lands, Asphalt Ridge South A and D Tracts

Tract	Description		Acres ±	Comments
South A	T4S, R21E S.L.M.	Section 30: W/2SE/4, SE/4SE/4	120	
South A	T4S, R21E S.L.M.	Section 31: W/2NE, SE/4NE/4	120	
South A	T4S, R21E S.L.M.	Section 31: NE/4NE/4	40	Except coal
South A	T4S, R21E S.L.M.	Section 32: SW/4	160	Surface only
		Subtotal Acreage – South A Tract	***440***	
D	T4S, R20E S.L.M.	Section 23: S/2NE/4, N/2SE/4	160	
D	T4S, R20E S.L.M.	Section 24: S/2NW/4, N/2SW/4	160	
		Subtotal Acreage – D Tract	***320***	
		Total Acreage	**760**	

Note that TSH2 owns just the surface rights in the SW/4 of Section 32, T4S, R21E. Stated differently, TSH2 owns rights to the bituminous sands on 600 acres, 320 acres on the D Tract and 280 acres on the South A Tract.

These lands are known to be underlain by bitumen saturated rock units (primarily sandstone). Laramie Energy Technology Center (LETC), Department of Energy, completed three in-situ oil recovery field experiments in bituminous sand on the D Tract, whereas surface mining of the tar sands has taken place on the South A Tract by Uintah County and others.

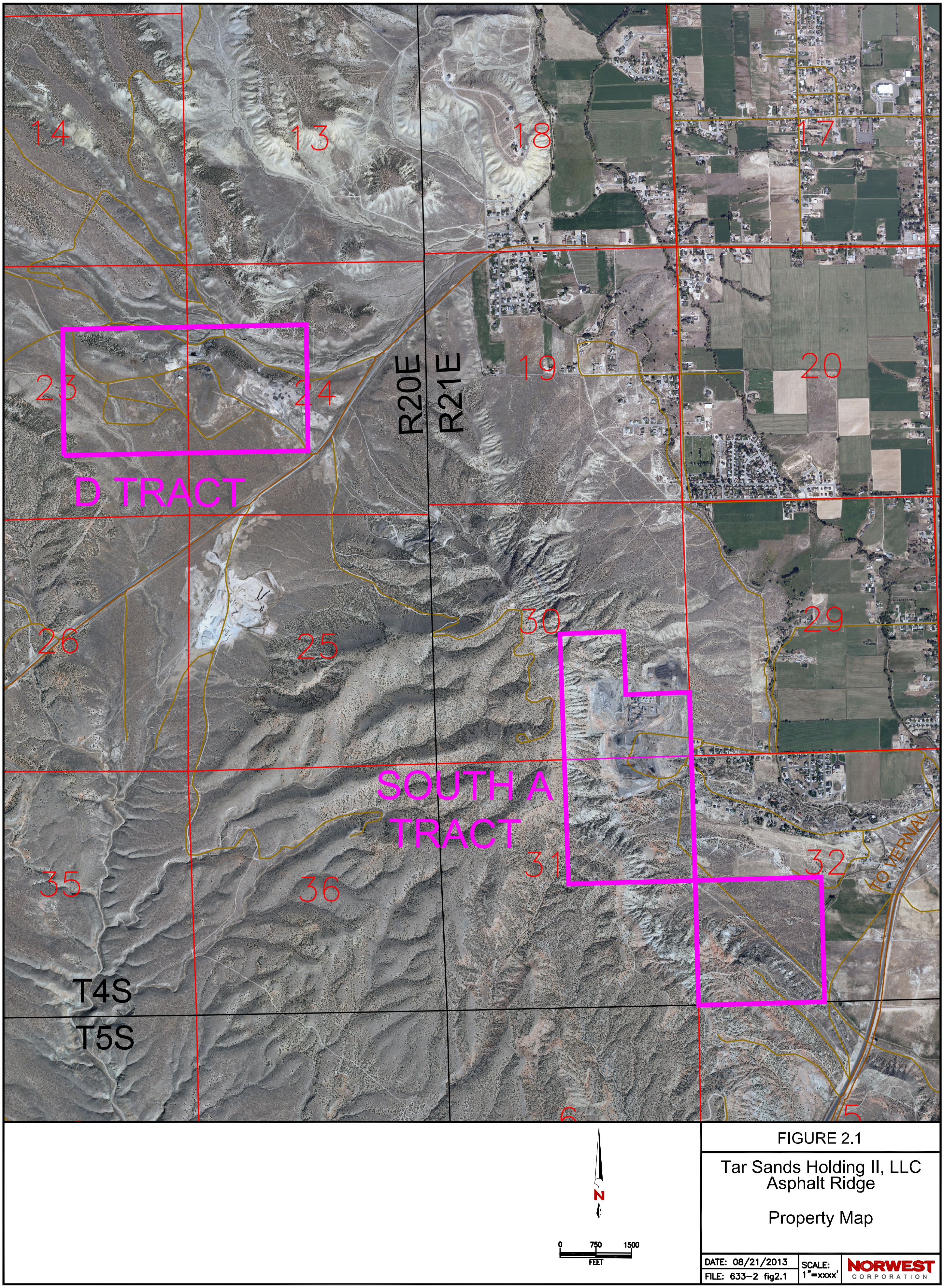

FIGURE 2.1

Tar Sands Holding II, LLC
Asphalt Ridge

Property Map

DATE: 08/21/2013
FILE: 633-2 fig2.1
SCALE: 1"=xxxx'
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GEOLOGIC SETTING

REGIONAL SETTING

Asphalt Ridge is one of several bituminous sandstone deposits in the Uinta Basin that contains significant amounts of bitumen from which petroleum products may be extracted (Figure 3.1). It is located on the northeastern margin of the Uinta Basin where the Cretaceous Mesaverde Group is in contact with the overlying Tertiary rocks.

Asphalt Ridge is a northwest trending hogback that extends for a distance of approximately 12 miles. Southwest dipping Cretaceous and Tertiary units containing bitumen saturated sandstones are exposed along the northeast facing cliffs of the hogback. The South A Tract is located in the northern 1/3rd of the hogback. The D Tract is located in a relatively flat area about a mile north of the hogback proper and is sometimes referred to as Northwest Asphalt Ridge in some literature (Figure 3.2).

Much of our knowledge of the geology of Asphalt Ridge is based on a study by Kayser (1966)[1] and through our review and interpretation of drilling records from exploration carried out by Standard Oil of Ohio (SOHIO) in the late 1950s. In addition, Norwest has participated in the drilling of nine drill holes on the South A Tract

[1] Kayser, R.B., 1966, Bituminous Sandstone Deposits, Asphalt Ridge, Uintah County, Utah: Salt Lake City, Utah Geological and Mineralogical Survey, Specials Studies 19, 62p.

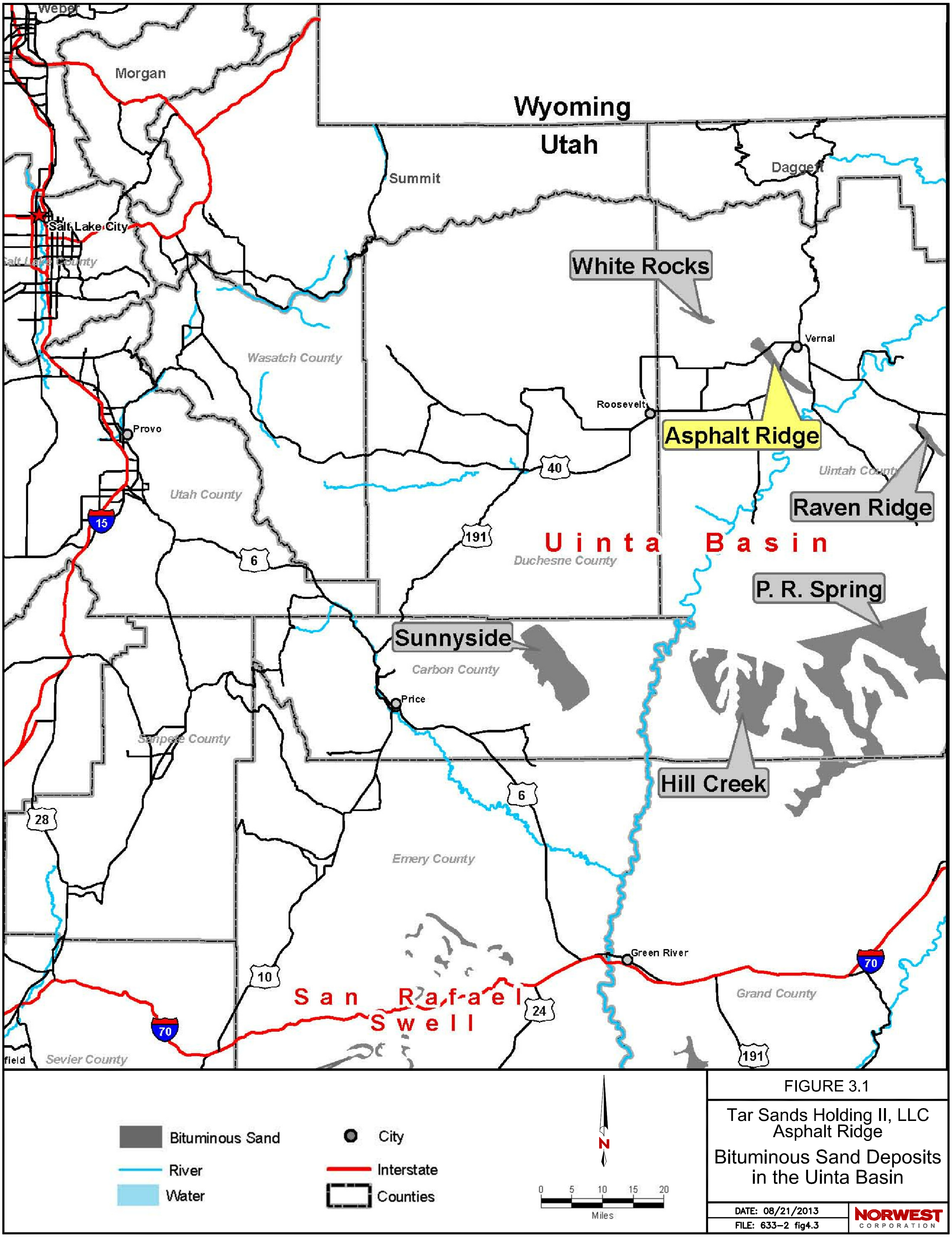

FIGURE 3.1

Tar Sands Holding II, LLC
Asphalt Ridge

Bituminous Sand Deposits
in the Uinta Basin

DATE: 08/21/2013
FILE: 633-2 fig4.3

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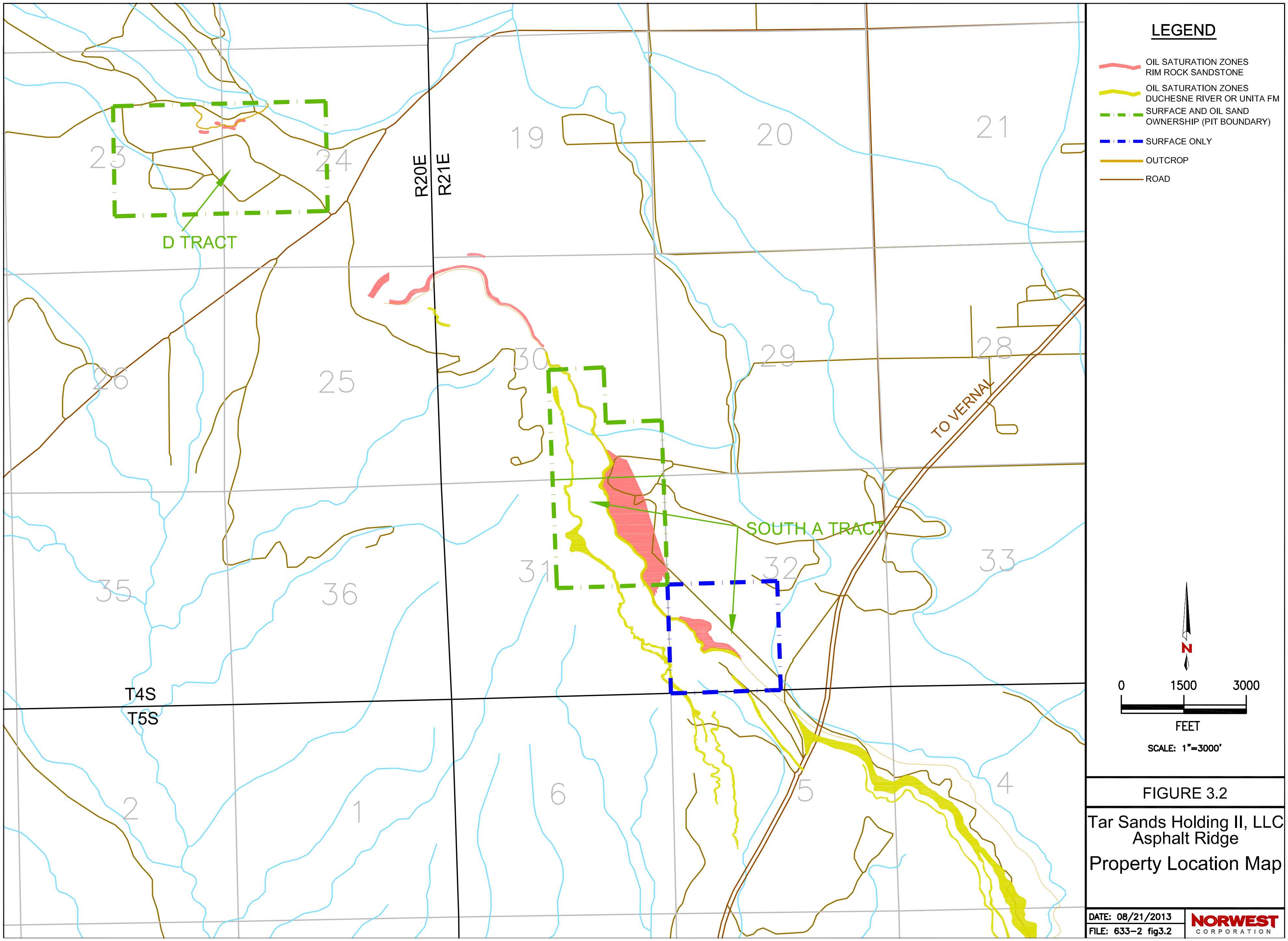
LEGEND
OIL SATURATION ZONES RIM ROCK SANDSTONE
OIL SATURATION ZONES DUCHESNE RIVER OR UNITA FM
SURFACE AND OIL SAND OWNERSHIP (PIT BOUNDARY)
SURFACE ONLY
OUTCROP
ROAD
D TRACT
SOUTH A TRACT
TO VERNAL
R20E
R21E
T4S
T5S
19
20
21
23
24
25
26
28
29
30
31
32
33
35
36
1
2
4
5
6
N
0
1500
3000
FEET
SCALE: 1"=3000'
FIGURE 3.2
Tar Sands Holding II, LLC
Asphalt Ridge
Property Location Map
DATE: 08/21/2013
FILE: 633-2 fig3.2
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STRATIGRAPHY

Stratigraphic units of interest that outcrop (or subcrop) proximal to the South A and D Tracts are summarized in Table 3.1.

