COLONIAL COAL CORP.

ASSESSMENT REPORT

HUGUENOT COAL PROJECT
2012 EXPLORATION PROGRAM

(covering the period July 2012 to June 2014)

British Columbia
Coal Licenses:
416919, 416920, 417014, 417156, 417614, 417615, 417616, 417617, 417618, 417619, 417620, 417621, and 417622

Owner and Operator: Colonial Coal International Corp. / Colonial Coal Corp.
Author: John H. Perry, P.Geo.

September, 2014

Appendix V remains confidential under the terms of the Coal Act Regulation, and has been removed from the public version.

http://www.bclaws.ca/civix/document/id/complete/statreg/251_2004

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LIST OF ABBREVIATIONS

BCM ... Bank cubic metre

bcm/t ... Bank cubic metre per tonne

CSR ... Coke strength after reaction

ddpm ... Dial divisions per minute

FSI ... Free swelling index

HGI ... Hardgrove Grindability Index

kg ... Kilogram

m ... Metre

PCI ... Pulverized coal injection

psi ... Pounds per square inch

Ro ... Reflectance, mean maximum, (%) of vitrinite in oil

S.G. ... Specific gravity

t ... tonne

COAL ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT: Assessment Report - HUGUENOT Coal Project - 2012 Exploration Program

TOTAL COST: $3,028,500

AUTHOR(S): John H. Perry, P.Geo.
SIGNATURE(S):

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): CX-9-036 / July 22nd 2011
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YEAR OF WORK: 2012 to 2014

PROJECT NAME: HUGUENOT

COAL LICENSE(S) AND/OR LEASES ON WHICH PHYSICAL WORK WAS DONE: 416919, 416920, 417014

COAL LICENSE(S) IN PROJECT AREA ON WHICH NO PHYSICAL WORK WAS DONE OVER THE CURRENT REPORTING PERIOD: 417156, 417614, 417615, 417616, 417617, 417618, 417619, 417620, 417621, 417622

BC MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:

MINING DIVISION: LIARD
NTS / BCGS: 93-I/08 and 93-I/09
LATITUDE: 54° 30' 26"
LONGITUDE: 120° 16' 16" (at centre of work)
UTM Zone: NAD83/Zone10 EASTING: 676,675 NORTHING: 6,043,354

OWNER(S): COLONIAL COAL INTERNATIONAL CORP.

MAILING ADDRESS: 200-595 Howe St., Vancouver, BC, V6C 2T5

OPERATOR(S) [who paid for the work]: COLONIAL COAL CORP. (a subsidiary of Colonial Coal International Corp.)

MAILING ADDRESS: 200-595 Howe St., Vancouver, BC, V6C 2T5

REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude. **Do not use abbreviations or codes**): Coal, coaly zone, claystone, carbonaceous, shale, siltstone, sandstone, conglomerate, Cretaceous, Bullhead Group, Fort St John Group, Gates Formation, Gething Formation, Hulcross Formation, Moosebar Formation, Holtslander South Thrust, Holtslander Synclinorium, Holtslander North Thrust.

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: Assessment Report Nos.: 460, 463, 465, 466, *plus as yet un-numbered assessment reports filed by Colonial for 2008-2010, 2010-2011, and 2011-2012.*

SECTION 1 INTRODUCTION AND PROPERTY DESCRIPTION

1.1 INTRODUCTION

This report documents the coal exploration activities carried out by Colonial Coal Corp. (Colonial) on its Huguenot Coal project between June 2012 and July 2014. This work culminated in the completion of a (NI 43-101 compliant) Preliminary Economic Assessment (PEA) report in September 2013 (Norwest, 2013). This report has been used either in whole or in part, or as otherwise modified, for the purpose of preparing this assessment report; the PEA report forms Appendix I of this report and may be independently accessed on-line using the following link:

http://www.sedar.com/GetFile.do?lang=EN&docClass=24&issuerNo=00029072&fileName=/csfsprod/data147/filings/02114715/00000001/f%3A%5Cdata2%5CSEDAR%5C57795_Colonial%5C43-101%5CSep2013%5CHuguenot.pdf

The Huguenot property lies in the Rocky Mountains foothills of northeastern British Columbia, within an area that has been shown to contain thick coal seams with the potential to yield medium volatile hard coking coal. During the months of July through October, 2012 Colonial carried out a field program of geological mapping, trenching, and drilling on its Huguenot coal property.

A total of 2464.6 m of drilling, including 6 diamond (HQ) core holes, 11 rotary holes and 19 large diameter partially cored holes, along with 6 reconnaissance hand trenches were completed. Approximately 1.12 km of new exploration trails were also constructed. Coal quality analyses, attrition, sizing, washability and carbonization testing was undertaken on samples obtained during the field program. This work, together with data base compilation, geological modelling, resource estimation (including various mine and wash plant engineering studies) and report preparation extended well into 2013. Any work reported herein that occurred between July 2013 and June 2014 is considered to have formed part of the 2012 exploration "campaign". Conceptual mine engineering studies for a surface mine and an underground mine are presented in Appendix I.

1.2 LOCATION

The Huguenot Coal property is located in northeastern British Columbia, within the Peace River Regional District, approximately 690 km north-northeast of Vancouver and 115 km southwest of the city of Grande Prairie (Alberta). It is situated close to the Alberta border, between Latitudes 54° 28' N and 54° 35' N, and Longitudes 120° 10' 30" W and 120° 22' 30" W. The project encompasses one contiguous group of coal licences and license applications that lie within the Liard Mining Division and are located on NTS Map Sheets 93-I/08 and 93-I/09.

The property is approximately 12 km in length and covers northwest-southeast trending coal measures situated between current mining operations near Grande Cache, Alberta (Grande Cache Coal Corporation) and Tumbler Ridge (Trend South Coal Mine), which are located approximately 85 km to the east-southeast and 70 km to the northwest, respectively. The town of Tumbler Ridge, which was built in the early 1980s to service the Quintette and Bullmoose coal mines, lies approximately 85 km northwest of the property. The general location of the property is shown in Figure 1-1. The location of the property with respect to regional and local population centres, roads, rail lines, coal mines and other major coal deposits is shown in Figure 1-2.

1.3 ACCESSIBILITY

The Huguenot property is remote relative to population centres, but is reasonably easy to access by a network of provincial paved highways and un-paved, all-weather roads built for forestry purposes and oil and gas exploration and development. The main access to the property from Tumbler Ridge is via Highway 52, a paved secondary road (along a section called the Heritage Highway), to an area just west of Stony Lake. Here the route swings south, first along the un-paved, all-weather, Wapiti Forest Service road (FSR) and then the Red Deer FSR. This road eventually connects to a westerly-trending gravel road that extends through Huguenot's northern coal licences, along the northwest side of Holtslander Creek. This road, originally built to access an old oil/gas exploration well-site located west of the southern part of the property, is in good drivable condition to approximately 2 km west of where it enters the property. The remainder has been reclaimed, although it could be re-instated relatively easily. No drill trails were ever constructed within this licence block during previous coal exploration phases as all exploration activities were helicopter supported.

All these roads are maintained year-round in good, drivable condition in support of extensive gas-field development and operational traffic, and seasonal forestry operations throughout the general area. In good weather conditions, it takes about 2 hours to drive from the property to Tumbler Ridge and between 3 and 4 hours to travel to Dawson Creek, Fort St. John, or Grande Prairie.

1.4 CLIMATE

The climate is typical of northeastern British Columbia; that is, short, warm summers and long, cold winters interspersed with periods of very cold temperatures, in the range of –15°C to –30°C. The cold spells usually happen between January and March, but may occur as early as mid-November. Frost can occur throughout the year and the frost-free period averages less than 60 days per year. Precipitation ranges between 800 and 1100 mm annually; it occurs mainly as snow from October through March, with snowfalls of up to 36 mm in 24 hours. The snow pack persists from October to June. The prevailing wind direction is from the southwest and extended periods of high winds in excess of 20 km/h are common on ridge tops and exposed plateaus from October onwards. Throughout this foothills belt, coal exploration programs are typically conducted between June and October, although winter programs can be carried out where there is road access.

1.5 LOCAL RESOURCES AND INFRASTRUCTURE

The property is situated about 170 km east-northeast of city of Prince George and 115 km southwest of the city of Grande Prairie (Alberta); the smaller cities of Fort St John and Dawson Creek are located approximately 160 km to the north and 105 km to the north-northeast, respectively. Each of these cities is serviced by regularly scheduled flights from major western Canadian cities such as Vancouver, Edmonton and Calgary. The location of the property with respect to main population centres is shown in Figure 1-1.

A rail line, which terminates at the Quintette wash plant and coal load-out facility (approximately 14 km south of Tumbler Ridge), is located approximately 72 km northwest of the property. The currently operating Trend South and Perry Creek open pit coal mines are located approximately 25 km south and 15 km west-southwest of Tumbler Ridge, respectively. The rail load-out facility for the Trend South mine is located 4 km north-northeast of the Quintette load-out. The Tumbler Ridge rail line joins the CN Rail main line just north of Prince George and provides direct access to the coal export facility at Ridley Island, Prince Rupert, over a total distance of approximately 1,000 km (see Figure 1-1).

An airstrip suitable for light aircraft is located adjacent to Red Deer Creek, approximately 10 km north of the property. A permanent 250-room trailer camp is situated 6 km southeast of the airstrip.

1.6 PHYSIOGRAPHY

The property lies within the foothills (Inner Foothills Belt) of the Rocky Mountains, east of the Hart Ranges. The topography comprises a belt of hills and low mountains dominated by a series of NW-SE oriented ridges that reflect the trend of the geological structure of this region. These ridges are truncated by a series of mature, north-easterly flowing rivers and major creeks that comprise the primary drainage system. The property is situated approximately mid-way between two major rivers, the Narraway and Wapiti Rivers, located approximately 14 km to the south and north, respectively.

Two creeks cut through the project area; namely, Holtslander Creek and (the informally named) Pika Creek (see Figure 1-3). The former transects the northern coal licenses while the latter drains the central portions of the property. Both empty into Belcourt Creek which is the main drainage in the area.

The upper reaches of Belcourt Creek trend E-W and approximate the southern boundary of the property. To the east, the creek flows northwards, to join the Wapiti River northeast of the property. Several minor creeks drain the southern parts of the property and empty directly into Belcourt Creek.

A structurally controlled, secondary drainage system is also present. Creeks of this type are typically contained within steep-sided valleys that parallel the ridges and enter the rivers and main creeks at right angles. All but the major rivers appear to be affected at some point along their length by the secondary drainage trend.

The topography of the project area is typical of that of the Rocky Mountain Inner Foothills. The topography rises from rolling hills in the east to a series of moderate- to steep-sided massifs that break to stretches of gently-sloping plateau, culminating in steep-sided ridges, in the central and western areas. The highest ridges within the licence block vary in elevation between 1,700 to 2,000 m while the lowest elevations range between 1,200 and 1,300 m. The vertical relief over most of the property is in the order of 400 m. Broad alpine saddles often connect the ridges and these features, combined with the primary drainage orientation, occasionally impart a NE-SW-trending grain to the topography.

Vegetation in the area is predominantly boreal to sub-alpine coniferous forest. Tree line in this region varies between 1,750 and 1,800 m; above these elevations the alpine vegetation consists of stunted and/or dwarf varieties of spruce and fir, juniper, moss, heather and other alpine tundra flora, and occasional sub-alpine meadows. The area is heavily forested at elevations below about 1,500 m. The forest consists mostly of sub-alpine Engelmann and white spruce, sub-alpine fir, and lodgepole pine. Douglas fir, balsam poplar, aspen, willow, and alder are also found. Bogs and black spruce stands cover some lower areas. The timber on most of the property appears to be of little if any economic interest, although merchantable stands of timber are present in areas of lower elevation. Recent logging, evidenced by large cut-blocks, has taken place in the northern parts of the property, either side of Holtslander Creek.

Exposed rock is common above tree line and usually composed of sandstone and conglomerate. Such resistive units can often be traced for several kilometres. Coal seams can be mapped by tracing coal “bloom” that may be present at surface and by mapping resistant seam roof and/or floor lithologies. Rock exposures decrease significantly on the treed slopes where they are often limited to the bottoms and steep sides of creeks. Various surface materials and soils are present. Colluvium is the dominant material at higher elevation with poorly developed regosolic soils in alpine areas. Brunisolic soils are dominant below tree line with podzols developed in areas of better moisture supply. Benches of moraine deposits with assorted luvisolic soils are sometimes present at lower elevations, and major valleys may contain areas of finer-textured lacustrine and scattered organic deposits (mostly as bogs), glacio-fluvial fans and terraces.

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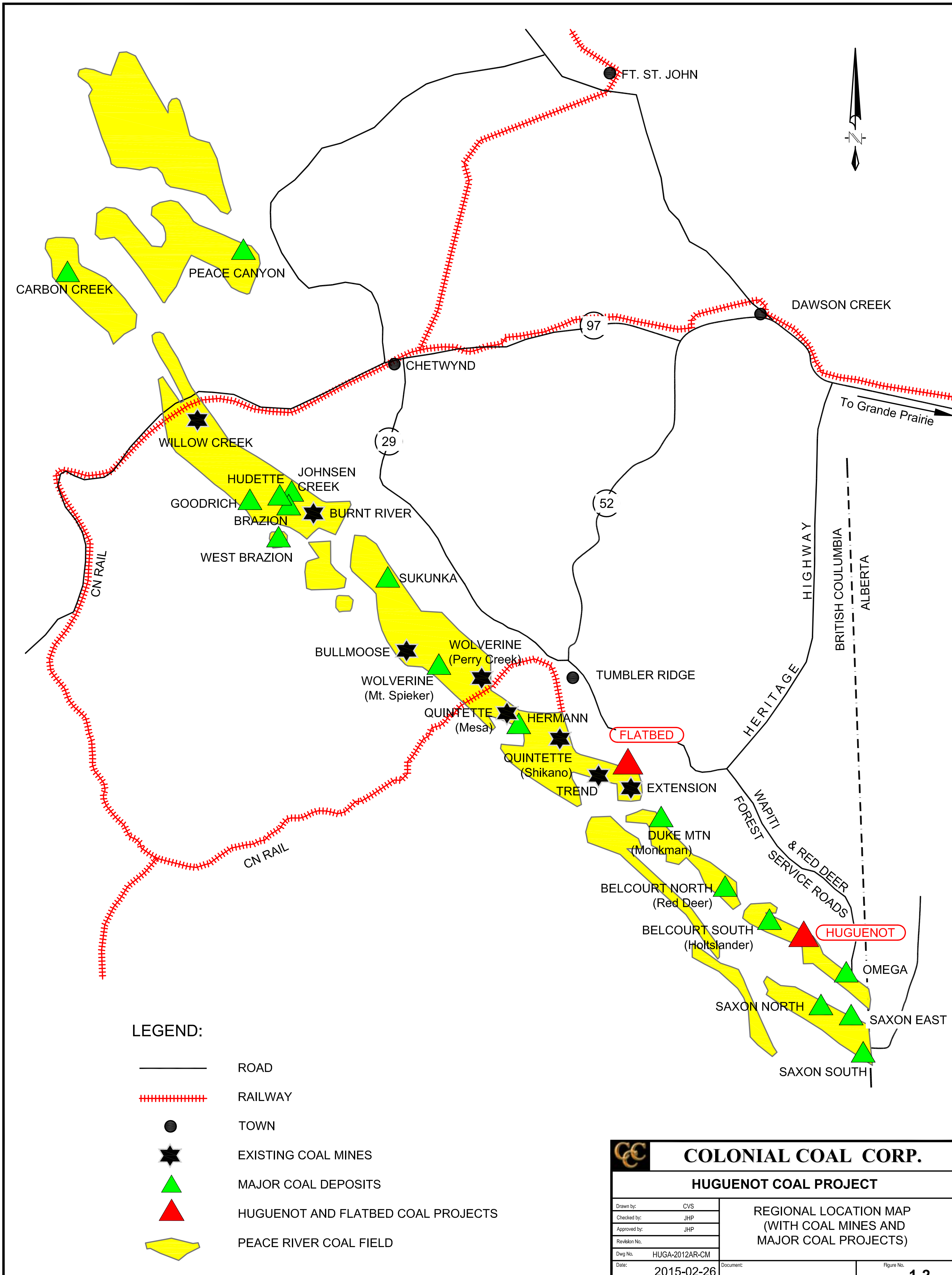

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

REGIONAL LOCATION MAP
(WITH COAL MINES AND
MAJOR COAL PROJECTS)

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Checked by:	JHP
Approved by:	JHP
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Dwg No.	HUGA-2012AR-CM
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Figure No. 1-2

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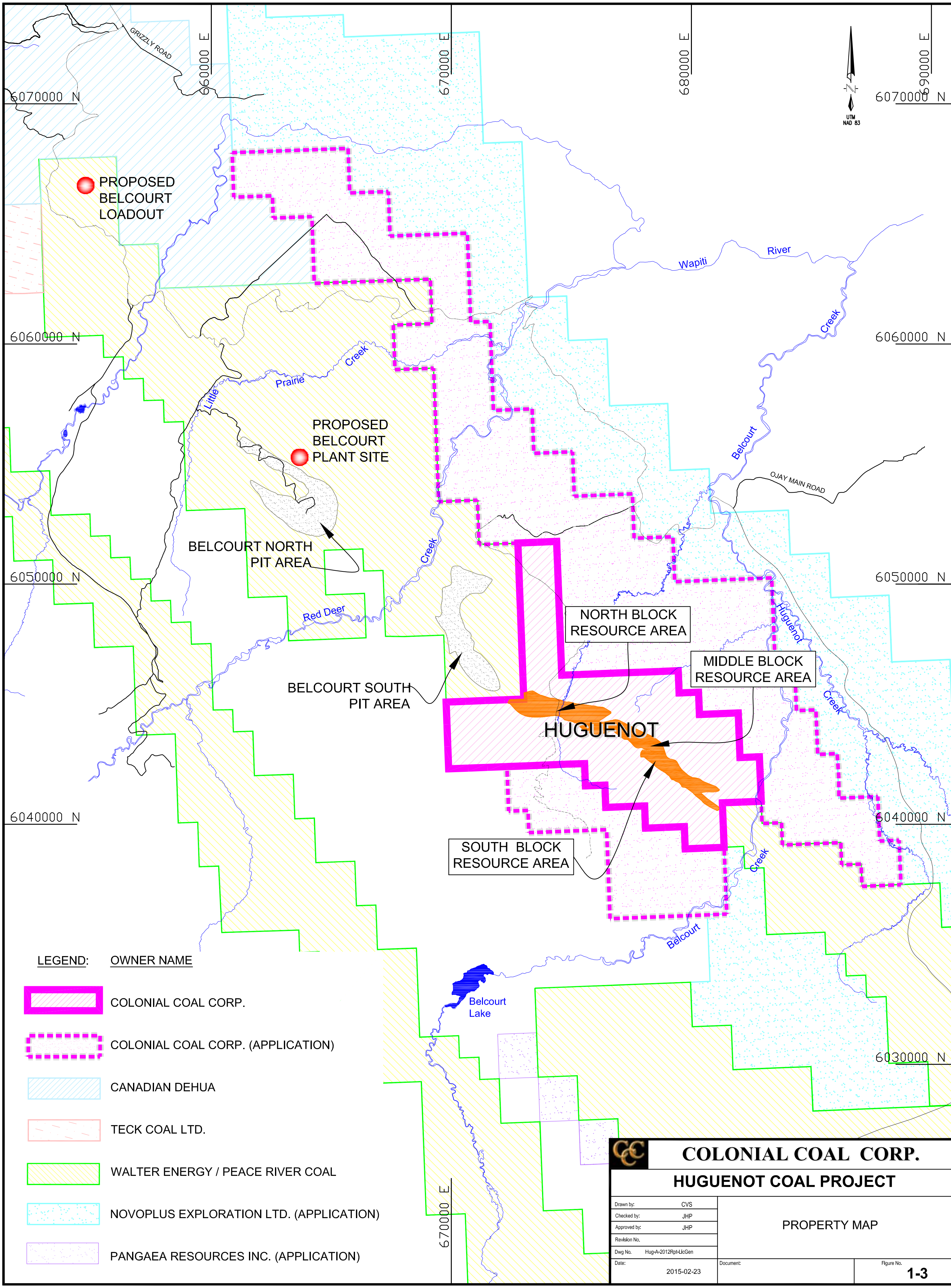