Table 3.1 Asphalt Ridge General Stratigraphy

Period/Epoch		Group - Formation	Thickness (ft) *
Tertiary	Oligocene	Duchesne River Formation	1000 to 1500+
~~ unconformity ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			
		Mesa Verde Group – Williams Fork Formation	0 to 50
		Mesa Verde Group – Sandstone	100 to 350
		Tongue of Mancos Shale	50 to 100
Mesozoic	Cretaceous	Mesa Verde Group – Asphalt Ridge Sandstone	150 to 200

* Thickness ranges based on Kayser (1966) geologic cross sections, Bi[illegible]en bearing units

Bitumen saturation occurs in the Asphalt Ridge Sandstone, the Rim Rock Sandstone, and the Duchesne River Formation. The Rim Rock Sandstone is the primary stratigraphic unit with bitumen saturation on both the South A and D Tracts. Figure 3.3 shows a generalized stratigraphic column of the principal units occurring on the property.

The lowest stratigraphic unit of interest is the Asphalt Ridge Sandstone of the Mesaverde Group. Where exposed, the Asphalt Ridge Sandstone, which conformably overlies the Mancos Shale, is a light gray to buff color, very fine to fine-grained, soft, friable sandstone.

Upper portions of the Asphalt Ridges Sandstone crop along much of the base of the ridge front. In outcrop the Asphalt Ridge Sandstone appears mostly barren of bitumen. Some of the historic SOHIO drill holes however, have drilled into the upper portions of the sandstone unit and have intersected weak to moderate bitumen saturation.

A thin shale interval (50 to 100ft thick), thought to be a tongue of the Mancos Shale, separates the Asphalt Ridge Sandstone from the overlying Rim Rock Sandstone.

The Rim Rock Sandstone crops along the entire length of the ridge and is the primary bitumen bearing unit. It varies in thickness from tens of feet to more than 300ft as a result of variable erosion of the Mesaverde Group prior to the deposition of Tertiary units. In bitumen-free areas, the sandstone is light gray, fine to medium-grained, and speckled with numerous black chert grains.

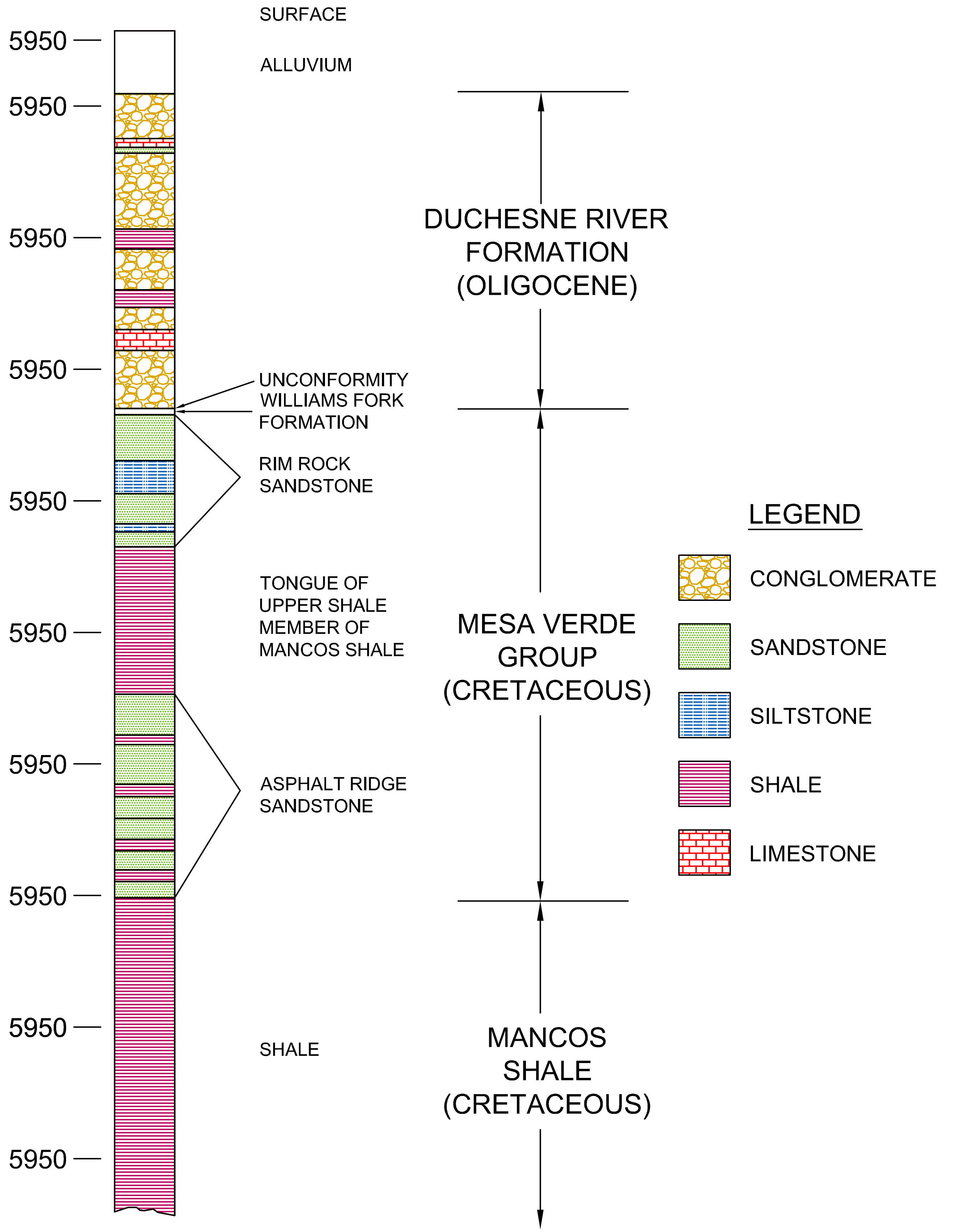


FIGURE 3.3

Tar Sands Holding II, LLC
Asphalt Ridge

Generalized Stratigraphic Section

DATE: 08/21/2013
FILE: 633-2 fig3.3
SCALE: NONE
NORWEST CORPORATION

Thin beds (up to about 50ft thick) above the Rim Rock Sandstone units have been grouped into the Williams Fork Formation. These beds are poorly exposed, but consist of shale, sandstone, and thin coal beds. As with the Rim Rock, these beds have been partially (or entirely) removed by the variable erosion of the Mesaverde Group prior to the deposition of Tertiary units.

Variable erosion of the Mesaverde Group took place prior to the deposition of Tertiary units, including the Duchesne River Formation. Rock units within the Duchesne River Formation lap onto the erosional surface of the unconformity. Both Cretaceous and Tertiary units dip southwesterly, the Cretaceous units dip 3º to 8° more than the overlying Tertiary beds due to the angular discordance of the unconformity.

The Duchesne River Formation unconformably overlies the Mesaverde Group along the northern two thirds of Asphalt Ridge (including the subject tracts). The Duchesne River consists of interbedded cyclic sequences of sandstone, mudstone, shale, and conglomerate. Sandstone and conglomerate of the Duchesne River Formation commonly contain bituminous saturation. Compared to the Rim Rock Sandstone, the bitumen saturated horizons in the Duchesne River Formation are thinner and generally less continuous.

STRUCTURE

Cretaceous and Tertiary rock units strike northwest and dip southwest along the Asphalt Ridge trend. The Cretaceous units, including the Rim Rock Sandstone, strike from about N80°W to N15°W and dip from 12° to 28° south to southwest. Tertiary beds strike in a more westerly direction and the dip of the bedding varies from nearly zero to about 20° southwest. There is an angular discordance of 3° to 8° between the steeper dipping Cretaceous beds and the Tertiary beds.

Most of the faults recognized in outcrop are confined to rocks of the Mesaverde Group and don’t pass upward into the overlying Tertiary, and as such this generation of faulting predates the deposition of Tertiary units. Numerous small faults and joints, generally trending from N50°W to N70°W, have been observed in the Mesaverde Group along the entire length of the ridge.

Two significant faults are located within Asphalt Ridge Property. A post-Oligocene fault separates the Asphalt Ridge hogback proper from the Northwest Asphalt Ridge (D Tract). This northeast trending fault, located at the north end of the hogback, is downthrown on the northwest side with an estimated displacement of 250ft to as much as 1200ft, depending on the author. This fault is referred as the Boundary Fault by Norwest. The second fault is a north-northwest trending, normal fault that extends along the eastern portion of the South A Tract. The fault limits the extent of the bitumen-bearing Rim Rock Sandstone on the east side of the tract. This fault is upthrown on the east side, although the amount of displacement is not known; only that it faults out the sandstone.

RESOURCES

Norwest has developed geologic models for both the South A and D Tracts using the available drill hole, outcrop, topography, and previous mine data. The geologic models facilitate the assembly of this data for interpretation of the bitumen saturation and to calculate accurately the volumes and tonnages for resource estimation, mine planning, and design. The geologic models were constructed using Carlson Mining® 2012 software. The software was developed by Carlson Software of Maysville, Kentucky, and is widely used for geologic modeling and mine planning in the United States and worldwide.

MODELING PROCESS

The modeling procedural flow included the following tasks:

- Verify hole locations and collar elevations
- Develop stratigraphic and structural cross-sections
- Correlate ore and stratigraphic horizons
- Create gridded elevation models of the key horizons
- Verify model by creating contour maps, fence diagrams, and model sections.

The geologic models consist of a series of stacked grids representing the structural roofs and floors of the key ore horizons. The modeling software uses mathematical algorithms to create a dense rectangular grid of values interpolated between drill holes that represent various surfaces and ore grades of the oil sands. Some of the key features created by the gridded surfaces are:

- Structural elevations
- Ore horizon thickness
- Interburden and overburden thicknesses for the ore horizons
- Corresponding bitumen content for the defined ore horizons expressed in gallons/ton (gal/ton) and gallons/cubic yard (gal/yd^3).

The topographic surface for the geologic models was developed from NAIP 2006 digital elevation models (DEMs) acquired from the USGS. The NAIP DEM data has a 2-meter resolution. The topographic surface has been further enhanced with survey and mapping completed by Uinta Engineering & Land Surveying in the first part of 2012 for the active mine in the South A Tract.

The model verification process is iterative and is performed at all stages of model development. The cross-sections and contour maps are continually reviewed for anomalies and proofed back to source data for verification. Good correlation was found in comparing the drill hole collar elevations with the modeled topographic surface for the South A Tract. There is some variation however, with collar elevations for drill holes in the D Tract. Norwest has been unable to locate survey records for the SOHIO drill holes and has had to rely on locations derived from postings on a hardcopy map. Possible miss-location of the drill holes does not create an insurmountable problem for resource modeling. However, more detailed engineering and mine planning efforts may be affected in terms of accuracy if based solely on these location descriptions.

Norwest has found good correlation in the lithologic intercepts and general ore zones. There is a fairly high variance however, in assay results. The geologic database represents over the 60+ years of drilling that has been conducted on Asphalt Ridge and there have been changes in analytical procedures and precision that increase variance in the assay grades.

MODEL PARAMETERS

The following controls were used to model this property:

- Map Datum: NAD27, Utah State Planes – Central Zone
- Gridding Method: Triangulation with extrapolation to resource area boundaries for geologic structure and Inverse Distancing-Squared for grade attributes
- Grid Cell Size: 25 x 25ft.

RESOURCE ESTIMATION

Resource estimation was accomplished using a series of three-dimensional grids or "surfaces" representing the top and bottom surfaces of the oil sand horizons, thickness grids of the ore horizons, partings, interburden, overburden, and surface topography. Volumetric calculations were performed by combining delineation boundaries determined from the quantification parameters with the respective grids representing the various attributes of the oil sand horizons. Volumes were converted to tonnage by the application of average density values derived from available drill hole data.

- An average value of 2.38g/cc (143.5lbs/ft^3) was used for ore-bearing oil sands.
- An average value of 2.62g/cc (163.6lbs/ft^3) was applied to all overburden and interburden.

QUANTIFICATION PARAMETERS

The following parameters were used to define the in-place oil sand resources:

- Minimum ore thickness of 5ft
- Maximum waste (parting) inclusion thickness of 2ft
- 10gal/ton minimum bitumen content.

SOUTH A TRACT MODEL & RESOURCES

The primary source of geologic data for the South A Tract model is from 24 drill holes located within or in near proximity of the tract. This includes the information of the two core holes and four reverse circulation holes completed in 2012 that Norwest assisted the previous land owner in logging. Most of the drill holes date back to exploration conducted by SOHIO in the 1950s along with three holes Norwest drilled for another previous property holder in 1997. Drill holes used to model oil saturated horizons in the South A Tract are listed below in Table 4.1 and shown in Figure 4.1.

Table 4.1 South A Tract Drill Hole Locations

Drill Hole ID	UT-SP-C-NAD27			Total Depth	Operator
	Easting	Northing	Elevation		
A-1	2,529,652	769,456	5,896	321	SOHIO
A-2	2,529,052	769,478	5,919	281	SOHIO
A-3	2,529,642	769,034	5,872	275	SOHIO
A-4	2,528,426	770,933	6,097	237	SOHIO
A-7	2,529,290	770,609	5,984	235	SOHIO
A-8	2,528,263	772,281	5,577	350	SOHIO
B-1	2,531,160	767,129	5,577	395	SOHIO
B-4	2,531,059	765,789	5,577	622	SOHIO
CA-1	2,525,801	773,582	6,430	461	SOHIO
CA-2	2,527,591	773,613	6,501	555	SOHIO
CA-3	2,526,922	771,015	6,448	809	SOHIO
CB-1	2,529,756	768,480	5,894	459	SOHIO
CB-2	2,528,512	768,416	6,036	528	SOHIO
CB-3	2,528,403	769,720	5,977	361	SOHIO
CB-4	2,529,647	767,566	5,860	259	SOHIO
AR-97-001	2,529,716	769,565	5,891	338	Norwest 1997
AR-97-002	2,528,892	769,992	5,940	326	Norwest 1997
AR-97-003	2,529,363	770,036	5,919	296	Norwest 1997
CA2012-1	2,528,731	768,370	6,106	665	Norwest 2012
CA2012-2	2,528,039	768,756	6,115	560	Norwest 2012
CA2012-3	2,529,658	768,585	5,883	400	Norwest 2012
CA2012-4	2,529,283	769,314	5,876	375	Norwest 2012
CA2012-5	2,529,080	769,897	5,919	303	Norwest 2012
CA2012-6	2,528,672	770,089	5,948	300	Norwest 2012

Resource limits for the South A Tract geologic model are defined by a north-northwest trending fault along the east side of the tract that truncates the oil sands and by property boundaries on the south, west and north sides of the tract.

From assay and section profiles, Norwest has identified four ore-bearing horizons in the Rim Rock oil sands. In descending order, they are identified in the model as Ore Horizons 1 through 4. Ore Horizon 3 is the thickest horizon and extends across the entire tract. Thickness for this horizon ranges from 28 to 141ft. Ore Horizon 3 also carries the highest average grade at 38.9gal/yd3. Ore Horizons 1, 2, and 4 are less pervasive and extend across portions of the South A Tract. The extent and development of the four ore horizons can be seen in isopachs (Figures 4.2- 4.10) and in fence plots (Figure 4.11). The thickest cumulative ore development occurs as a relatively wide zone extending from the east-west section line to the southwest corner of the tract and trends in a general northeast direction through the pit (Figure 4.12).