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SECTION 2 COAL TENURE AND OWNERSHIP

2.1 COAL TENURE

The Huguenot Coal Project consists of one contiguous block of 13 coal licenses covering 6,467 hectares (ha) plus 10 coal license applications over approximately 17,550 ha, for a total area of some 24,017 ha. The recorded owner of both the issued tenures and the applied for ground is a British Columbia numbered company, 0735513 B.C. Ltd.

The property lies within the Liard Mining Division and is covered by British Columbia Coal Maps 93-I-08 and 93-I-09. Coal license data and descriptions are summarized in Table 2-1 and the locations of the licenses and areas under application are shown in Figure 2-1 Information pertaining to coal license tenure is posted on the British Columbia Ministry of Energy and Mines web site (current for May, 2014). The posted records of the British Columbia Ministry of Energy and Mines indicate that the issued licenses are in good standing.

Colonial does not own surface rights over any of the property. Although no search of land title, survey records or surface rights has been undertaken for this report, it may reasonably be expected that the Crown retains surface rights.

Table 2-1: Coal License Information – Huguenot Coal Project

Coal License No.	Current Owner	Area (ha)	NTS Map Series	Expiry Date
416919	0735513 B.C. Ltd.	1,202	093I049	2014,06,22
416920	0735513 B.C. Ltd.	1,203	093I049	2014,06,22
417014	0735513 B.C. Ltd.	1,352	093I049	2014,07,21
417156	0735513 B.C. Ltd.	901	093I059	2013,12,21
417614	0735513 B.C. Ltd.	151	093I049	2014,08,17
417615	0735513 B.C. Ltd.	301	093I049	2014,08,17
417616	0735513 B.C. Ltd.	76	093I049	2014,08,17
417617	0735513 B.C. Ltd.	151	093I049	2014,08,17
417618	0735513 B.C. Ltd.	301	093I049	2014,08,17
417619	0735513 B.C. Ltd.	76	093I059	2014,08,17
417620	0735513 B.C. Ltd.	301	093I059	2014,08,17
417621	0735513 B.C. Ltd.	301	093I059	2014,08,17
417622	0735513 B.C. Ltd.	151	093I059	2014,08,21
Total Licensed Area		**6,467**		
Application 417674	0735513 B.C. Ltd.	975	093I049	n.a.
Application 417678	0735513 B.C. Ltd.	150	093I049	n.a.
Application 417779	0735513 B.C. Ltd	1,800	093I050	n.a.
Application 417780	0735513 B.C. Ltd	2,700	093I059	n.a.
Application 417781	0735513 B.C. Ltd	1,200	093I068	n.a.
Application 417782	0735513 B.C. Ltd	1,650	093I049	n.a.
Application 417783	0735513 B.C. Ltd	2,100	093I050	n.a.
Application 417784	0735513 B.C. Ltd	4,725	093I059	n.a.
Application 417785	0735513 B.C. Ltd	600	093I068	n.a.
Application 417786	0735513 B.C. Ltd	1,650	093I068	n.a.
Total Applied For Areas		**17,550**		

Note: The coal license applications listed above in Table 2.1 were approved on June 9th 2014. However, the text and diagrams herein have not yet been adjusted to reflect these new coal licenses.

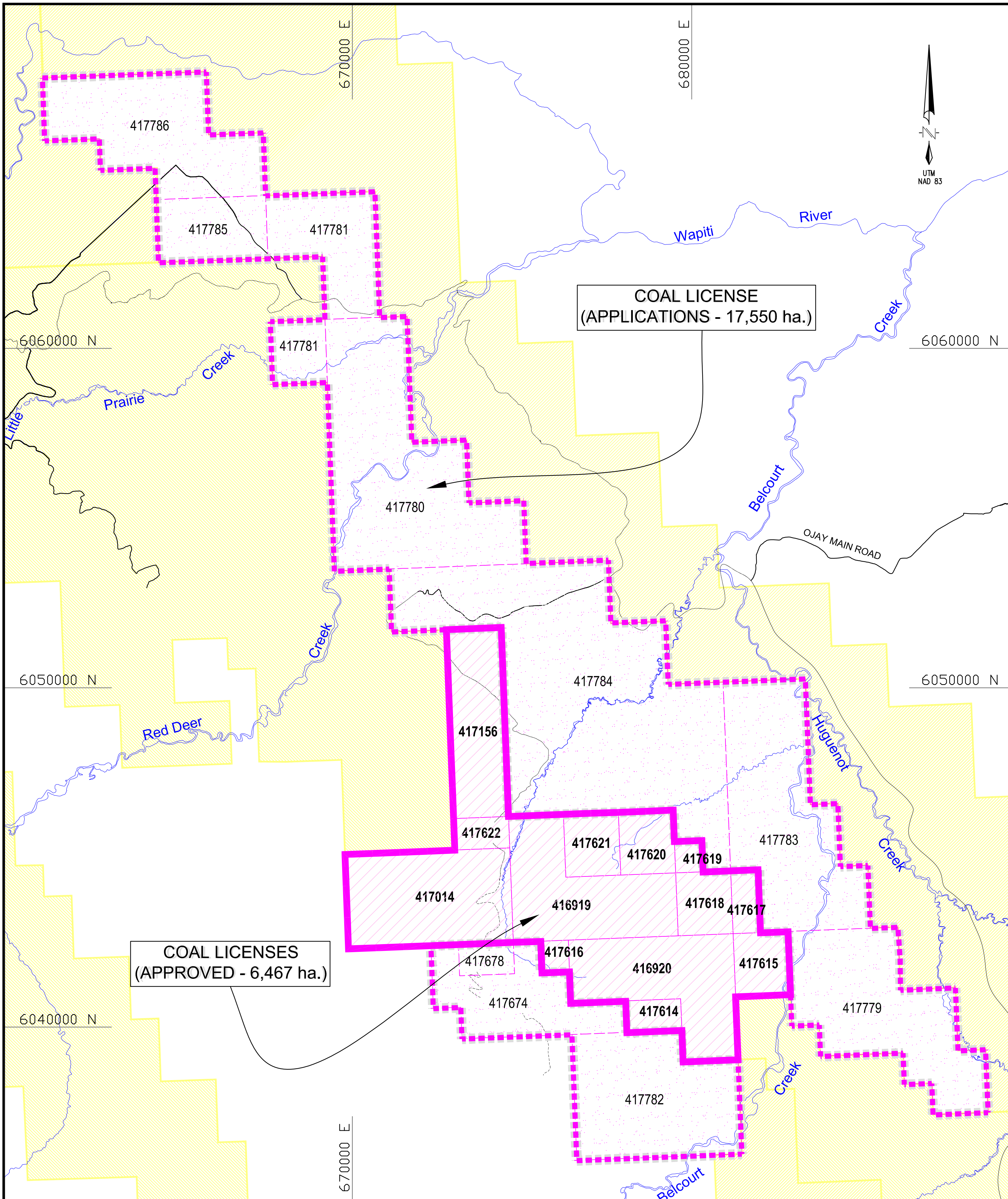
2.2 OWNERSHIP

The property is held beneficially for Colonial by a British Columbia company, 0735513 B.C. Ltd. This company is a wholly-owned subsidiary of Colonial.

The core group of coal licenses (numbers 416919, 416920, and 417014) were originally granted to a Mr. I. Downie in mid-2005, while coal license 417156 was acquired that same year by Western Coal Corporation (Western). Western subsequently transferred this coal license to Belcourt Saxon Coal Limited (BSCL), a joint venture company owned by Western and NEMI Northern Energy and Mining Inc. (NEMI). As a result of a swap of other coal licenses between Mr. Downie and BSCL, ownership of C.L. 417156 was transferred to Mr. Downie in exchange for C.L. 417015.

Mr. Downie subsequently transferred ownership of all four coal licenses to 0735513 B.C. Ltd. who, since inception, has held the licenses as trustee for and on behalf of Colonial. The property interests are subject to a retained production royalty of 1.5%.

The ten coal license applications are in the name of 0735513 B.C. Ltd.



LEGEND:

COLONIAL COAL CORP.

- APPROVED LICENSE
- LICENSE APPLICATION

OTHER OWNERS

1000m 0 1000 2000 3000 4000 5000m

SCALE: 1:150,000

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

COAL LICENSES (APPROVED AND UNDER APPLICATION)

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SECTION 3 SUMMARY OF EXPLORATION ACTIVITIES

3.1 DENISON MINES LTD 1971-1979

The area now covered by the current Huguenot Coal Property was once part of the Belcourt Coal Property that was originally acquired and held by Denison Mines Ltd (Denison) in 1970. At that time, the property consisted of 55 contiguous coal licences, totalling approximately 14,209 ha. In April 1978, Denison entered into an agreement with Gulf Canada Resources, Inc. to form the Belcourt Coal Joint Venture (BCJV); Denison, through its subsidiary Denison Coal Ltd, was manager of the project. By mid-1978, the property was expanded to 144 coal licences that covered an area of 36,442 ha. At that time most of the current Huguenot property was referred to as the Holtslander South Block; Denison's old Huguenot Block referred to an area immediately south of Belcourt Creek.

Work undertaken by Denison on the area now covered by the current Huguenot property from 1971 to 1979 can be outlined as follows:

1971 – Limited geological reconnaissance to confirm the presence of coal seams within the Lower Cretaceous Gates and Gething Formations.

1975 – Aerial photography and ground control survey followed by detailed geological mapping.

1976 – Further geological mapping followed by the completion of two core holes to ascertain seam thickness and coal quality data; one of those holes (BD-7601) is located within the current Huguenot licences.

1977 – Limited geological mapping and trenching.

1978 – Subsequent to the forming of the BCJV (between Denison and Gulf Canada), an extensive exploration program was undertaken to gather information on geological structures, coal resources and coal quality, consisting of: detailed geological mapping; hand trenching; drilling and geophysical logging of 5 core holes (HQ); core coal sampling and sample testing. Aerial photography was carried out and topographic maps were prepared at various scales for general and detailed coverage.

1979 – Continuation of the work started in the previous year (detailed geological mapping; hand trenching; drilling and geophysical logging of 2 core holes (HQ); core coal sampling and sample testing).

No further field work was conducted by Denison on the old Belcourt property after 1980. Western Canadian Coal Corp carried out a small percussion drilling program during the winter of 1998, on the northern part of Denison's proposed Holtslander North open pit area (later renamed the Belcourt South pit area). In 2005, Belcourt-Saxon Coal Ltd. undertook major drilling programs to the north of the current Huguenot property (on the Belcourt North and Belcourt South coal deposits) and to the south at Saxon East, Saxon South and Omega (Borntreager et al, 2009).

The historical exploration activities conducted over the area that is now the Huguenot property are summarized in Table 3-1. This table does not include drillholes and trenches that lie outside but proximal to the property that are of importance in defining the geology. The locations of drillholes and trenches that lie both within, and in the immediate vicinity of, the current Huguenot property are shown in Figure 3-1. The results of this work are incorporated into ensuing sections of this report. No work was conducted on or immediately adjacent to the current license block after the 1979 field program.

Table 3-1: Summary of Exploration Activities – Huguenot Property, 1971 to 1979

Year	Drillholes	Depth (m)	Geophysical Logs	Hand Trenches	Geological Mapping	Other	Assessment Report
1971	-	-	-		Recon.	AP/Topo	457
1975	-	-	-		1: 2,500	AP/Topo	458
1976	1(D/HQ)	59	-		-	Topo	460
1977	-	-	-	25	-	mss	461
1978	5(D/HQ)	1,389	d,g,n,c,fr,dev	84	1: 2,500	Topo	462/463
1979	2(D/HQ)	1,004	d,g,n,c,fr,dev	29	1: 2,500		465
Total	**8**	**2,452**		**138**			

Note: (D/HQ) = diamond drillhole/core size; mss = measured stratigraphic section; AP/Topo = air photography and topographic mapping; d,g,n,c,fr,dev = density, gamma, neutron, caliper, focussed beam resistivity, and deviation survey logs.

Denison drilled the first hole on the property in 1976, as follow-up to earlier mapping and trenching programs, in order to confirm initial coal seam thickness estimates and coal quality. Widely-spaced, helicopter-supported drilling was carried out by Denison and BCJV during 1978 and 1979 to provide information for structural geological interpretation, resource estimation and coal quality characterization. Eight historical holes are located within the property, five of which (BD7601, BD7805, BD7814, BD7906, and BD7914) intersected coal seams within the Gates Formation. Geological data for these drillholes were re-evaluated in conjunction with 2012 data and re-interpreted as required.

The information gathered during these programs is contained in historical Assessment Reports 460, 463, 465 and 466.

Typically, drillholes were logged using slim-line borehole geophysical tools. In most instances, a suite consisting of density, gamma ray, neutron, caliper, focussed electric (resistivity) and hole deviation logs were obtained. These logs were produced at a general scale of 1: 200 with detailed logs at a scale of 1: 20 over thick coal intervals. Three holes were not logged; these were BD-7601 and BD-7803 and BD-7804 (the latter two did not reach the targeted coal measures).

3.2 COLONIAL COAL 2008

Colonial carried out exploration on Huguenot in 2008; fieldwork commenced in early September and was completed by the end of October.

Due to access considerations, work focused on the northern part of the property and was essentially confined to the upper thrust slice (or North Block). The proposed Belcourt South surface mine (of BSCL) is situated immediately north of the Huguenot property; the southern pit limit comes to within 200 m of the property boundary. The geology of Huguenot's North Block is an extension of that defined within the Belcourt South deposit. The purpose of the 2008 work was to confirm and refine the geological interpretation, coal quality and resources previously outlined by Denison and BCJV between 1970 and 1980 and to demonstrate geological, coal seam and coal quality continuity between the North Block and the Belcourt South coal deposit.

Exploration was carried out throughout the North Block although drilling, mechanized trenching, and associated trail construction was restricted to the northwestern half of the block (i.e., the area northwest of Holtslander Creek). South of the creek, only geological mapping and hand trenching were carried out; some of these activities also extended onto adjacent portions of the Middle Block. Exploration personnel were housed at a local, permanent camp. The completed program consisted of 17 air rotary holes and ten 6-inch core holes (for a total of approximately 2,045 m), 19 mechanical trenches, and 36 hand trenches. The main exploration activities carried out during the 2008 program are summarized in Table 3-2.

Table 3-2: Summary of 2008 Exploration Activities

Drillholes		Metres Drilled	LD Type Rotary/Core (m)	Geophysical Logs	Trenches	Geological Mapping	Drill Trail (km) (re-open / new)
Type	Number						
Rotary	17	1,623	-	d,g,n,c,fr,dev,(+/- dm)	M: 19 (246 m)	1: 5,000 &	1.00 / 5.50
LD	10	422	334 / 88	d,g,n,c,fr,dev	H: 36	1: 2,500	-
Total	**27**	**2,045**	**-**	**-**	**55**	**-**	**6.50**

Note: LD = large diameter (Rotary + 6" core); d,g,n,c,fr,dev,dm = density, gamma, neutron, caliper, focussed beam resistivity, deviation, and dip meter logs. M = mechanically excavated trench; H = hand excavated trench. Rec = reconnaissance.

The results of the 2008 Exploration activities are presented in detail in the "The Huguenot Coal Project – 2008 Exploration Program Assessment Report".

3.3 COLONIAL COAL 2010

In 2010, fieldwork commenced in mid-July and was completed by late-November. Exploration personnel were housed at a local, permanent camp.

Limited field work was undertaken comprising surveying and trail construction. Work was confined to the North Block and was designed to survey as many of the 2008 drillholes as possible and to initiate construction of a trail that would eventually provide access to the northern part of the Middle Block.

3.4 COLONIAL COAL 2011

In 2011, fieldwork commenced in early July and was completed by the end of October. Exploration personnel were housed at a local, permanent camp.

Work focused on the Middle and South Blocks and was designed to confirm and refine the previous geological interpretations and to demonstrate geological, coal seam and coal quality continuity within these blocks. In addition to drilling, exploration activities included geological mapping, surveying and trail construction. Several old trenches from the (1970s) were located and re-opened as part of the geological mapping work.

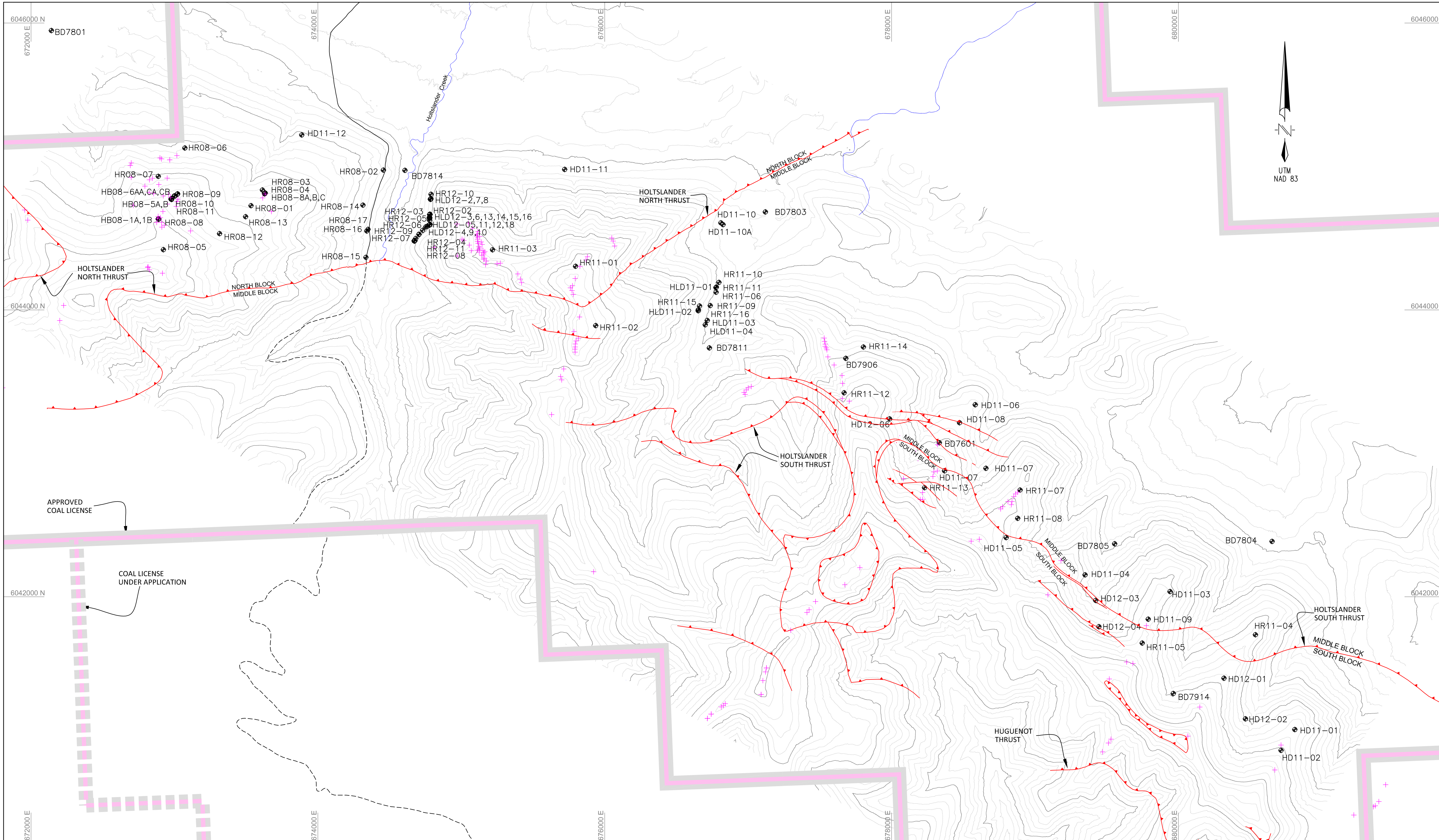
The main exploration activities carried out during the 2011 program are summarized in Table 3-3.