Resources for the South A Tract are presented in Table 4.2. From the geologic model, Norwest estimates an in-place total of approximately 19.1MMbbl of bitumen in the oil sand. This estimate does not include any deductions for mine recovery, pit design parameters, or processing yield. There is a 2MMbbl difference in final resource numbers depending on whether the estimate is based on volumes or tons. Calculation by tonnage yields a higher value of 21.3MMbbls. Much of the historical data lacks density information so average values have been applied in tonnage estimates. Tonnage estimates facilitate calculation of strip ratio. On an in-place basis the deposit has a favorably low strip ratio of 2.13yds^3/ton

Table 4.2 Resource Estimate South A Tract

Horizon	Thickness (ft)	Area (ft^2)	Volume		Bitumen Grade		Ore Tons	Barrels Bitumen		Strip Ratio
			(ft^3)	(yds^3)	Gal/Yd	Gal/Ton		By Volume	By Tons	
Overburden	249.09	7,924,356.7	1,973,914,003.9	73,107,926.1						
ORE 1	7.31	7,973,260.5	58,292,834.7	2,158,993.9	26.8	15.6	4,182,511	1,379,344	1,548,851	47.20
IB 1	40.85	7,759,262.5	316,951,499.2	11,738,944.4						
ORE 2_PTG	5.83	7,797,387.5	45,442,577.9	1,683,058.4						
ORE 2	20.46	7,976,137.5	163,190,186.9	6,044,081.0	30.9	17.7	11,708,896	4,448,099	4,948,345	13.31
IB 2	8.84	954,556.1	8,437,715.8	312,508.0						
ORE 3_PTG	18.42	2,863,797.4	52,758,393.4	1,954,014.6						
ORE 3	61.74	5,245,117.6	323,819,371.7	11,993,310.1	38.9	22.3	23,234,040	11,097,698	12,361,644	4.71
IB 3	36.09	3,180,510.0	114,799,276.3	4,251,825.0						
ORE 4_PTG	6.63	4,716,514.7	31,284,270.9	1,158,676.7						
ORE 4	13.61	5,191,716.1	70,643,828.0	2,616,438.1	34.9	20.2	5,068,695	2,173,467	2,438,459	4.22
Total					**35.2**	**20.2**	**44,194,141**	**19,098,608**	**21,297,300**	**4.22**

.

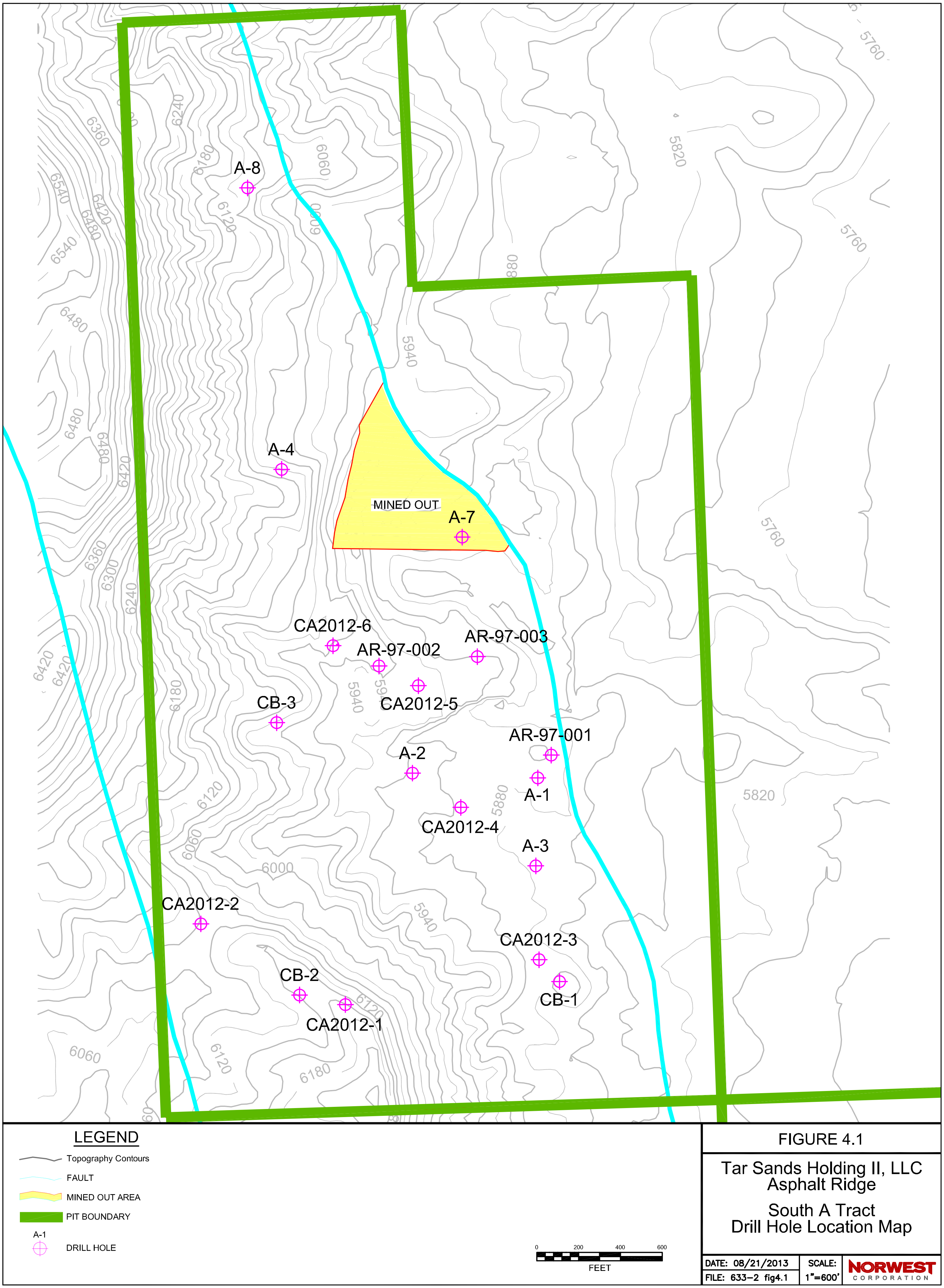
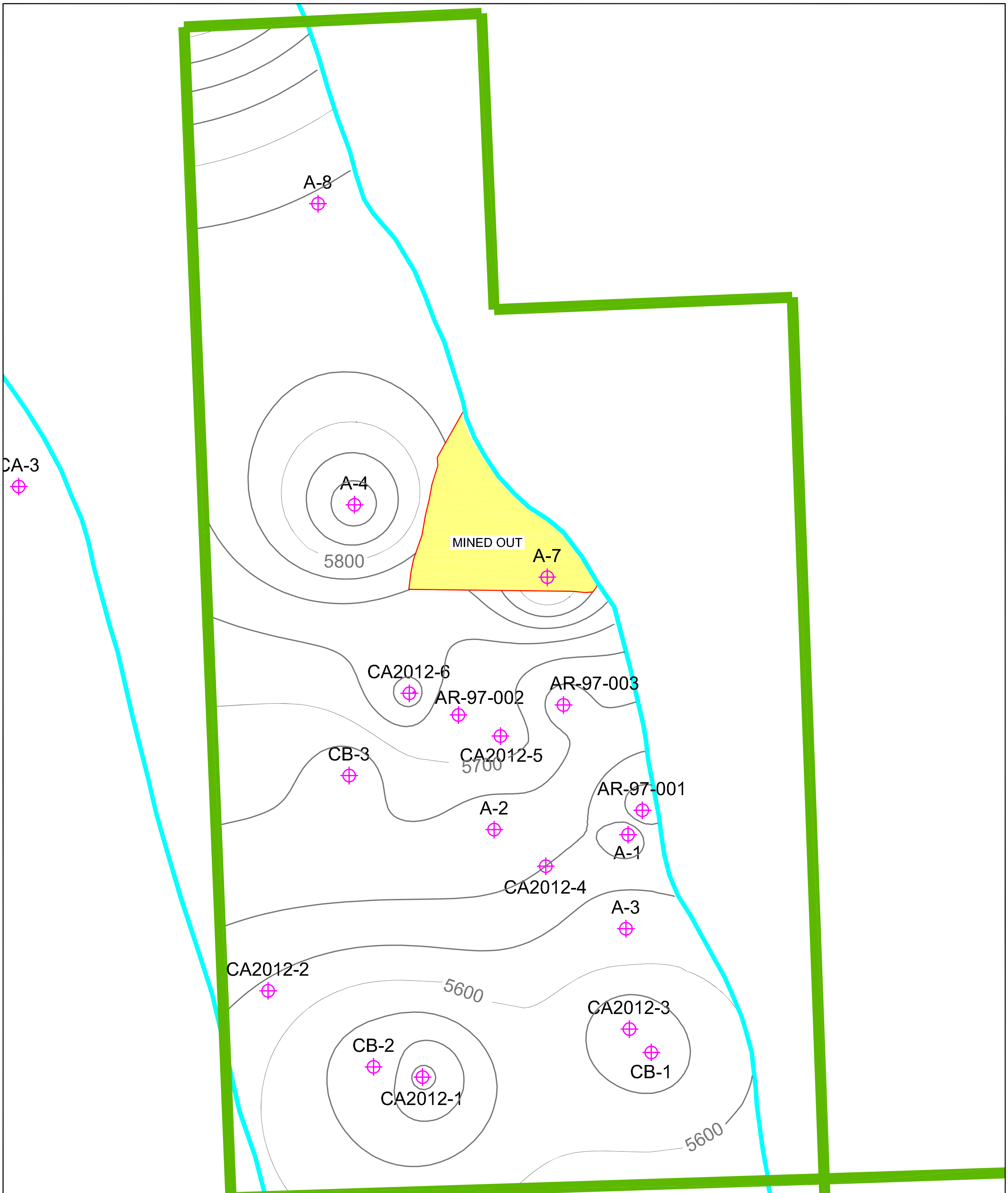


FIGURE 4.1

Tar Sands Holding II, LLC
Asphalt Ridge

South A Tract
Drill Hole Location Map

DATE: 08/21/2013	SCALE:	NORWEST CORPORATION
FILE: 633-2 fig4.1	1"=600'	



LEGEND

ORE 4 STRUCTURAL CONTOURS
FAULT
MINED OUT AREA
PIT BOUNDARY
A-1
DRILL HOLE

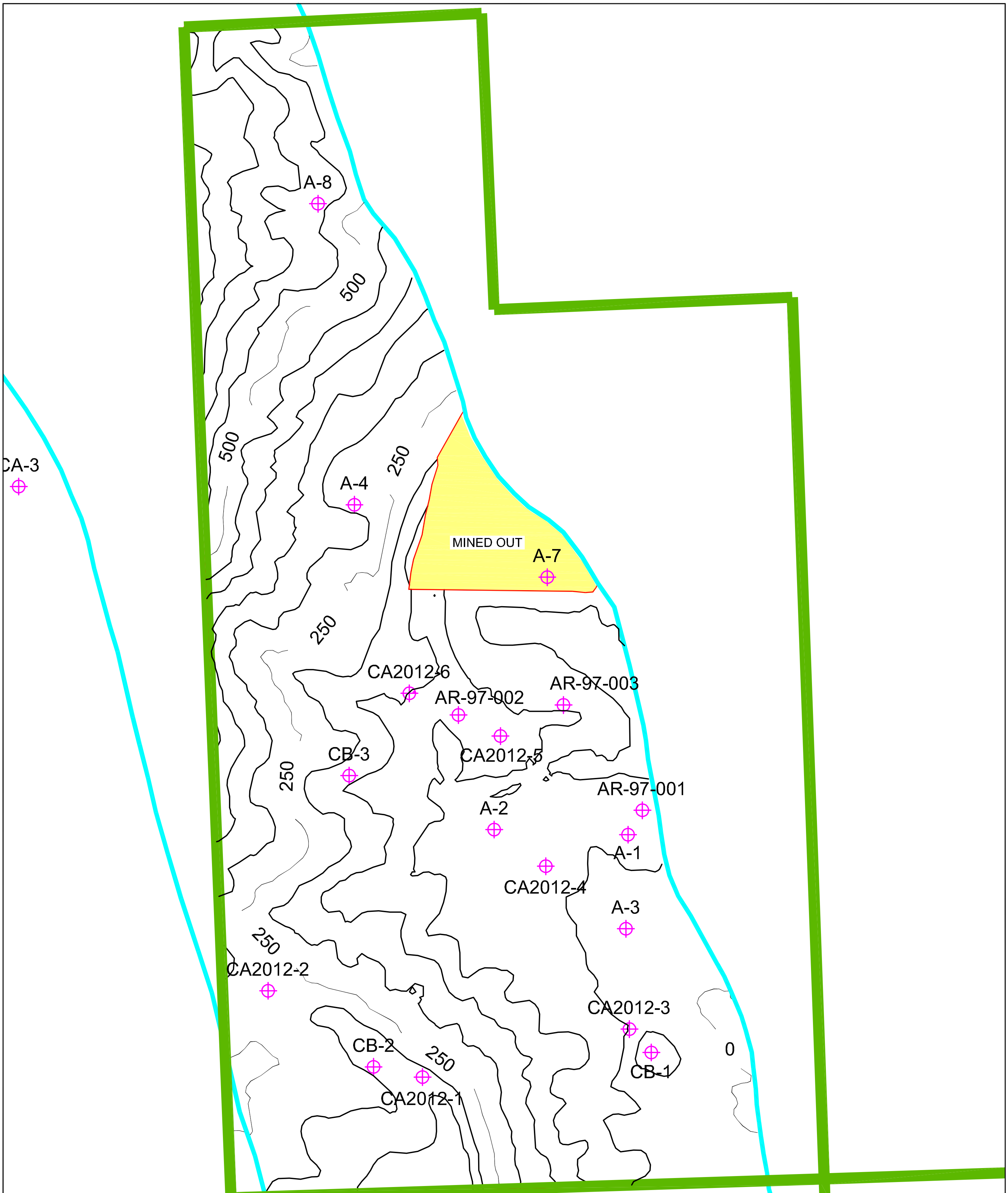
0 200 400 600
FEET

FIGURE 4.2

Tar Sands Holding II, LLC
Asphalt Ridge

South A Tract
Structure Contour Map
Base of Rim Rock Sandstone

DATE: 08/21/2013	SCALE:	NORWEST CORPORATION	
FILE: 633-2 fig4.2	1"=600'		