Table 3-3: Summary of 2011 Exploration Activities

Drillholes		Metres Drilled	LD Type Rotary/Core (m)	Geophysical Logs	Trenches	Geological Mapping	Drill Trail (km) (re-open / new)
Type	Number						
Rotary	16	3,006	-	d,g,n,c,fr,dev	-	Rec. &	1.24 / 2.11
HQ Core	13	3,399	-	d,g,n,c,fr,dev	-	1: 2,500	-
LD	4	332	285 / 47	d,g,n,c,fr,dev	-	-	-
Total	**33**	**6,737**	**-**	**-**	**-**	**-**	**3.35**

Note: LD = large diameter (Rotary + 6" core or Rotary + PQ core); d,g,n,c,fr,dev = density, gamma, neutron, caliper, focussed beam resistivity, and deviation logs. M = mechanically excavated trench; H = hand excavated trench. Rec = reconnaissance.

The results of the 2011 Exploration activities are presented in detail in the "The Huguenot Coal Project – 2011 Exploration Program Assessment Report".



LEGEND:

Topography	Property Boundary
Fault (ThrusT)	Creek
	Road / Reclaimed Road
Drill Holes	Trenches

400m 0 400 800 1200 1600 2000m

scale

COLONIAL COAL INTERNATIONAL CORP.

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DRILL HOLE AND TRENCH LOCATIONS

Drawn by: CVS
Checked by: JHP
Approved by: JHP
Revision No.
Drawing: HUG-B-2012ARPT-DHTR
Date: 2015-02-23
Document:
Figure No. 3-1

02/23/15 - 01:23:10pm K:\HUGUENOT\Drill_Hole_1\2012_ARpt\HUG-B-2012ARPT-DHTR.dwg Xrefs: x-DH 2013-12-17 MASTER X-HugTrenchesALL 20130918 x-Faults (2013-05-29) x-Lidar_Topo 20m Exploded

3.5 COLONIAL COAL 2012

In 2012 fieldwork again commenced in early July and was completed by the end of October.

Work focused on the Middle and South Blocks to confirm and refine the previous geological interpretations and to demonstrate geological, coal seam and coal quality continuity within these blocks. Additional work was carried out in the North Block in support of drilling designed to advance definition of coal quality parameters. In addition to drilling, exploration activities included geological mapping, surveying and trail construction. Several old trenches from the (1970s) were located and re-opened and five new hand-trenches were dug, in support of geological mapping.

The main exploration activities carried out during the 2012 program are summarized in Table 3-4.

Table 3-4: Summary of 2012 Exploration Activities

Drillholes		Metres Drilled	LD Type Rotary/Core (m)	Geophysical Logs	Trenches	Geological Mapping	Drill Trail (km) (re-open / new)
Type	**Number**						
Rotary	11	602	-	d,g,n,c,fr,dev	H: 6	1: 5,000 &	0.0 / 1.10
HQ Core	6	964	-	d,g,n,c,fr,dev	-	1: 2,500	-
LD	19	898	739 / 158	d,g,n,c,fr,dev	-	-	-
Total	**33**	**2,464**	**-**	**-**	**-**	**-**	**1.10**

Note: LD = large diameter (Rotary + 6" core); d,g,n,c,fr,dev = density, gamma, neutron, caliper, focussed beam resistivity, and deviation, and logs. H = hand excavated trench.

3.5.1 Geological Mapping

The 2012 mapping programme was carried out by Colonial's geologists to corroborate and develop the mapping data achieved in the previous exploration years (2008 and 2011) and the historical mapping data achieved by Denison Mines Ltd in the 1970's. Base maps covering the area of interest were prepared at a scale of 1:2,500 and 1:5,000, with 20 metre contour intervals. These maps were enlarged from 1:20,000 scale B.C. TRIM maps. Handheld GPS units were used to determine the position of specific outcrops or coal exposures and the data was plotted on 1:2,500 maps. This data was later transferred 1:5,000 base maps in the field office.

3.5.2 Trenching

Five new reconnaissance hand trenches were dug and one historical trench (HS77-07) was re-opened during the 2012 field program; all were located in the Middle and South Blocks. Wherever possible, each trench was logged in detail, although this was dependent on the amount of overburden and surface weathering encountered. All trenches were surveyed using handheld GPS units. Coal seam thicknesses from certain trenches were utilized for resource estimations. Most of the others were used to provide data points for resource classification purposes or for geological control. Descriptive logs, trench locations and details of all 2012 Huguenot trenches are presented in Appendix II.

3.5.3 Drilling

The focus of the 2012 drilling conducted by Colonial was to obtain additional large diameter core samples for coal testing and analysis in the North Block, and to conduct additional HQ diameter diamond core hole drilling in the Middle and South Blocks to refine the previous geological interpretations. Eleven rotary holes, 6 diamond core holes, and 19 large diameter (152mm) core holes were completed, during the 2012 drilling program. In order to obtain an adequate size of bulk sample for the required analysis, three sets of coal core were recovered for each seam.

All drillholes were located to intersect coal seams within the Gates Formation. Historical and recent drillhole locations and details are presented in Appendix III.

Table 3-5 summarizes the 2012 Huguenot drilling program.

Table 3-5: Huguenot 2012 Drillhole Summary

Drillhole		Metres Drilled	Seam(s) Intersected	Block	Notes
ID	Type				
HR12-01	Rotary	60.96	8B, 8R, 8, 7D, 7C	North	Pilot hole for Seam 8
HR12-02	Rotary	48.77	6D, 6CU, 6CL, 6B, 6A	North	Pilot hole for Seams 6D, 6C, 6B
HR12-03	Rotary	70.10	6A, 6L, 5	North	Pilot hole for Seams 6L, 5
HR12-04	Rotary	54.86	5, 4u, 4l	North	Pilot hole for Seams 4, 5
HR12-05	Rotary	51.82	6D, 6C, 6B, 6A, 6L	North	Pilot hole for Seams/Zone 6
HR12-06	Rotary	45.72	5	North	Pilot hole for Seam 5
HR12-07	Rotary	73.15	2A, 1	North	Pilot hole for Seams 2A, 1
HR12-08	Rotary	49.65	3C, 3B, 3A, 2A	North	Pilot hole for Seam/Zone 3, Seam 2A
HR12-09	Rotary	52.73	4u, 4l, CZ4L	North	Pilot hole for Seam 4u (HLD12-18)
HR12-10	Rotary	42.67	9	North	Pilot hole for Seam 9. Seam 9 not LD cored.
HR12-11	Rotary	51.84	3D, 3C, 3B, 3A	North	Pilot hole for Seam/Zone 3 (HLD12-19)
HLD12-01	Core (6")	39.62	8	North	Cored Seam 8.
HLD12-02	Core (6")	28.04	--	North	Hole abandoned at 28 m before core point
HLD12-03	Core (6")	45.72	6CL, 6B, 6L	North	Cored Seam 6L
HLD12-04	Core (6")	54.86	2A, 1	North	Cored Seam 1
HLD12-05	Core (6")	48.77	5	North	Cored Seam 5
HLD12-06	Core (6")	48.77	6D, 6CL, 6B	North	Cored Seam 6B
HLD12-07	Core (6")	39.62	8	North	Cored Seam 8
HLD12-08	Core (6")	39.62	8	North	Cored Seam 8
HLD12-09	Core (6")	54.86	2A, 1	North	Cored Seam 1
HLD12-10	Core (6")	57.91	2A, 1	North	Cored Seam 1
HLD12-11	Core (6")	45.72	5	North	Cored Seam 5
HLD12-12	Core (6")	45.72	5	North	Cored Seam 5
HLD12-13	Core (6")	52.77	6D, 6CL, 6B, 6L	North	Cored Seam 6
HLD12-14	Core (6")	54.86	6D, 6CL, 6B, 6L	North	Cored Seam 6L
HLD12-15	Core (6")	48.77	6D, 6CL, 6B	North	Cored Seam 6B
HLD12-16	Core (6")	51.21	6D, 6CL, 6B	North	Cored Seam 6B
HLD12-17	Core (6")	51.82	6D, 6CL, 6B, 6L	North	Cored Seam 6L
HLD12-18	Core (6")	44.81	5, 4u	North	Cored Seam 4
HLD12-19	Core (6")	44.81	3D, 3BL	North	Cored 3 Zone
HD12-01	Core (HQ)	186.50	9, 8	South	
HD12-02	Core (HQ)	191.15	5, 4, 3D, 2Z, 1	South	
HD12-03	Core (HQ)	315.70	9, 8, 6D, 6B, 6Dr, 6Br, 6L	South	
HD12-04	Core (HQ)	62.60	2Z, 1, 1r	South	
HD12-05	Core (HQ)	113.13	6L, 5	Middle	Intersects Holtslander South Thrust Fault

HD12-06	Core (HQ)	94.98	2HI, HEF, 2D, 2AB, 2HIr1, 2EFr1, 2Dr1, 2ABr1, 2ABr2, 1	Middle	

Table 3.6 summarizes all of the drilling activities carried out on the Huguenot property to date.