LEGEND

OVERBURDEN CONTOURS

FAULT

MINED OUT AREA

PIT BOUNDARY

A-1 DRILL HOLE

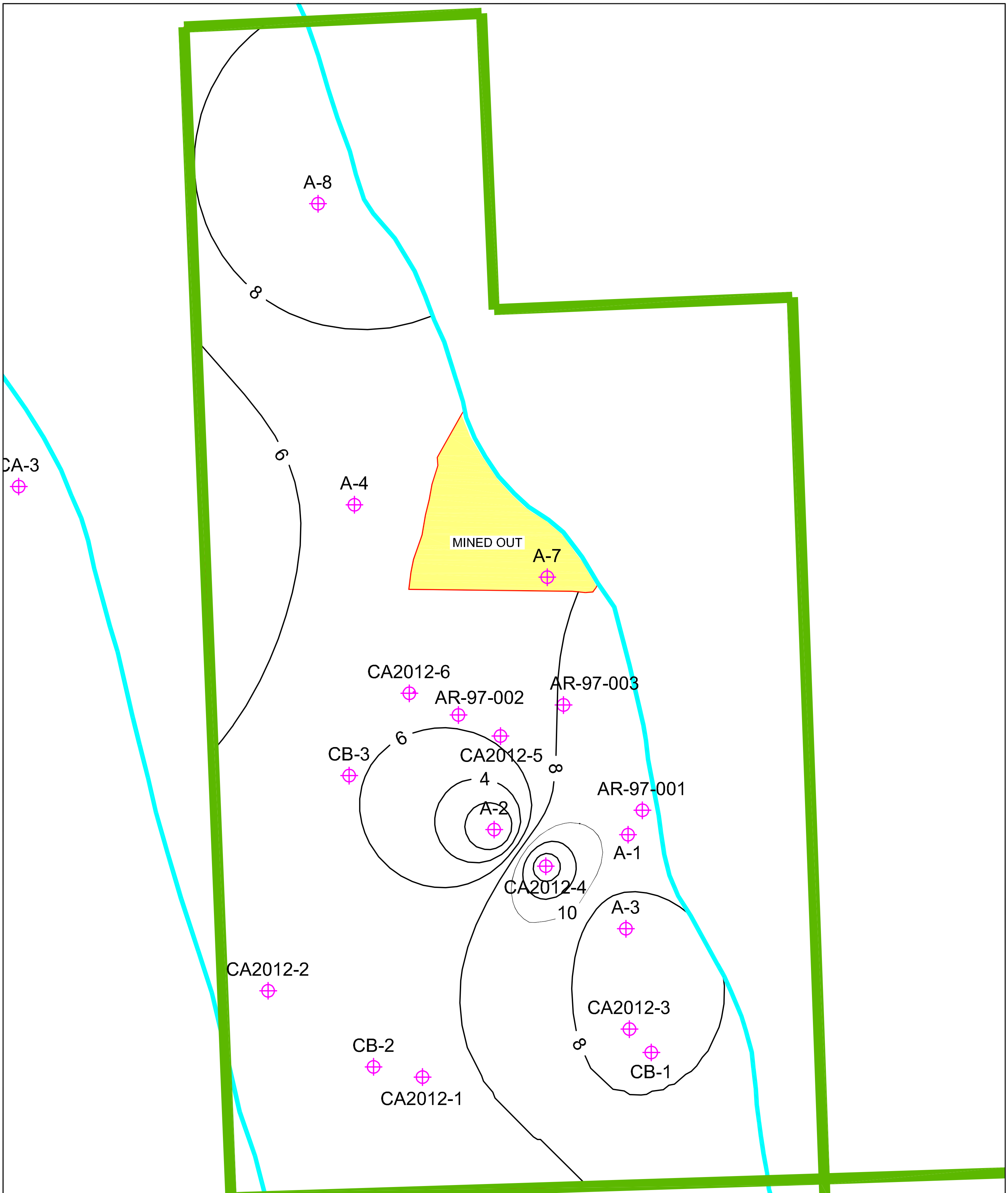
FIGURE 4.3

Tar Sands Holding II, LLC
Asphalt Ridge

South A Tract
Overburden

DATE: 08/21/2013
FILE: 633-2 fig4.3
SCALE: 1"=600'

NORWEST CORPORATION



LEGEND

10 ORE 1 THICKNESS ISOPACHS

FAULT

MINED OUT AREA

PIT BOUNDARY

A-1 DRILL HOLE

0 200 400 600
FEET

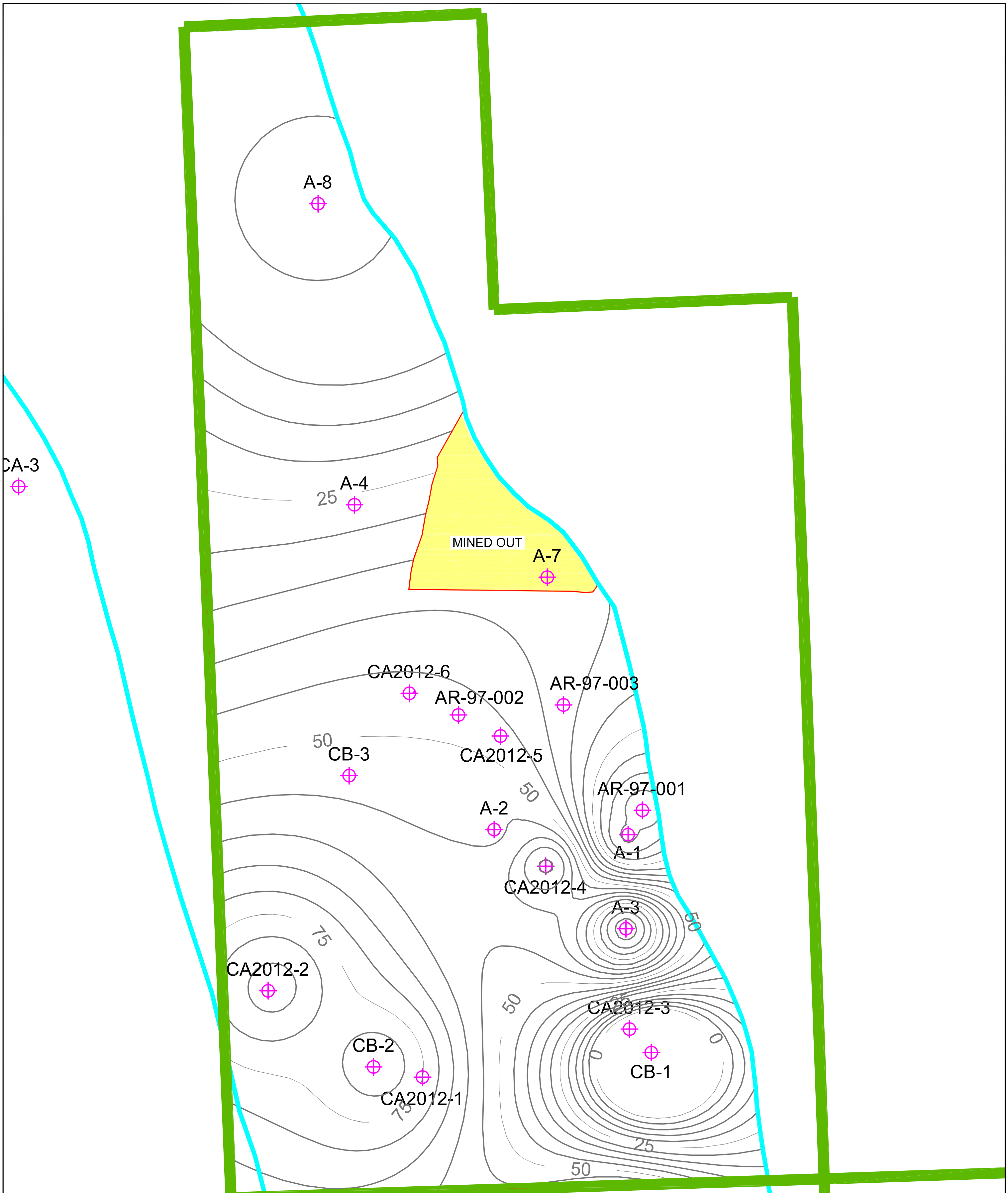
FIGURE 4.4

Tar Sands Holding II, LLC
Asphalt Ridge

South A Tract
Ore 1 Thickness

DATE: 08/21/2013 | SCALE: 1"=600'
FILE: 633-2 fig4.4

NORWEST CORPORATION



LEGEND

50 ORE 1 INTERBURDEN THICKNESS

FAULT

MINED OUT AREA

PIT BOUNDARY

A-1 DRILL HOLE

0 200 400 600

FEET

FIGURE 4.5

Tar Sands Holding II, LLC
Asphalt Ridge

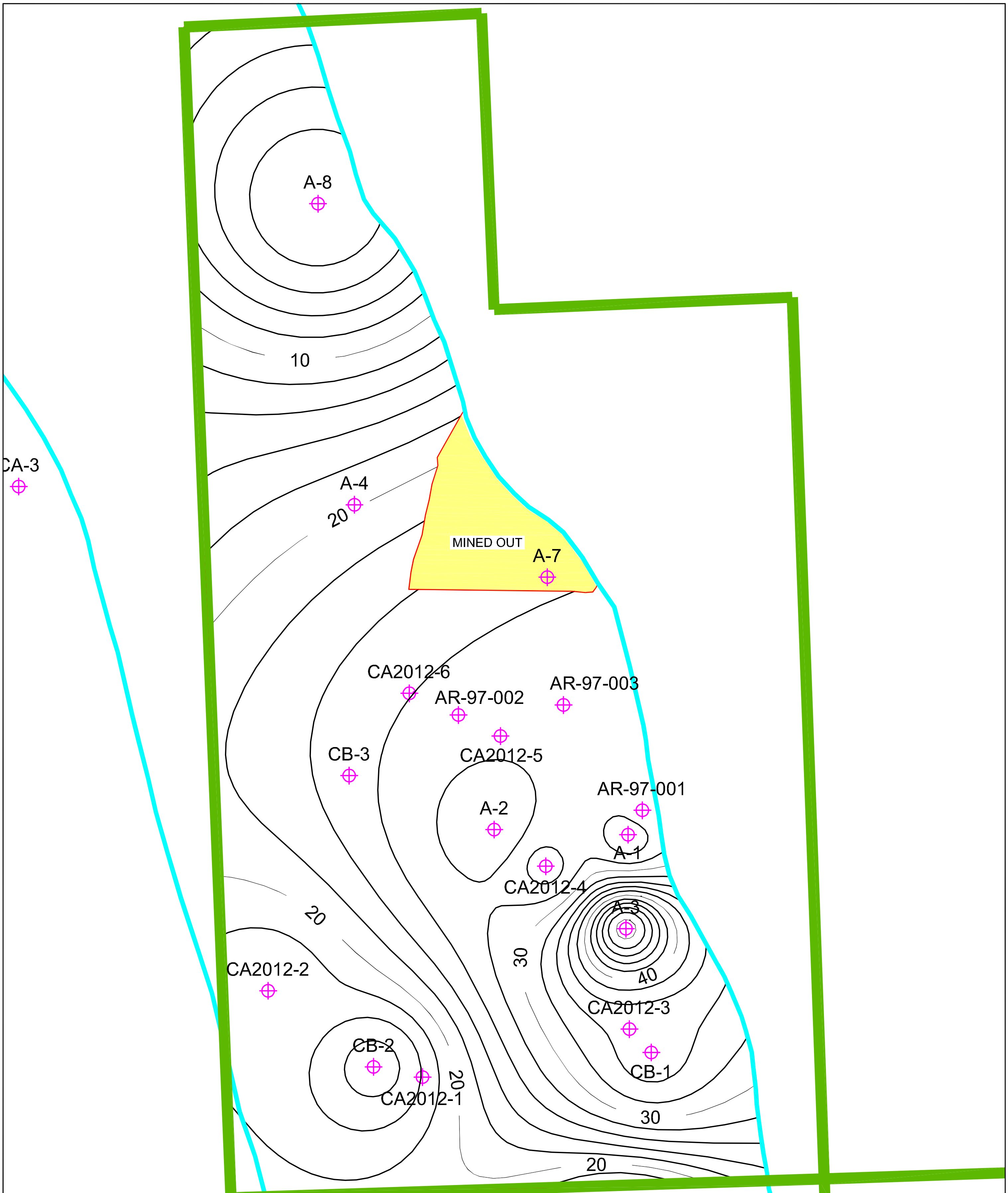
South A Tract
Ore 1 Interburden

DATE: 08/21/2013

FILE: 633-2 fig4.5

SCALE: 1"=600'

NORWEST CORPORATION



LEGEND

10 ORE 2 THICKNESS ISOPACHS

FAULT

MINED OUT AREA

PIT BOUNDARY

A-1 DRILL HOLE

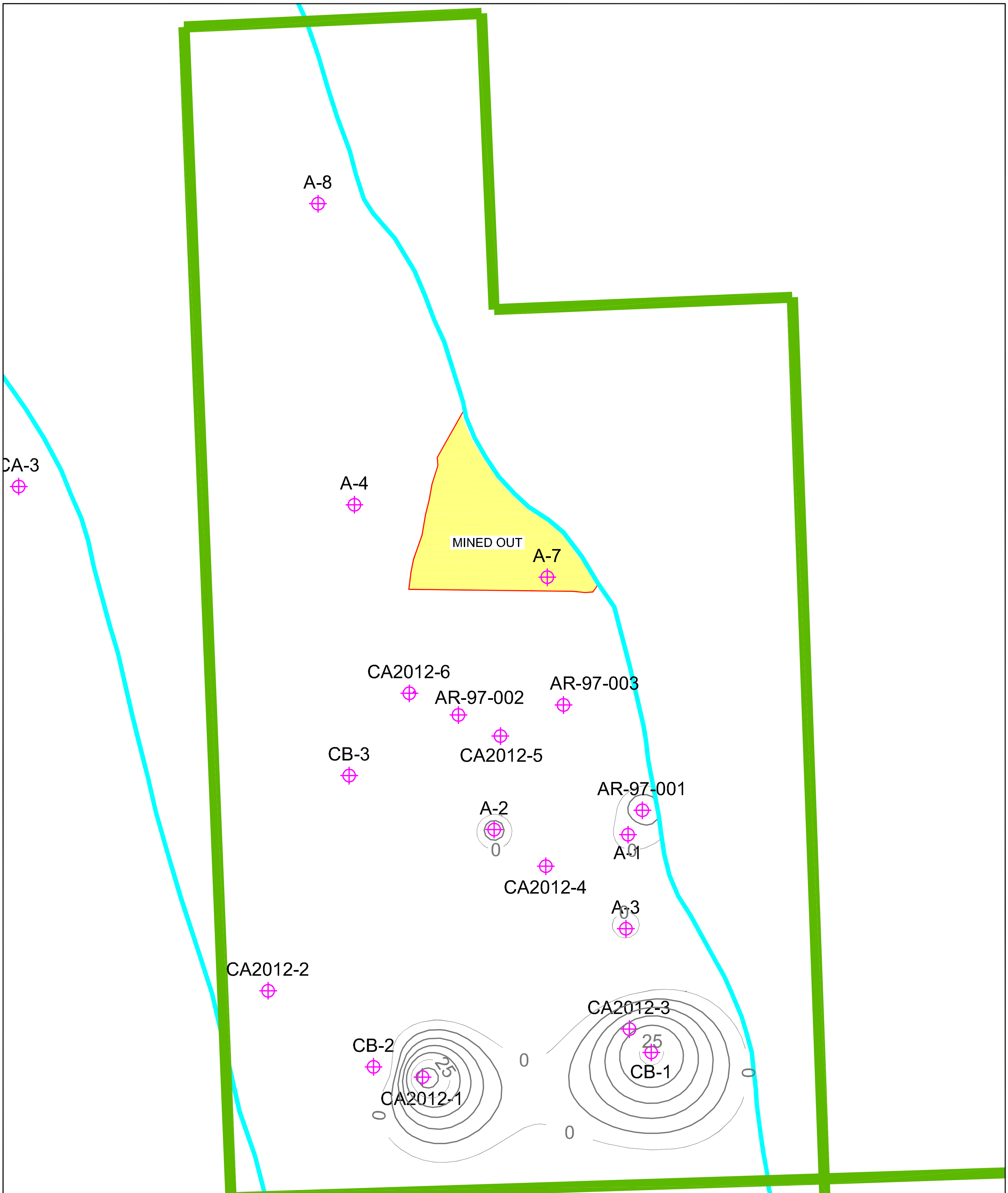
0 200 400 600 FEET

FIGURE 4.6

Tar Sands Holding II, LLC
Asphalt Ridge

South A Tract
Ore 2 Thickness

DATE: 08/21/2013	SCALE:	NORWEST CORPORATION
FILE: 633-2 fig4.6	1"=600'	



LEGEND

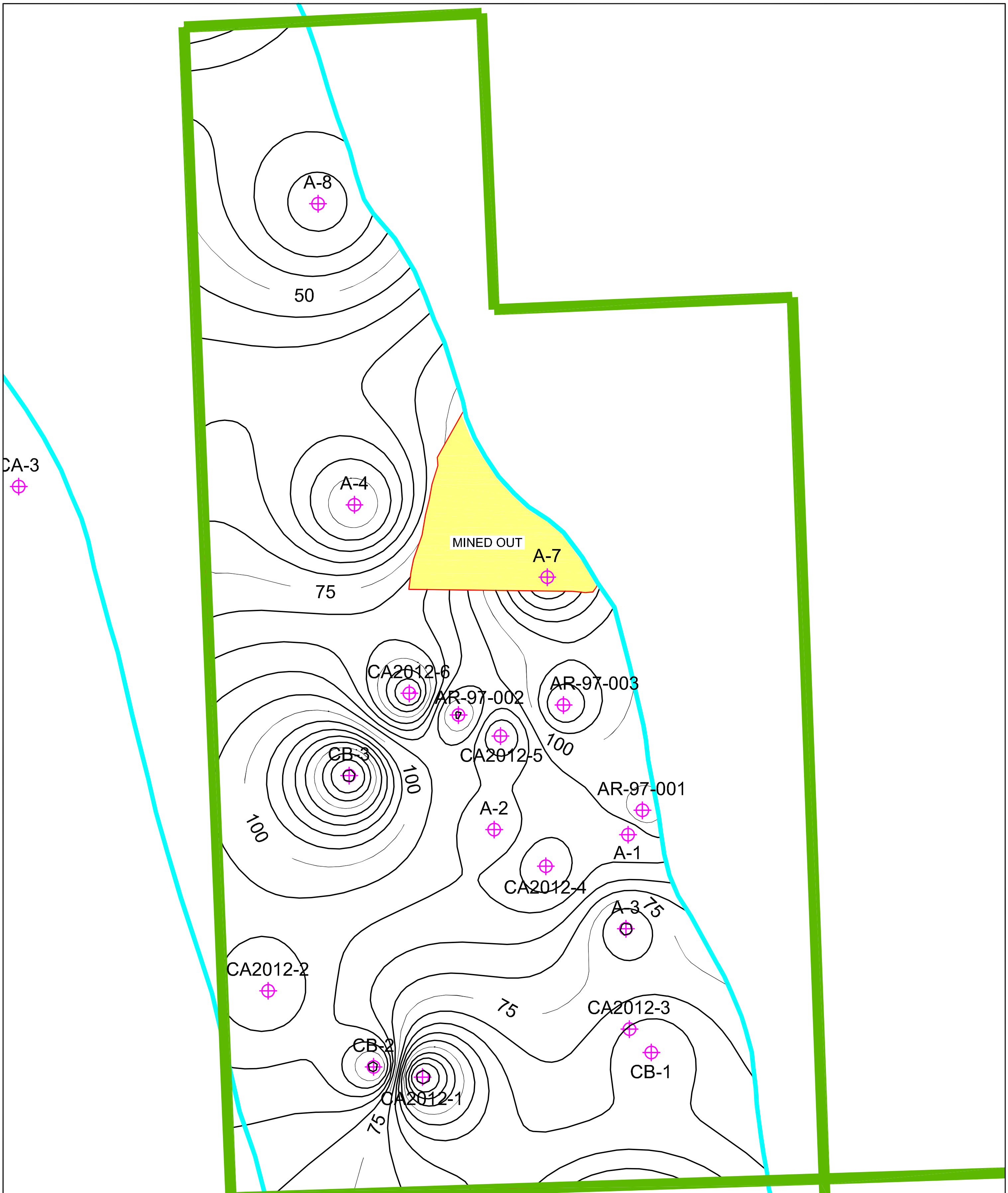
25 ORE 2 INTERBURDEN THICKNESS
FAULT
MINED OUT AREA
PIT BOUNDARY
A-1 DRILL HOLE

FIGURE 4.7

Tar Sands Holding II, LLC
Asphalt Ridge

South A Tract
Ore 2 Interburden

DATE: 08/21/2013	SCALE:	NORWEST CORPORATION
FILE: 633-2 fig4.7	1"=600'	



LEGEND

10 ORE 3 THICKNESS ISOPACHS

FAULT

MINED OUT AREA

PIT BOUNDARY

A-1 DRILL HOLE

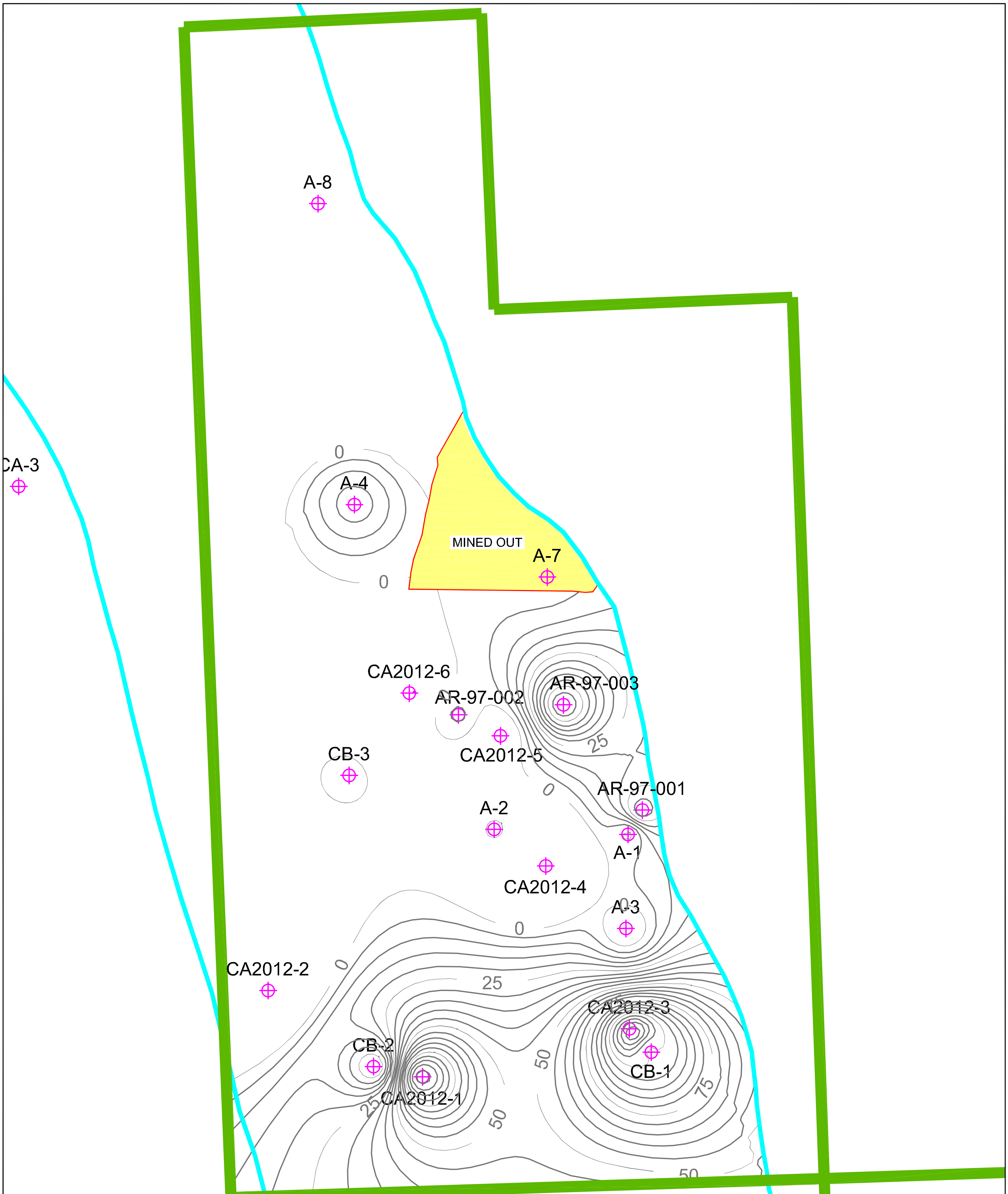
0 200 400 600
FEET

FIGURE 4.8

Tar Sands Holding II, LLC
Asphalt Ridge

South A Tract
Ore 3 Thickness

DATE: 08/21/2013	SCALE:	NORWEST CORPORATION
FILE: 633-2 fig4.8	1"=600'	



LEGEND

- 25 — ORE 3 INTERBURDEN THICKNESS
- FAULT
- MINED OUT AREA
- PIT BOUNDARY
- A-1 DRILL HOLE

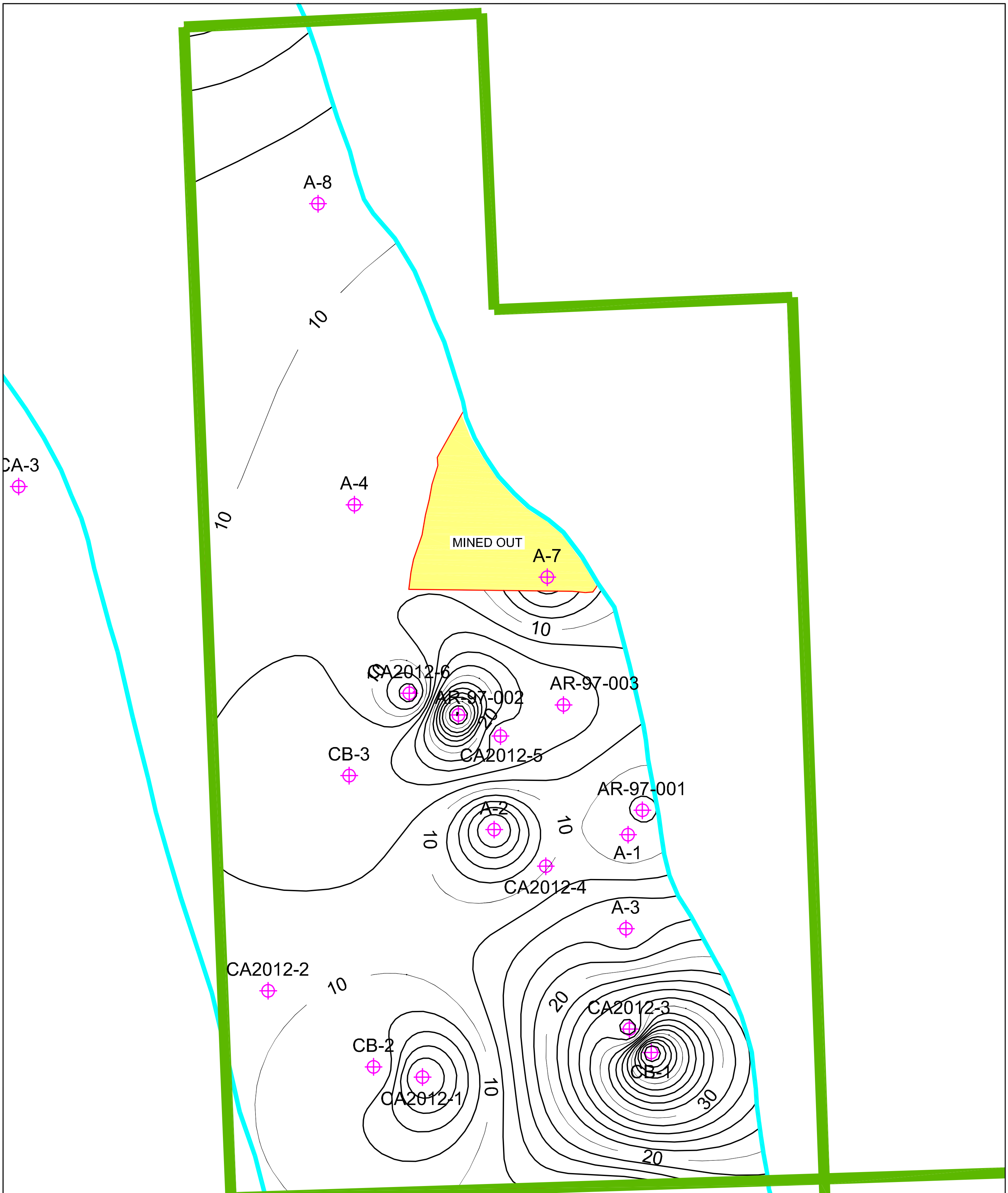
0 200 400 600
FEET

FIGURE 4.9

Tar Sands Holding II, LLC
Asphalt Ridge

South A Tract
Ore 3 Interburden

DATE: 08/21/2013	SCALE:	NORWEST CORPORATION
FILE: 633-2 fig4.9	1"=600'	



LEGEND

10 ORE 4 THICKNESS ISOPACHS

FAULT

MINED OUT AREA

PIT BOUNDARY

A-1 DRILL HOLE

0 200 400 600
FEET

FIGURE 4.10

Tar Sands Holding II, LLC
Asphalt Ridge

South A Tract
Ore 4 Thickness

DATE: 08/21/2013
FILE: 633-2 fig4.10
SCALE: 1"=600'