Table 3-6: Huguenot Property Drilling Summary as of End of 2012

Year	Operator	Core (HQ)	Air Rotary	Large Diameter Core (Bulk Samples)	Total Holes	Meters Drilled	Geophysical Logs
1976	Denison	1 (NQ)	-	-	1	59	-
1978	Denison – Gulf JV	5	-	-	5	1,389	d,g,n,c,fr,dev
1979	Denison – Gulf JV	2	-	-	2	1,004	d,g,n,c,fr,dev
2008	Colonial	-	17 (1,623m)	10 (442m)	27	2,045	d,g,n,c,fr,dev, (+/- dm)
2011	Colonial	13 (3,399m)	16 (3,006m)	4 (332m)	33	6,737	d,g,n,c,fr,dev
2012	Colonial	6 (964m)	11 (602m)	19 (898m)	36	2,464	d,g,n,c,fr,dev
Total		**27**	**44**	**33**	**104**	**13,698**	

3.5.4 Geophysical Logging

Downhole geophysical surveys were performed by Century Wireline Services. Most of the 2012 boreholes that intersected the coal measures were geophysically logged. Typically, the following types of logs were obtained:

1. Sidewall Density
2. Gama Ray
3. Neutron
4. Caliper
5. Focussed Beam Resistivity
6. Directional (Deviation Compu-Log)

The geophysical logs were run at a general scale of 1:100 and supplemented by detailed logs (density, gamma ray, and resistivity) generated over coal bearing intervals at a scale of 1:50. For better definition of seam tops and bottoms, as well as intra-seam rock bands, a short spaced version of the detailed density log was also obtained.

The Table 3-7 presents a summary of the downhole geophysical surveys for the holes drilled in 2012 on the Huguenot property:

Table 3-7: Huguenot 2012 Downhole Geophysical Log Summary

Hole ID	Metres Drilled	Hole Type	Geophysical Log run					
			Density	Caliper	Gamma	Neutron	Resistivity	Deviation
HR12-01	60.96	Rotary	Y	Y	Y	Y	Y	Y
HR12-02	48.77	Rotary	Y	Y	Y	Y	Y	Y
HR12-03	70.10	Rotary	Y	Y	Y	Y	Y	Y
HR12-04	54.86	Rotary	Y	Y	Y	Y	Y	Y
HR12-05	51.82	Rotary	Y	Y	Y	Y	Y	Y
HR12-06	45.72	Rotary	Y	Y	Y	Y	Y	Y
HR12-07	73.15	Rotary	Y	Y	Y	Y	Y	Y
HR12-08	49.65	Rotary	Y	Y	Y	Y	Y	Y

HR12-09	52.73	Rotary	Y	Y	Y	Y	Y	Y
HR12-10	42.67	Rotary	Y	Y	Y	Y	Y	Y
HR12-11	51.84	Rotary	Y	Y	Y	Y	Y	Y
HLD12-01	39.62	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-02	28.04	Core (6")	N	N	N	N	N	Y
HLD12-03	45.72	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-04	54.86	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-05	48.77	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-06	48.77	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-07	39.62	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-08	39.62	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-09	54.86	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-10	57.91	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-11	45.72	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-12	45.72	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-13	52.77	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-14	54.86	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-15	48.77	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-16	51.21	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-17	51.82	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-18	44.81	Core (6")	Y	Y	Y	Y	Y	Y
HLD12-19	44.81	Core (6")	N	N	N	N	N	N
HD12-01	186.5	Core (HQ)	Y	Y	Y	Y	Y	Y
HD12-02	191.15	Core (HQ)	Y	Y	Y	Y	Y	Y
HD12-03	315.7	Core (HQ)	Y	N	Y	N	N	N
HD12-04	62.6	Core (HQ)	Y	Y	Y	Y	Y	Y
HD12-05	113.13	Core (HQ)	Y	Y	Y	Y	Y	Y
HD12-06	94.98	Core (HQ)	Y	Y	Y	Y	Y	Y

Paper log prints were prepared in the field to assist in core logging and correlation. A complete set of the 2012 geophysical logs has been presented in Appendix IV.

3.5.5 Drill Core Logging and Sampling

During the 2012 exploration program, core samples were obtained from both diamond drilling (HQ-size core) and large diameter drilling to produce a 6” diameter core for selected coal seams.

For HQ-size core, these general procedures were followed:

- At the drill rig, cores were placed in numbered wooden boxes that were covered prior to transport to camp for description and sampling. In some instances, a plastic liner was used to wrap the coal core sections.

- Drill cores were described for general lithology, bed thickness and structural data. Coal seams were logged in detail; the coal was logged according to ‘brightness’.

- For each sample interval, the entire core was submitted for analysis. Immediate roof and floor lithologies were also sampled.

- Core recoveries were obtained by comparing the lithological logs to the detailed density geophysical logs. For the coal seams, recoveries varied widely, however a number of the coal seams of interest reported greater than 50% core recovery.

- Typically samples were placed into large plastic bags, with the large samples often double-bagged, placed into large plastic or burlap bags and trucked to the selected laboratory for testing. Each bag contained a sample tag that recorded drillhole number, seam, and bag number; in some instances, the sampled interval and (initial) analyses required were also added. All but the latter information was also written on the outside of the bags. A set of sample tags were retained by the company.

- The samples were shipped by Canadian Freightways to Birtley Coal & Mineral Testing (a division of GWIL Industries) in Calgary, Alberta.

- Coal core logging and sampling followed prescribed guidelines to ensure a consistent approach by each geologist. The approach used for sample selection is consistent with industry standards.

Detailed descriptive logs of all recent and historic diamond drillholes are included in Appendix III.

For the 6”-size core, all cores were described and sampled at the drill rig by Colonial’s geologists. Sample increments were selected on a geological basis (modified as necessary for core recovery).

The following general procedures usually applied:

- The core was measured, described for general lithology, then bed thickness and structural data (principally, bedding angles) were recorded. Coal seam cores were geologically logged in detail; the coal was logged on the basis ‘brightness’.

- Sample increments were selected on a geological basis (modified as necessary for core recovery). Sample thickness ranged up to 1.4m; the minimum sample size was predicated by the need for sufficient weight required to complete a variety of analyses. Rock bands and poor (high ash) coal plies were usually taken as separate samples if greater than 0.10m thick.

- Samples of rock (portions of which might be ‘coaly’) were taken at the roof and floor of each coal seam to determine the nature of potential out-of-seam dilution that could occur during mining. The bulk samples included all coal and non-coal plies that were considered to form part of a practical mining section (which required the inclusion of some rock bands that were later excluded from resource estimations according to GSC 88-21 (Hughes et al, 1989) guidelines).

- Samples were placed into large plastic bags which were then double-bagged, placed into large rice bags and trucked to the selected laboratory for testing. Sample tags were placed into the first set of bags and duplicate tags were taped to the outside of the rice bags. The drillhole number, seam number and sample interval were also written on the outside of the rice bags. A third set of sample tags were retained by the company.

- Core recoveries were determined by reconciling the core descriptions with the detailed density geophysical logs. Coal seam recoveries from the large-diameter core ranged between 16% and 100%, although most were between 80% and 96%.

Detailed data obtained from all Huguenot large diameter core holes are included in Appendix III.

3.5.6 Drill Core Analysis

Evaluation of the chemical, rheological, petrographic and coking characteristics of the coal core has been undertaken. For both, diamond drilling (HQ-size core) and large diameter drilling (6” diameter core) sample preparation and analysis was carried out by Birtley Coal & Mineral Testing (a division of GWIL Industries), Calgary, Alberta. Blends of washed (clean), simulated product metallurgical coal from these seams were submitted to CanmetENERGY (Ottawa, Ontario) for carbonization testing using Carbolite and sole heated ovens (SHO). Pearson & Associates (Victoria, B.C.) carried out coal petrography.

3.5.6.1 Large Diameter Core Analysis Procedures

Bulk samples taken by Colonial during 2012 consisted of three sets of large-diameter cores from Seams 8, 6B, 6L 5, and 1. Certain coaly zones from the roof and/or floor of Seams 8, 6L, 5 and 1 were also sampled within these cores. The three cores from each seam were labelled A, B and C, with A being the highest of the core recoveries and C the lowest. Due to one of the Seam 6L cores having a lower than acceptable recovery, a fourth core was taken and used to supplement the lost core intervals to bring overall recovery to acceptable levels. One core sample was also taken from Seams 4_U, 3D and 3B for preliminary coal quality testing.