NORWEST CORPORATION

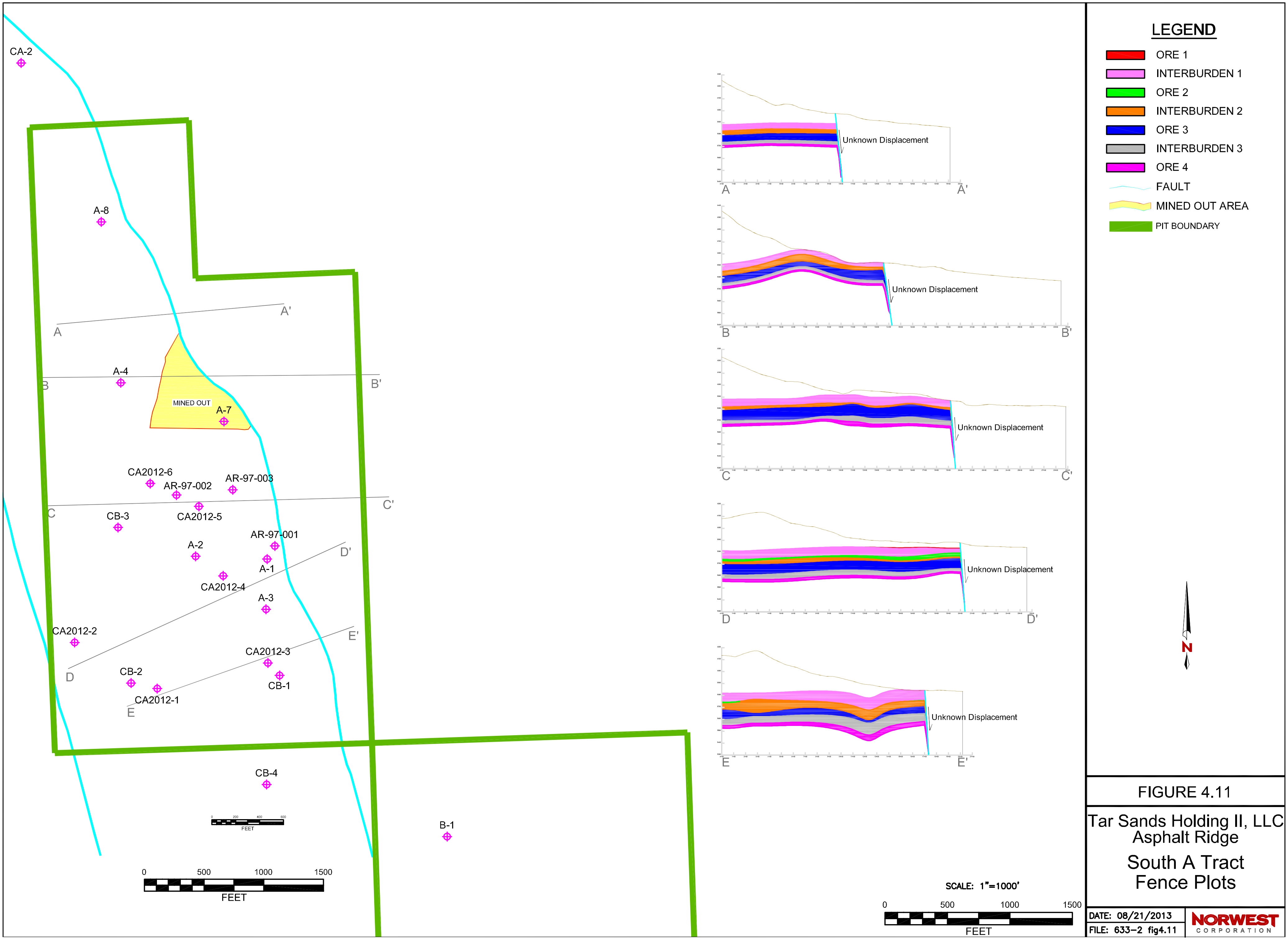


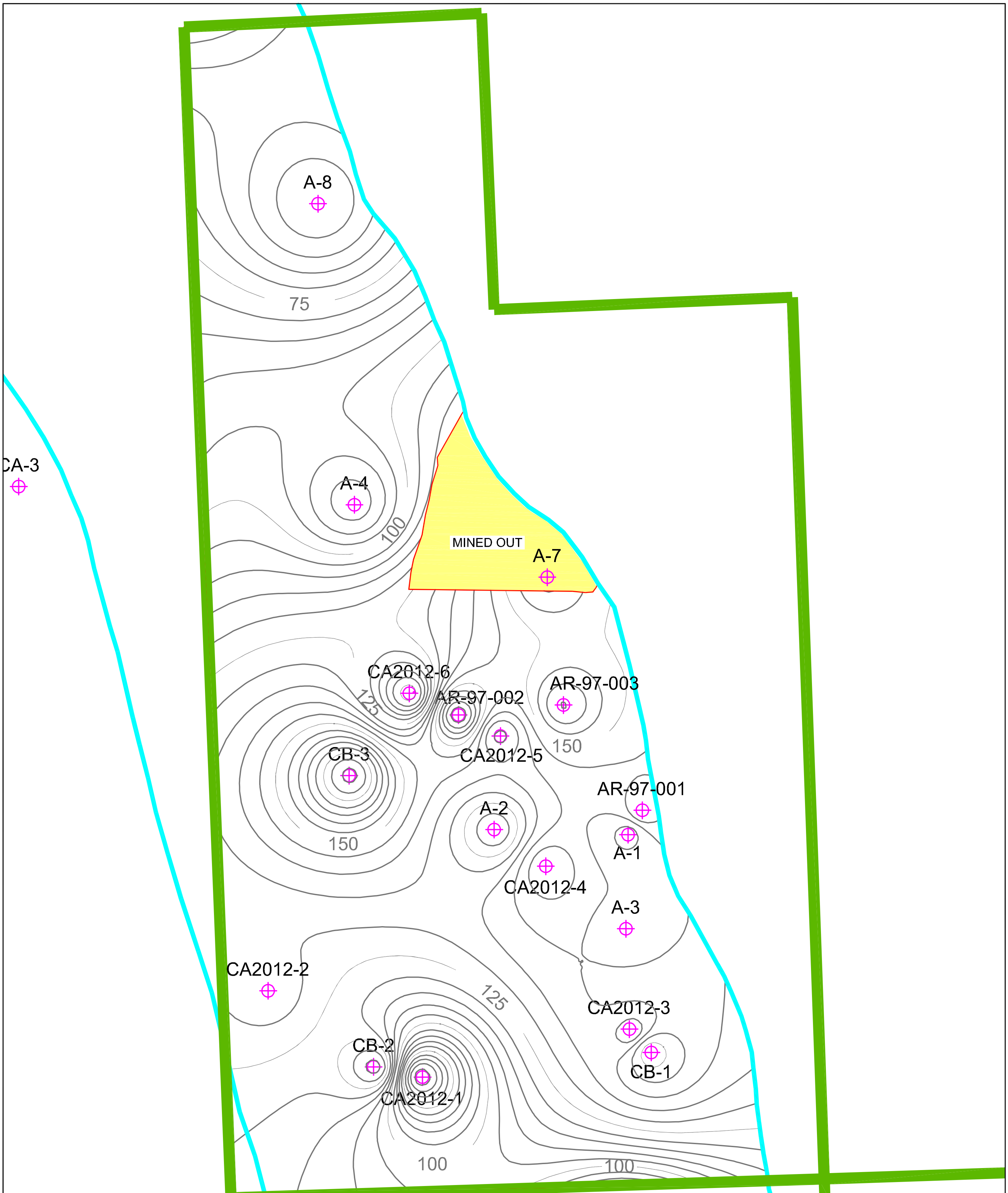
FIGURE 4.11

Tar Sands Holding II, LLC
Asphalt Ridge

South A Tract
Fence Plots

DATE: 08/21/2013
FILE: 633-2 fig4.11

NORWEST CORPORATION



LEGEND

-125- TOTAL ORE THICKNESS ISOPACHS

FAULT

MINED OUT AREA

PIT BOUNDARY

A-1 DRILL HOLE

0 200 400 600
FEET

FIGURE 4.12

Tar Sands Holding II, LLC
Asphalt Ridge

South A Tract
Total Ore Thickness

DATE: 08/21/2013
FILE: 633-2 fig4.12
SCALE: 1"=600'
NORWEST CORPORATION

D TRACT MODEL & RESOURCES

SOHIO performed both core-hole and open-hole rotary drilling on the D Tract, primarily in the late 1950s (Kuhn, 1983). Figure 4.13 illustrates the locations of 20 of these drill holes based on a drawing contained in a 1959 SOHIO report[2].

In the early 1980s, LETC performed a number of geological activities to characterize the geology on their in-situ test site located on D Tract, including: surface mapping of barren and saturated sandstone outcrops, coring, and high resolution seismic surveys (Sinks, 1985)[3]. Figure 4.13 also shows the locations of selected LETC core holes as well as the sites of three in-situ test experiments (TS-1C, TS-2C, and TS-1S). Norwest has not been able to access the geologic or analytic data derived from the LETC core holes.

Resource limits for D Tract geologic model are defined by the north-northeast trending Boundary Fault that extends through the eastern third of the property, property limits on the south and west, and by a combination of property and outcrop along the north side of the tract.

The geologic model for D Tract is based on 15 of the SOHIO drill holes. Four of the SOHIO holes (D-6, 12, 18, 19) were drilled east of the boundary fault and do not encounter oil saturated strata. Holes D-7 and D-10 are shallow holes collared in the shale that separates the Rimrock Sandstone from the Asphalt Ridge Sandstone and do not intersect oil saturated strata. Drill hole D-9 is a shallow hole that intersects saturated horizons into Duchesne River Formation but was not analyzed for bitumen content. The drill holes used to model oil saturated horizons in the D Tract are listed below in Table 4.3. It should be noted that Norwest has been unable to verify drill hole locations and that coordinates listed in Table 4.3 are derived from an unpublished sketch map supplied to Norwest by a previous land holder and referenced into the geologic model thru CAD/GIS techniques.

---

[2] Unknown Author, 1959, Engineering prospectus of a field test, thermal recovery of oil from tar sands, Asphalt Ridge, Uintah County, Utah: SOHIO Petroleum Company Report.

[3] Sinks, D.J., 1985, Geological influences on the in situ processing of tar sand at the Northwest Asphalt Ridge deposit, Utah: For U.S. Department of Energy and Morgantown Energy Technology Center (Laramie Project Office) by Western Research Institute, Laramie, Wyoming, Interagency Agreement AS-89-F-0-026-0 and Cooperative Agreement DE-FC21-83FE60177, 81p.

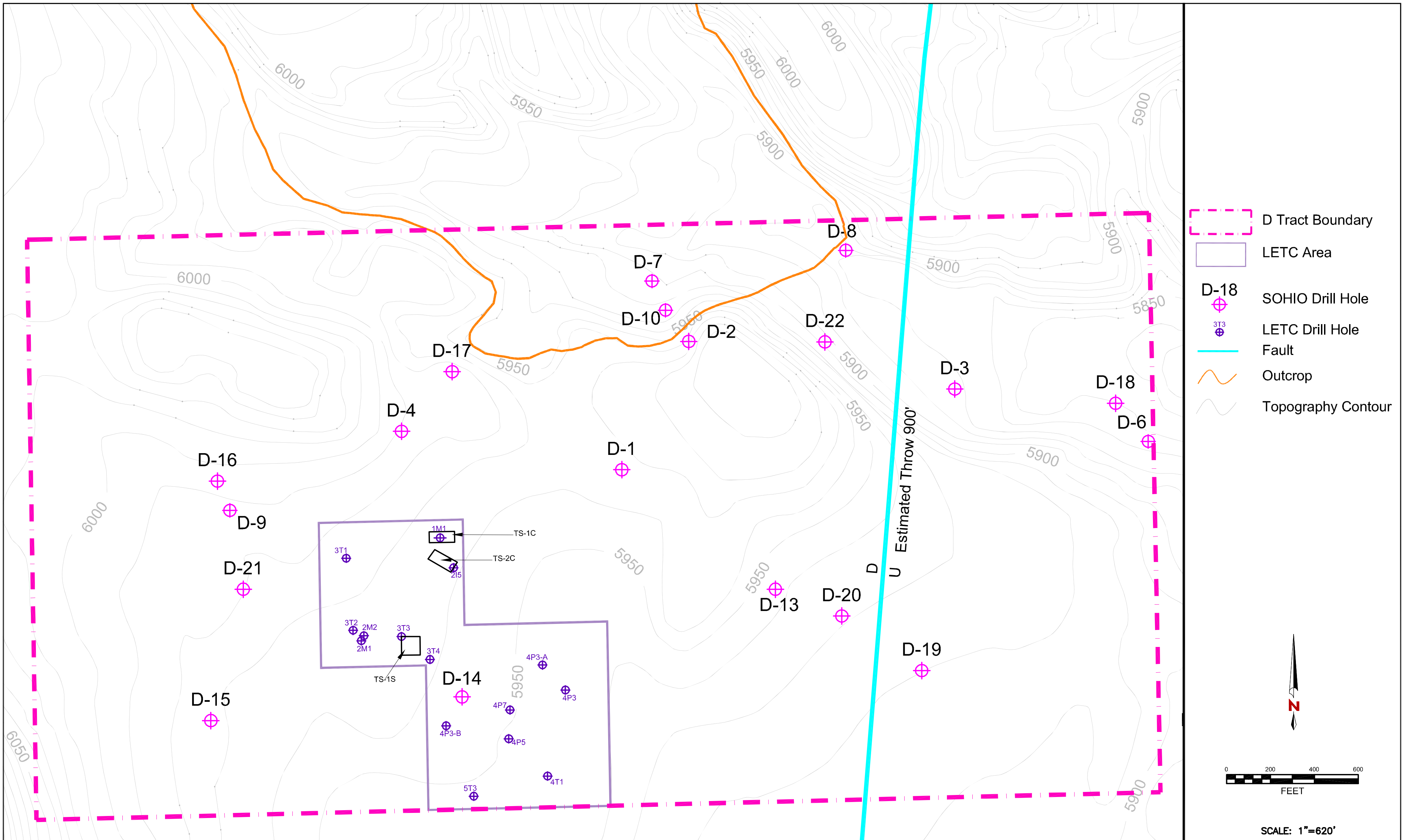


FIGURE 4.13

Tar Sands Holding II, LLC
Asphalt Ridge

D Tract
Drill Hole Location Map

DATE: 08/21/2013
FILE: 633-2 fig4.13

NORWEST CORPORATION

Table 4.3 D Tract Drill Hole Locations

Drill Hole ID	UT-SP-C-NAD27 Easting	Northing	Elevation	Total Depth	Comments
D-1	2,519,902	778,364	5,967	431	Ore Encountered
D-2	2,520,160	779,028	5,941	361	Ore Encountered
D-3	2,521,420	778,732	5,872	257	E. of Fault, Mancos
D-4	2,518,898	778,539	5,989	340	Ore Encountered
D-6	2,522,301	778,493	5,855	227	E. of Fault, Mancos
D-7	2,520,039	779,224	5,912	25	Below Horizon
D-8	2,520,923	779,365	5,875	90	Below Horizon
D-9	2,518,114	778,178	5,987	172	Shallow, No Bitumen
D-10	2,520,101	779,091	5,922	119	Below Horizon
D-12	2,522,540	777,127	5,887	367	E. of Fault, Mancos
D-13	2,520,602	777,819	5,942	788	Ore Encountered
D-14	2,519,174	777,328	5,955	756	Ore Encountered
D-15	2,518,029	777,220	5,973	800	Ore Encountered
D-16	2,518,059	778,312	5,994	813	Ore Encountered
D-17	2,519,129	778,811	5,986	446	Ore Encountered
D-18	2,522,153	778,667	5,849	170	E. of Fault, Mancos
D-19	2,521,269	777,448	5,920	266	E. of Fault, Mancos
D-20	2,520,905	777,697	5,931	141	Ore Encountered
D-21	2,518,177	777,819	5,980	813	Ore Encountered
D-22	2,520,828	778,947	5,904	465	Ore Encountered

From assay and section profiles, Norwest has identified two ore-bearing horizons in D Tract. The main horizon occurs in the Rim Rock Sandstone. The four distinct horizons recognized in the South A Tract coalesce into a less distinct, single horizon in D Tract with interburden waste horizons thinning and become discontinuous. The ore horizon in the Rim Rock ranges in thickness from 35 to 210 feet and carries an average grade of 35.10gal/yd^3.

The second horizon is located above the Rim Rock Sandstone in the overlying Duchesne Formation. This horizon ranges from 0 to 41ft in thickness and carries an average grade of 23.09gal/yd^3. Though oil saturation occurs throughout most of the Duchesne Formation intersected by drilling, the ore-bearing horizon typically is positioned 30 to 150 above the Rim Rock ore horizon. The extent and development of the two ore horizons can be seen in isopachs (Figures 4.14- 4.18) and in fence plots (Figure 4.19).

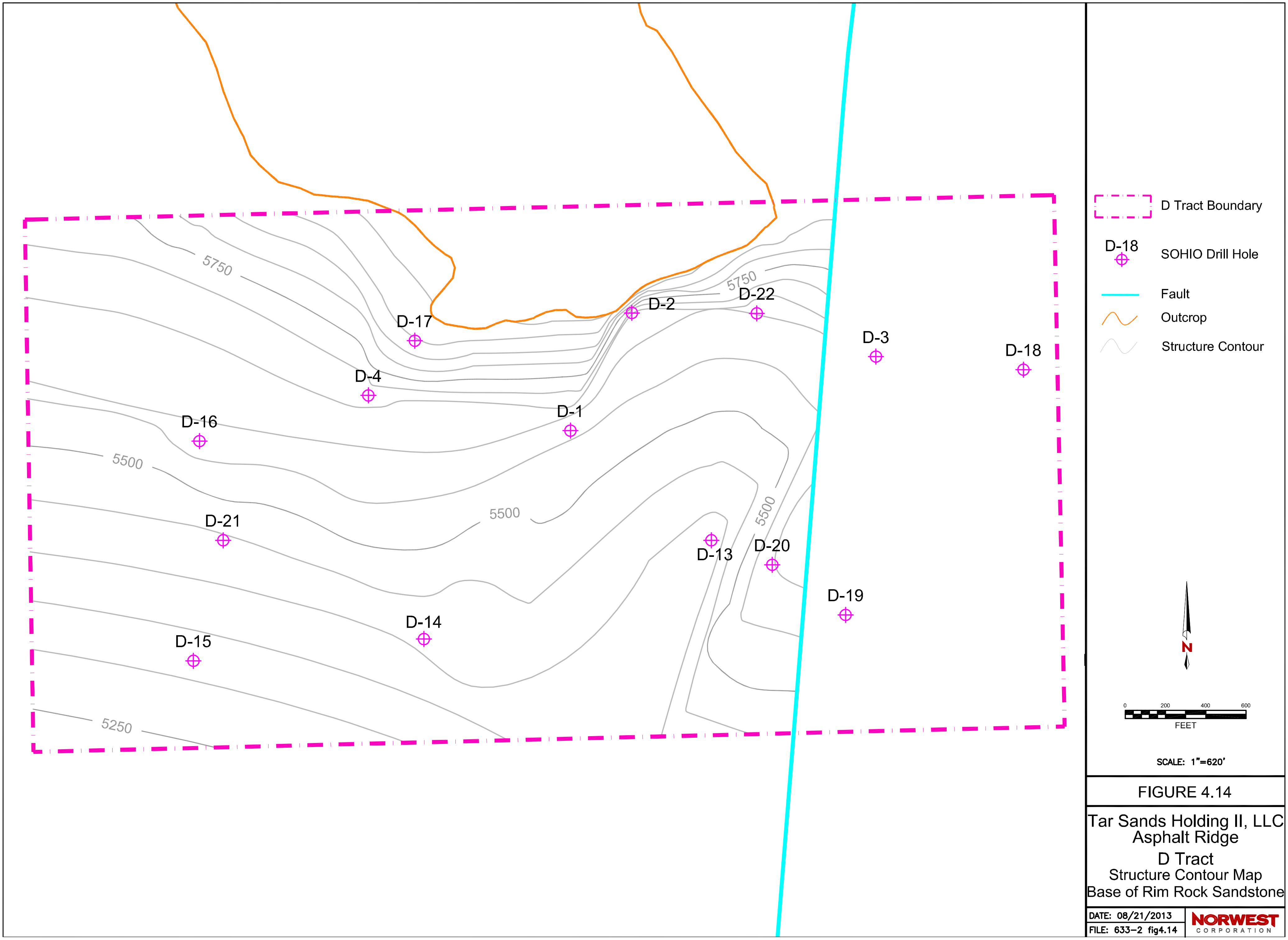


FIGURE 4.14

Tar Sands Holding II, LLC
Asphalt Ridge
D Tract
Structure Contour Map
Base of Rim Rock Sandstone