For Core A the following were undertaken:

- Each core was dropped twelve times. After the 12th drop the core was sized from 3-inch down to 100M and the +3-inch was crushed to pass 3-inch and re-screened.
- Dry attrition was then performed; each core sample was tumbled for three minutes (no steel cubes). They then underwent wet attrition for five minutes (water & steel cubes prorated for weight), then screened from 1¼ inch down to 325M. The +1¼ inch size fraction was then crushed to pass 1¼ inch and re-screened.
- Representative sub-samples (⅛) were taken from each of the full 1¼inch x 16M fractions; sub-samples were taken from splits of the -16 M fractions and screened down to 325M. All screen sizes were then analyzed for percent ash and FSI. A simulated head raw sample was made up from these screen sizes and analyzed for proximate, sulphur, FSI and S.G.
- Composites were made up for each of the four seams and float sink analysis was performed on the 1¼inch x ⅜inch, ⅜inch x 16M, and 16M x 60M at the following S.G.s: 1.30, 1.35, 1.40, 1.45, 1.50, 1.55,1.60, 1.65, 1.70 & 1.80.
- A representative split of the 60 M x 0 size fraction was frothed by the modified tree flotation procedure in which kerosene and MIBC were used as collector and frother. The modified tree flotation required the sample to be frothed and the froth and tails to be re-frothed in order to produce 3 froth and 3 tail stages, pulp density was 8%. This was intended to simulate what would happen in a plant froth cell. The rest of the 60M x 0 size fraction was bulk frothed at 10% pulp density to simulate the 2nd stage percent yield and percent ash obtained from the modified tree flotation results.
- All float, sink and froth fractions were analyzed for proximate and FSI.

- Clean Coal Composites (CCCs) for each of the five main seams were made up from the S.G. and froth fractions in the correct proportion as per the cut-points determined by Colonial in conjunction with Norwest. The +16 M fractions used the 1.50 floats for Seams 8, 6L and 1 and the 1.55 floats for Seams 6B and 5, to target an overall ash content of approximately 8% for all seams combined.
- The clean products were analyzed for proximate, sulphur, FSI, Gieseler fluidity, dilatation, mineral analysis of ash, HGI, Ultimate Analysis, Forms of Sulphur, Equilibrium Moisture, Light Transmittance and S.G. Some Core A CCCs were also analyzed for calorific value. Sample splits were sent to Pearson and Associates for petrography.

For Cores B and C the following tests and analyses were conducted:

- Ply analysis was performed on a ⅛ portion of Core B.
- Core B (⅞ portion) and Core C (100%) were used to make up the simulated clean coal product.
- A modified froth flotation process was undertaken using the starvation method to obtain a low ash product. In this procedure, the coal sample is initially placed into a container, mixed for 10-20 seconds to ensure the coal is wetted and allowed to stand for 3 minutes. The sample is then transferred to a Denver Floatation cell, topped-up with water and one half of the frothing reagent is added. The pulp is conditioned for 2 minutes before frothing; once the air is turned on, froth is scraped off for 2-3 minutes (time varies) until Froth 1 is exhausted. The 2nd half of the reagent is then added. The pulp is conditioned for another 2 minutes; the air is turned on again and the second froth is scraped off until completion (Froth 2). Once flotation is finished, Froth 1, Froth 2 and tails are filtered and dried.
- Clean Coal Composites (CCCs) for each of the 5 main seams were made up by compositing float and froth products in the correct proportion as per the cut-points determined from Core A. For the +16M material, floats were selected at a S.G. cut point of 1.50 for Seams 8, 6L and 1 and 1.55 for Seams 6B and 5. For the 16M X 60 M material a 1.60 S.G. cut point was selected for all seams. For the 60M X 0 fraction, F1+F2 froths were selected using the modified froth starvation method.
- CCCs from each of the 5 main seams were analyzed for proximate, sulphur, FSI, dilatation, Gieseler fluidity and Mineral Analysis of Ash.
- Finally, an overall Simulated Seam Product (SSP) was made up from each of the five seams CCC using proportions determined from the overall yields from core A (these yields were considered to be more representative due to higher core recoveries). This SSP was analyzed for proximate, sulphur, FSI, P in coal, Equilibrium moisture, HGI, Light Transmittance, Ultimate analysis, Forms of Sulphur, Gieseler Fluidity, Ruhr Dilatation and Mineral Analysis of Ash.
- CCCs of each of the main seams were sent to CanmetENERGY for SHO carbonization.
- A 554kg simulated clean coal product of the 5 main seams was made up in approximate proportion to the 2012 resource distribution for North Block and sent to CanmetENERGY for Carbolite and SHO oven carbonization tests.

The analytical process for the samples obtained during the 2012 program from large diameter (6”) coring is illustrated in Figure 3-2 and further documented in Appendix V.

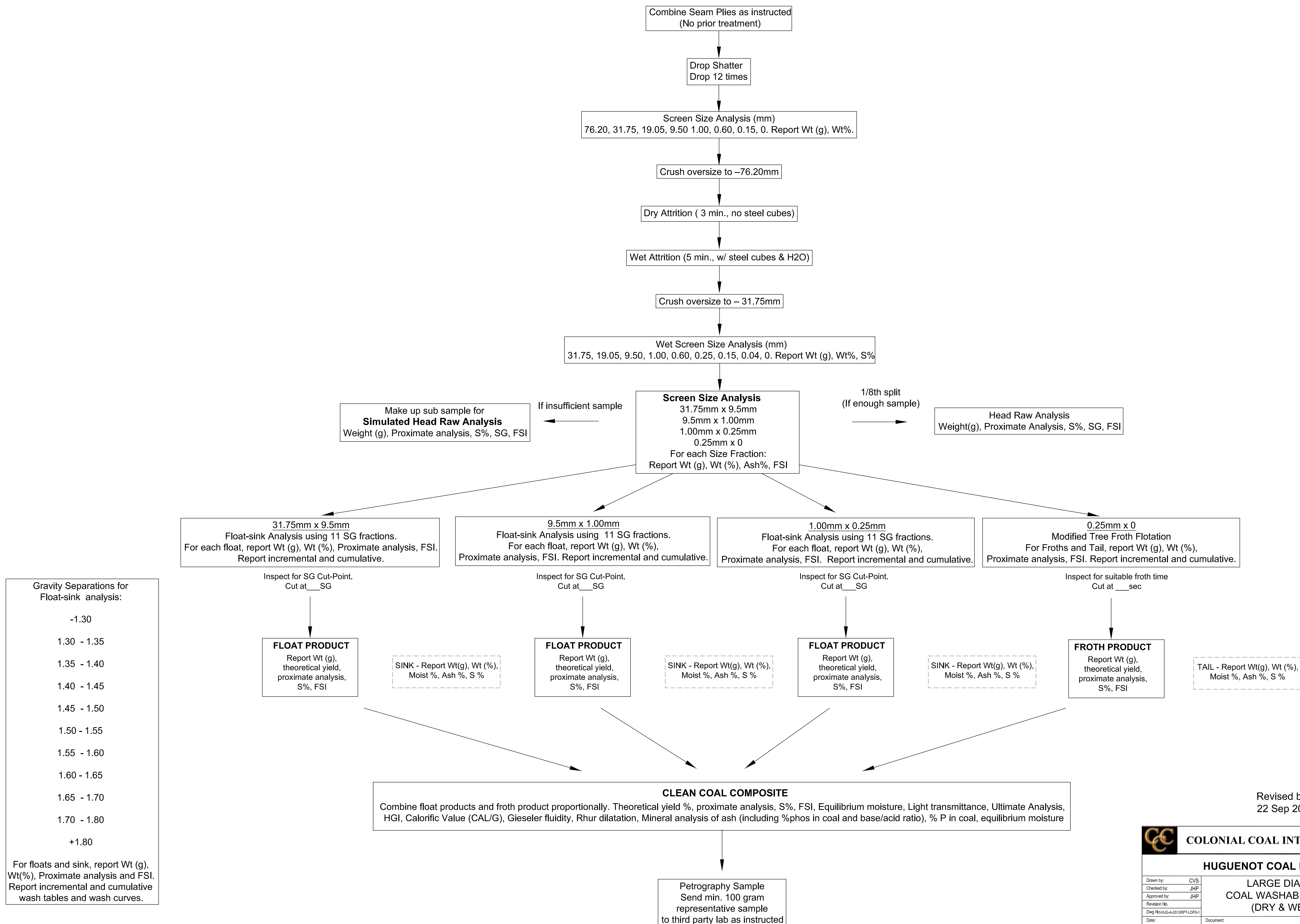
3.5.6.2 HQ Core Analysis Procedures

Sample preparation and analyses procedures followed for HQ-size core in 2012 are summarized below. In addition to the coal seams, a number of seam roof and floor coaly zones also underwent testing and analysis; the testing of these coaly zones was often less comprehensive than the coal seams. Laboratory procedures were as follows:

- All ply samples were air- dried and crushed to -⅜ inch; retains were re-crushed until 100% passed the ⅜ inch screen. One-eighth by weight (or less, if insufficient weight) was taken for preliminary tests and for subsequent head raw analysis (if required), while the remainder was retained for float/sink (washability) tests and succeeding analyses.
- Initial analyses were then performed on both coal and rock ply samples. For coal plies, these included: as received moisture (%), and, on an air-dried basis, Proximate, S%, FSI and S.G. Rock samples were analysed for as received moisture (%), and, on an air-dried basis, Proximate, S% and S.G.
- Selected coal seam (and coaly zone) ply samples were proportionally combined (by weight), using the retained (typically, ⅞) fraction, to form a seam composite.
- Head raw analysis comprising air-dried proximate, S%, S.G. & FSI was performed on each seam composite.
- The composites were divided into two screen size fractions. These were 3/8 inch x 60M and 60M x 0. Screen sizing analysis was run for each size fraction where Weight, Ash%, S and FSI were determined.
- A series of float-sink tests were conducted for the ⅜ inch x 60M size fraction using the following S.G.: 1.40, 1.50, 1.60, 1.70 and 1.80; in some instances, the number of S.G. increments were less due either to the sample size or to raw ash content. The 60M x 0 size fraction underwent time-limited froth flotation process using a Wemco flotation machine with speed of 1200 rpm. Flotation tests were performed for specified times at 30-second intervals, using kerosene and MIBC as reagents and at 8% pulp density. The pulps went through a conditioning time of one minute before skimming.
- For each float/ sink and froth/ tails, weight, proximate and FSI analyses were completed.
- CCCs were generated by compositing float and froth products primarily targeting ash contents of approximately 8%, but also taking into account yield values. For the ⅜ inch x 60M material, floats were selected over the 1.40 to 1.70 S.G. range. For the 60M x 0 fraction, froths were selected over a range of 30-seconds to 120-seconds frothing time.
- Most CCCs underwent proximate analysis, S%, FSI, HGI, calorific value, light transmittance (%), % phosphorous in coal, ultimate analysis, Gieseler fluidity, Ruhr dilatation and mineral analysis of ash. Split samples taken from the CCCs underwent petrographic analysis. Due to sample size or elevated ash contents, some samples underwent an abbreviate selection of the analyses listed above.