DATE: 08/21/2013
FILE: 633-2 fig4.14
NORWEST CORPORATION

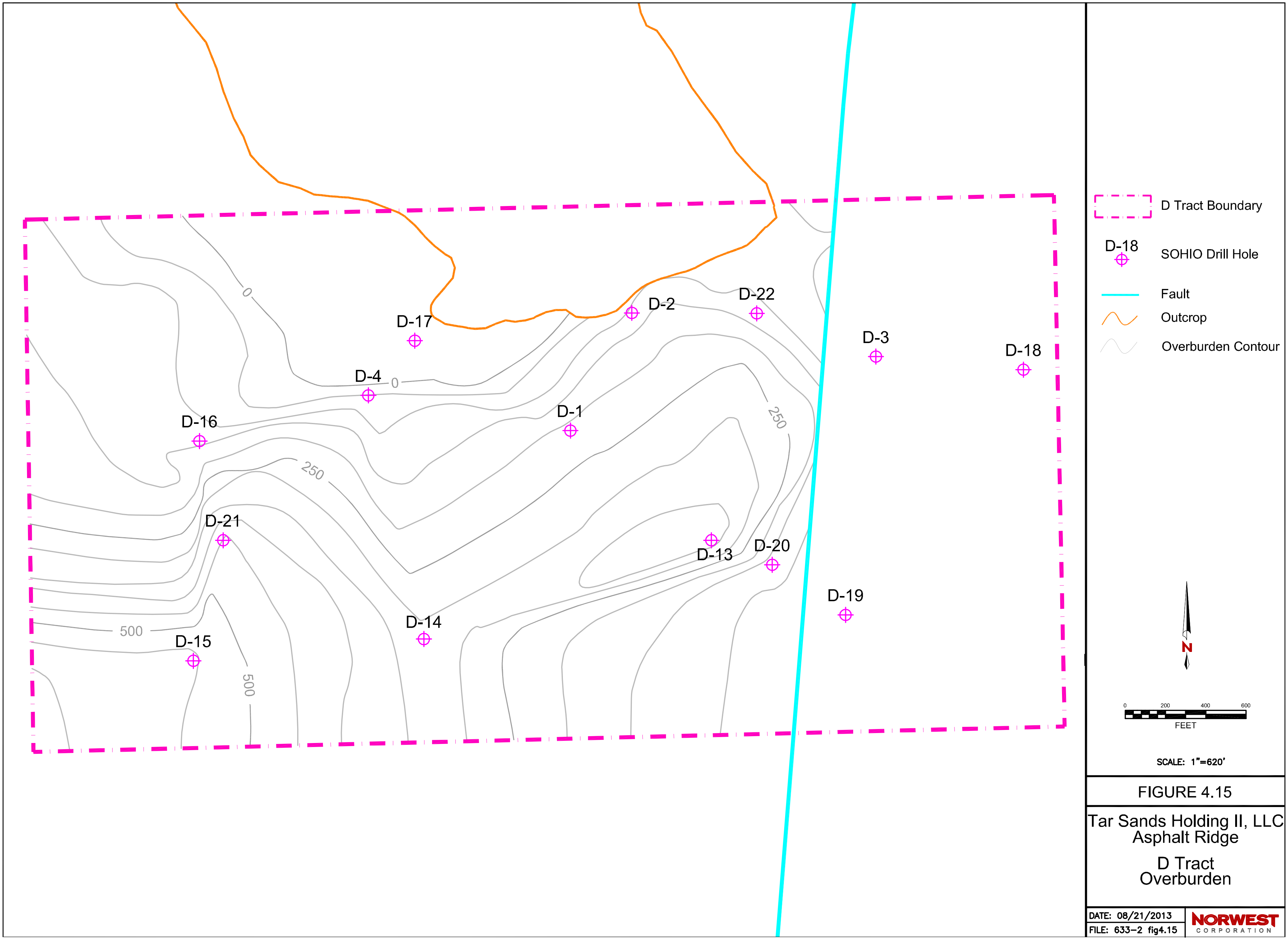


FIGURE 4.15

Tar Sands Holding II, LLC
Asphalt Ridge

D Tract
Overburden

DATE: 08/21/2013
FILE: 633-2 fig4.15

NORWEST CORPORATION

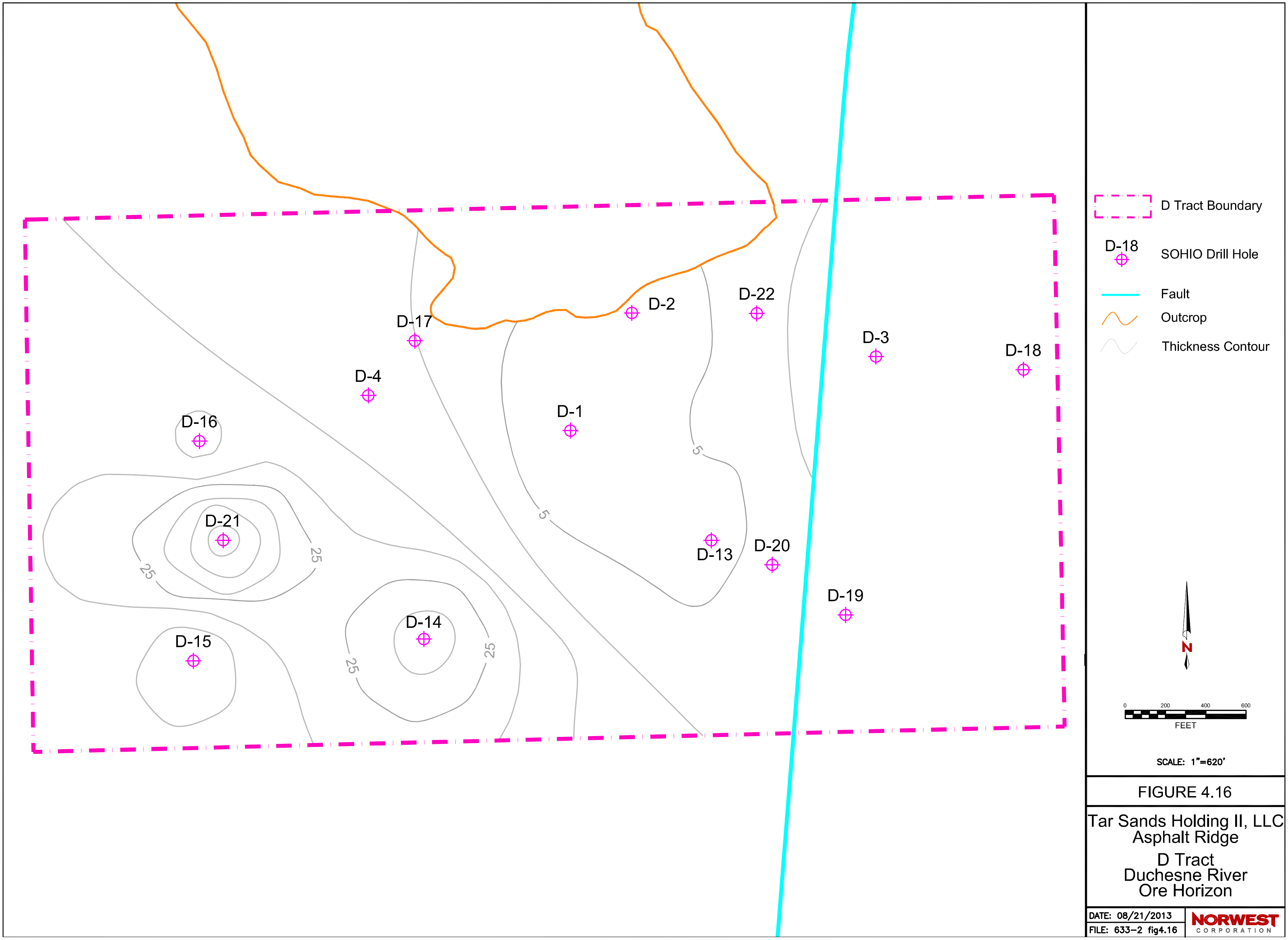


FIGURE 4.16

Tar Sands Holding II, LLC
Asphalt Ridge
D Tract
Duchesne River
Ore Horizon

DATE: 08/21/2013
FILE: 633-2 fig4.16

NORWEST CORPORATION

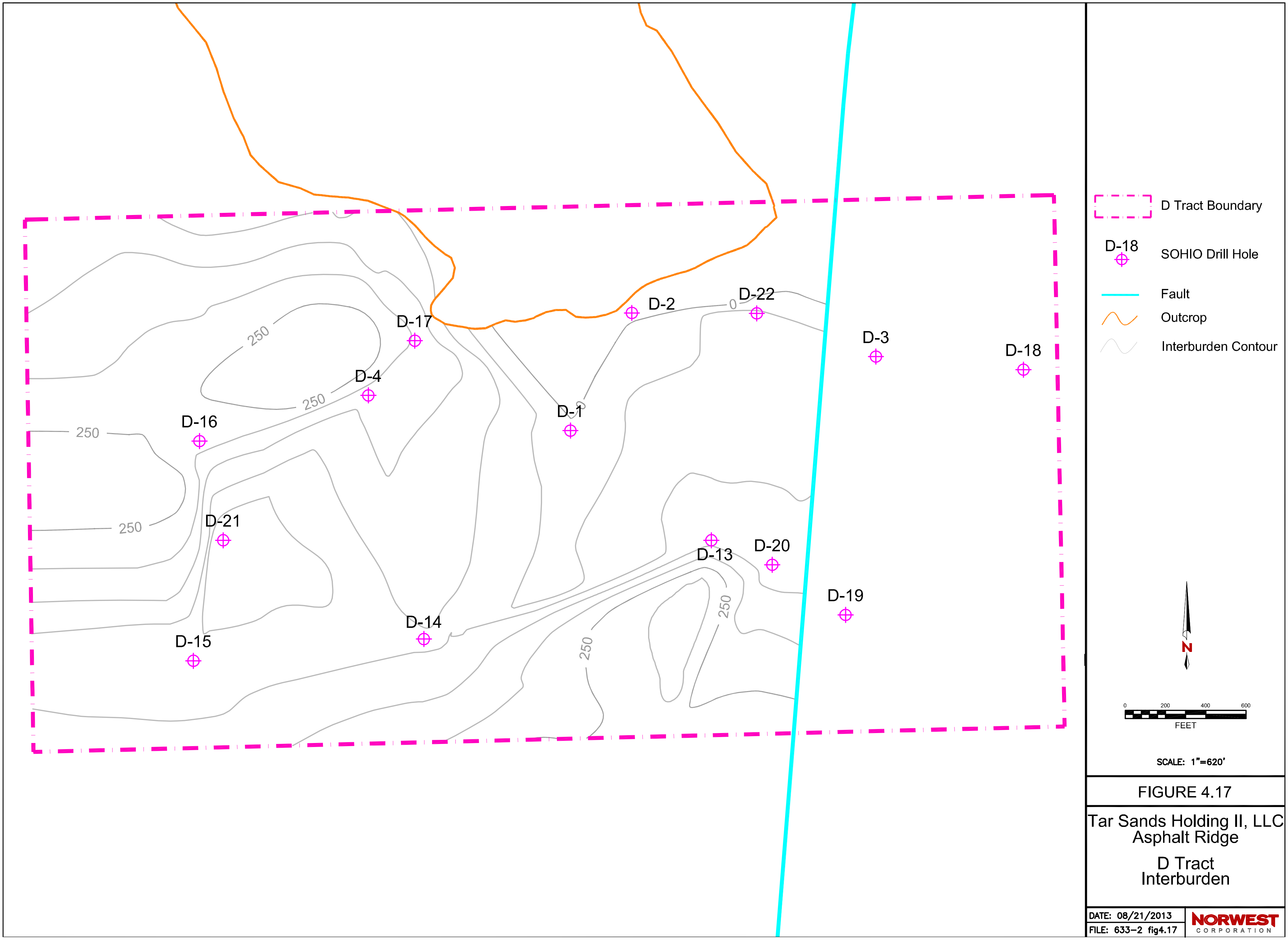


FIGURE 4.17

Tar Sands Holding II, LLC
Asphalt Ridge

D Tract
Interburden

DATE: 08/21/2013
FILE: 633-2 fig4.17

NORWEST CORPORATION

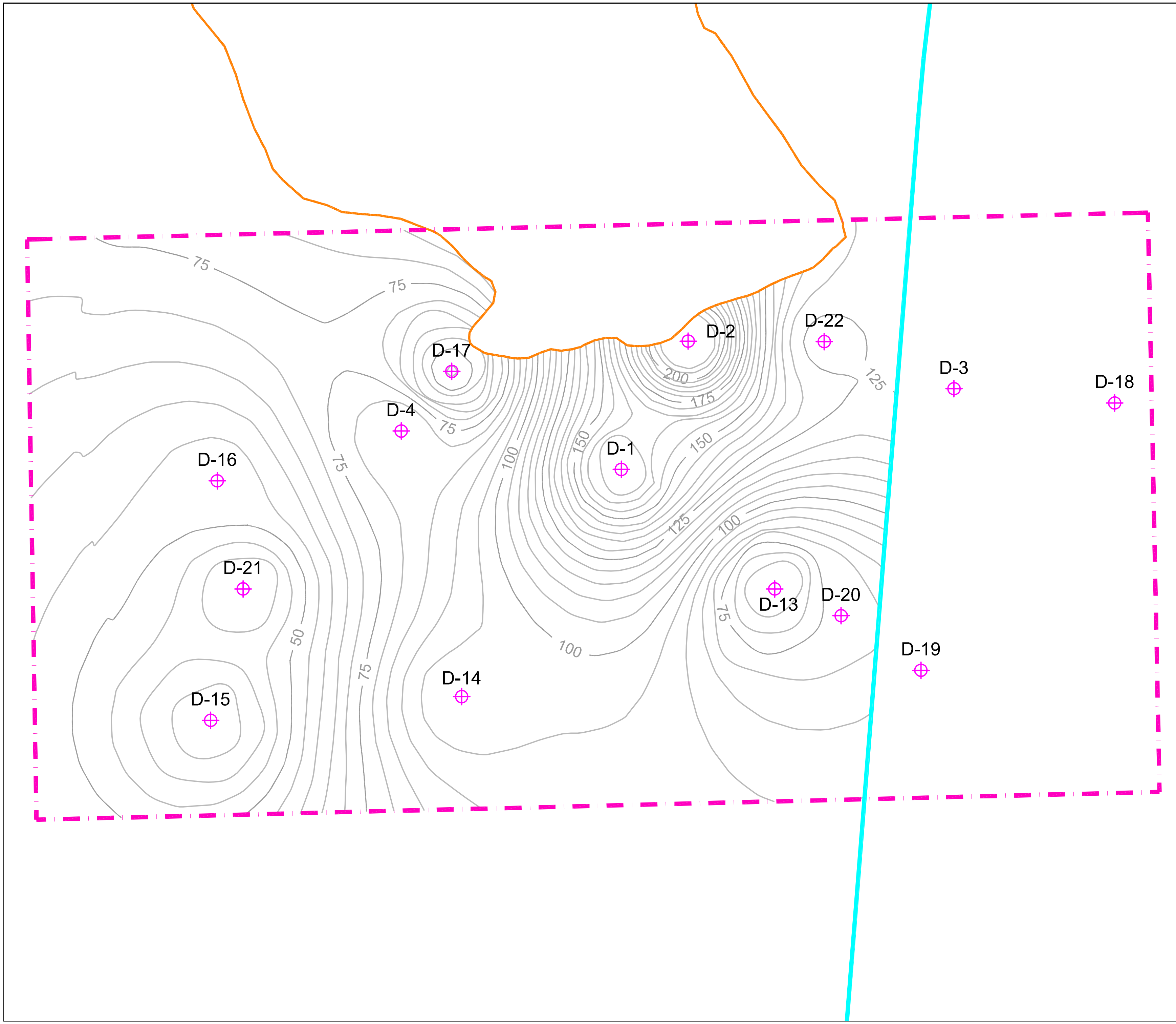


FIGURE 4.18

Tar Sands Holding II, LLC
Asphalt Ridge

D Tract
Rim Rock
Ore Horizon

DATE: 08/21/2013
FILE: 633-2 fig4.18

NORWEST CORPORATION

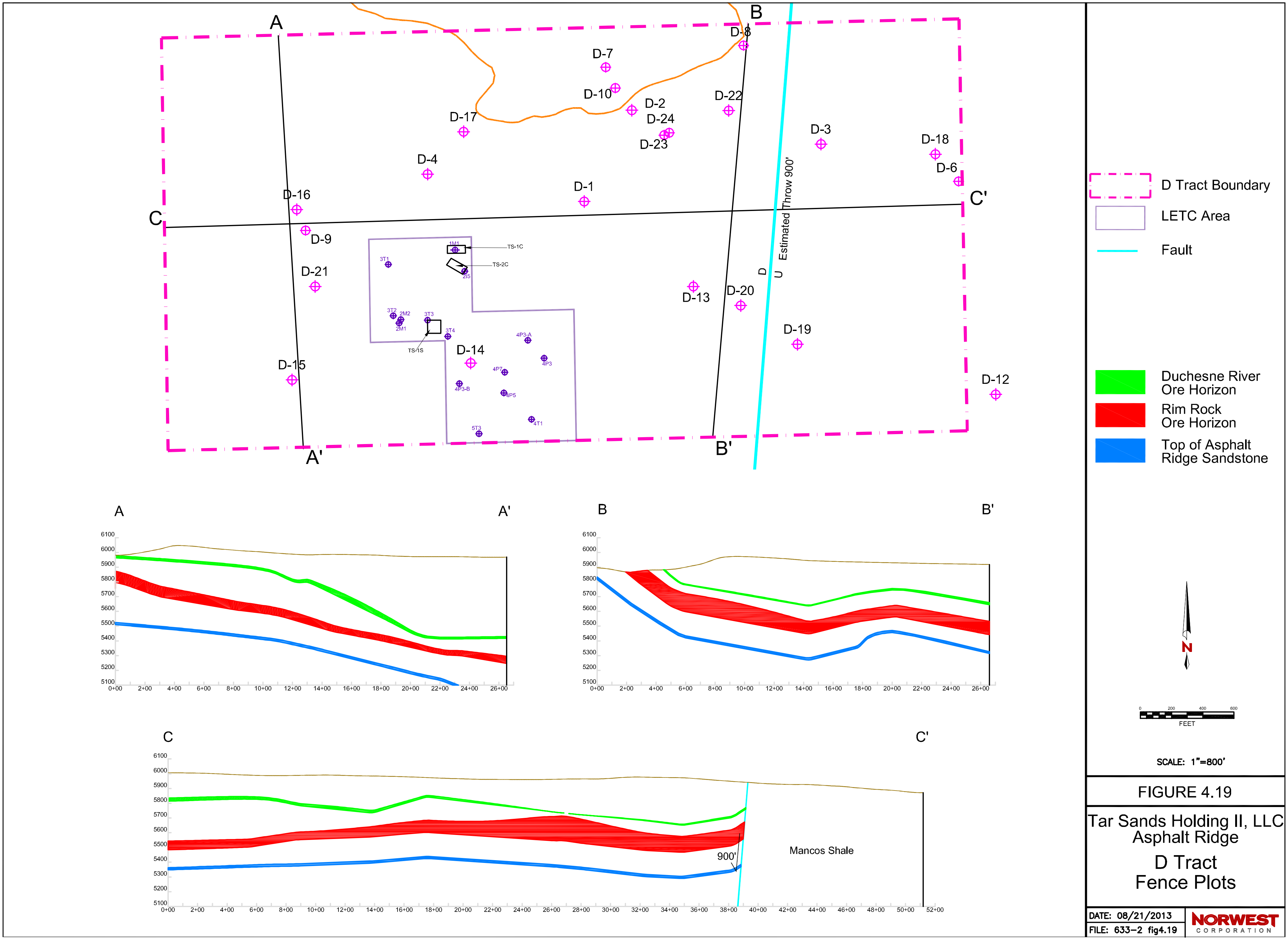


FIGURE 4.19

Tar Sands Holding II, LLC
Asphalt Ridge

D Tract
Fence Plots

DATE: 08/21/2013
FILE: 633-2 fig4.19

NORWEST CORPORATION

Four of the SOHIO drill holes, D-14, 16, 17, and 22, were drilled deep enough to intersect the upper portions of the Asphalt Ridge Sandstone. Based on log descriptions and assays it does not appear any of the holes were drilled sufficiently into the Asphalt Ridge Sandstone to evaluate the bitumen saturation potential. The limited drill intercepts into the Asphalt Ridge Sandstone do not delineate saturation that meets ore-bearing criteria.

Resources for D Tract are presented in Table 4.4. From the geologic model, Norwest estimates an in-place total of approximately 25.6MMbbl of bitumen in the two ore horizons. This estimate does not include any deductions for mine recovery, pit design parameters, or processing yield. There is a 3.6MMbbl difference in final resource numbers depending on whether the estimate is based on volumes or tons. Calculation by tonnage yields a higher value of 29.2MMbbls. Much of the historical data lacks density information so average values have been applied in tonnage estimates. Tonnage estimates facilitate calculation of strip ratio. On an in-place basis the deposit has a favorably low strip ratio of 2yds^3/ton.

Table 4.4 Resource Estimate D Tract

Horizon	Thickness (ft)	Area (ft^2)	Volume		Bitumen Grade		Ore Tons	Barrels Bitumen		Strip Ratio
			(ft^3)	(yds^3)	Gal/Yd	Gal/Ton		By Volume	By Tons	
Overburden	260.07	8,073,754	2,099,731,366	77,767,828						
Duchesne River Parting	13.95	1,959,448	27,342,293	1,012,678						
Duchesne River Ore Horizon	12.76	8,340,769	106,392,634	3,940,468	23.09	13.39	7,633,671	2,166,351	2,433,004	10.32
Interburden	111.46	8,736,277	973,742,454	36,064,535						
Rim Rock Parting	29.24	8,799,998	257,273,890	9,528,663						
Rim Rock Ore Horizon	79.97	9,462,485	756,757,401	28,028,052	35.10	20.68	54,297,344	23,421,979	26,738,793	2.01
Total					**33.62**	**19.78**	**61,931,015**	**25,588,329**	**29,171,797**	**2.01**

CONCLUSIONS & RECOMMENDATIONS

The two geologic models developed for the South A Tract and the D Tract identify a combined in-place resource of 44.7MMbbls of bitumen for the Asphalt Ridge property (Table 5.1). Average grade for the total resource is 34.27gal/yd and the overall strip ratio for the two tracts combined is 3.23yd^3/ton. The in-place resource estimates do not make any adjustments for mine recovery, pit design parameters, or processing yield which will undoubtedly place restrictions on the above stated estimates. Approximately 95% of the estimated resource is contained in the Rim Rock Sandstone. An ore-grade interval of 2.16MMbbls has been identified in the Duchesne River Formation above the Rim Rock Sandstone in the D Tract.

Table 5.1 Combined In-place Resources for South A and D Tracts

Horizon	Volume (yds3)	Bitumen Grade		Ore Tons	Barrels Bitumen		Strip Ratio
		Gal/Yd	Gal/Ton		By Volume	By Tons	
Overburden & Waste	342,954,361						
South A Tract	22,812,823	35.20	20.20	44,194,141	19,098,608	21,297,300	4.22
D Tract	31,968,520	33.62	19.78	61,931,015	25,588,329	29,171,797	2.01
Total		**34.27**	**19.95**	**106,125,156**	**44,686,937**	**50,469,097**	**3.23**

There is insufficient drilling data to characterize any bitumen resources in the underlying Asphalt Ridge Sandstone at this time. Drilling has only penetrated the very upper portions of the Asphalt Ridge Sandstone and intersected weak to moderate bitumen saturation. There is potential for deeper drilling to intersect additional bitumen saturation in the Asphalt Ridge Sandstone.

Much of the geological data used to construct the geologic models was generated in the 1950s by SOHIO. The drilling Norwest assisted with in 1997 and in 2012 validates the geology for the South A Tract and our review of the SOHIO drilling finds the geologic and geophysical logs, core assays, and other geologic data to be of sufficient detail and performed in a manner consistent with current data acquisition and testing protocol. The 2012 drilling however, does reveal fairly high variance in the analytical results which Norwest believes is attributed to changes in procedures and precision over the 60-year timespan the data represents. We are also lacking surveyed locations for the SOHIO drilling which could potentially impacts resource estimates.

RECOMMENDATIONS

Future resource characterization and mining of the bitumen horizons on the Asphalt Ridge property could benefit from the following recommendations:

- Locate and survey drill hole collars for accurate locations of the SOHIO drilling.
- Consider acquiring the drilling data completed by LETC on D Tract and incorporating this data into the geologic model.
- Resource reporting for public disclosure, such as JORC or NI51-101 will require additional drilling and analytical testing to validate historic results on D Tract. Additional data validation would likely be required for South A Tract as well.
- Consider drilling into deeper horizons to evaluate potential bitumen saturation in the Asphalt Ridge Sandstone.
- Consider additional analytical work to characterize physical characteristics (density, particle size, etc.) of ore and waste horizons for both mining and recovery methods.
- Mine planning and design work was initiated by Norwest in 2012, but was suspended when the previous land owner went into bankruptcy. Completing this work on the South A Tract and possibly expanding the work to the D Tract could help advance the property towards development.