The analytical process for the samples obtained during the 2012 program from HQ coring is illustrated in Figure 3-3 and further documented in Appendix V.

LARGE DIAMETER CORE - COAL WASHABILITY FLOWSHEET (DRY AND WET ATTRITION)



Revised by: ERDeligero
22 Sep 2014

COLONIAL COAL INTERNATIONAL CORP.

HUGUENOT COAL PROJECT

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Approved by: JHP
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Dwg No: HUG-A-2012RPT-LDFS-1

LARGE DIAMETER CORE
COAL WASHABILITY FLOWSHEET
(DRY & WET ATTRITION)

Date: 2015-02-27
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Figure No. 3-2

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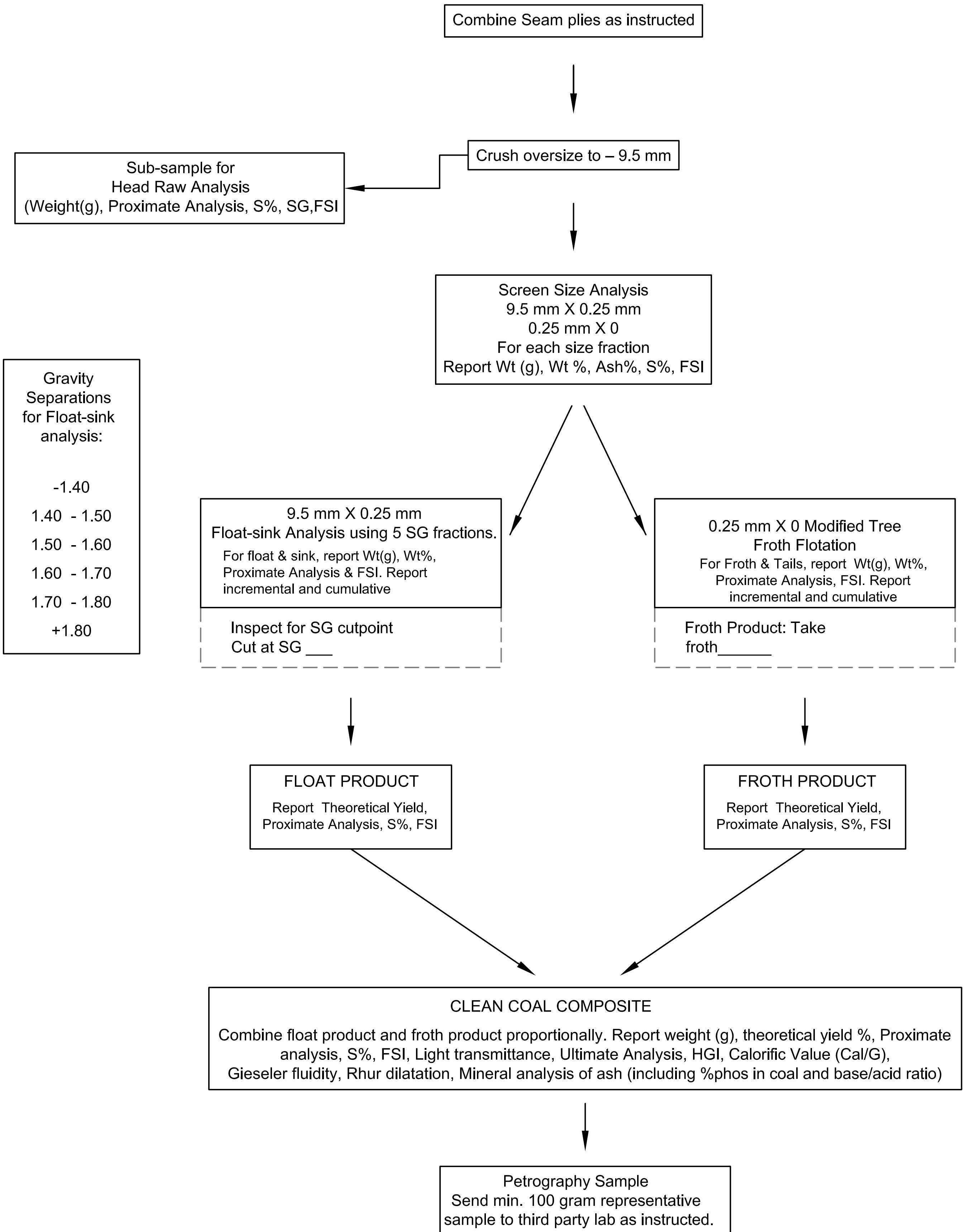
HQ CORE
COAL WASHABILITY FLOWSHEET



COLONIAL COAL INTERNATIONAL CORP.

HUGUENOT COAL PROJECT

Drawn by: CVS	HQ CORE COAL WASHABILITY FLOWSHEET	
Checked by: JHP		
Approved by: JHP		
Revision No.		
Dwg No. HUG-A-2012ARPT-HQWFS		
Date: 2015-02-26	Document:	Figure No. 3-3

3.5.7 Surveying

During the 2012 exploration program all the 2012 drillholes and trenches were surveyed by Onpoint Geomatics Ltd. using a RTK System. Also, several of the pre-2012 drillholes were re-surveyed. The easting and northing UTM's and the elevations were recorded with sub-centimetre accuracy.

The locations of the 2012 trenches and all drillholes can be found in Appendices II and III, respectively.

3.5.8 Trail Construction and Maintenance

Approximately 1.12 km of temporary access trail was constructed during the 2012 exploration program. Work focussed on one trail located within the North block, along the eastern slopes of Holtslander Creek.

3.5.9 Reclamation

The area of surface disturbance associated with the 2012 exploration programme amounted to 0.79 hectares (Table 3-8). Of this, a total of 0.12 hectares was reclaimed in accordance with guidelines as set forth by the Ministry of Energy, Mines and Petroleum Resources.

Table 3-8: Huguenot 2012 Ground Disturbance

Disturbance Type	Length (km) / Number of Sites	Disturbed Area (ha)	Reclaimed Area (ha)
Excavated Trail Construction	1.12 km	0.67	0.00
Drill Sites	25 sites	0.07	0.07
Helicopter Pad Sites	5 sites	0.05	0.05
Total:		**0.79**	**0.12**

3.5.10 Project Management, Personnel and Contractors

The Huguenot Project is owned by Colonial Coal International Corp. and managed through its subsidiary company, Colonial Coal Corp. The following professional and technical members of the Colonial staff contributed to the 2012 exploration programme:

Table 3-9: Huguenot 2012 Colonial Coal Corp. Personnel

Name	Position
John Perry, P.Geo.	Chief Operating Officer
Duane Lucas, P.Geo.	Project Geologist
Adriana Matesoi	Geologist
Nathan Archer	Geologist
Nikki Johnston	Geologist
Hanson Wang	Junior Geologist
Fairnia Farokhi	Field Accounting
Louis Chapdelaine	Geological Assistant
John Tejada	Geological Assistant
Darren Lucas	Field Assistant
Joshua Perry	Field Assistant
Cristina Solano	Drafting / CAD Services
Evangelina Deligero	Coal Quality Database

Table 3-10: Huguenot 2012 Contractors

Type of Work Performed	Contracting Company
Field Related	
Drilling (Rotary & Large Diameter)	DEREX Drilling Services Ltd.
Drilling (Diamond)	Lone Peak Drilling Ltd. (Tahltan Drilling Services Corporation)
Geophysical Logging	Century Wireline Services
Heavy Equipment Operation	CanWest Exploration Services Ltd.
Trail Construction/Timber Falling and Slashing	CanWest Exploration Services Ltd.
Drill Pad Construction	CanWest Exploration Services Ltd.
Bridge Rental	Great Northern Bridgeworks Ltd.
Helicopter	Highland Helicopters Ltd.
Radio Communications Rental	GLENTEL
Truck Rental	Driving Force
Surveying	Onpoint Geomatics Ltd.
First Aid Services	CanWest Exploration Services Ltd.
Field Camp and Catering	Horizon Remote Catering Lt. (Grizzly Ridge)
Fuel	Blue Wave Energy
Freight	Canadian Freightways
Field Supplies	Northern Metallic Ltd,
	IRL Supplies
Analytical Work and Consulting Services	
Drill Core Analysis	GWIL Industries – Birtley Coal and Minerals Testing Division
Coal Petrography	Pearson & Associates
Carbonization Testing	CanmetENERGY Carbonization Research
Geological Modelling/Resource Estimates/PEA Preparation	Norwest Corporation (Salt Lake)

The company retained Norwest Corporation (Norwest) to act as an Independent Qualified Person for the preparation of a Technical Report, in accordance with NI 43-101. Using verified geologic interpretations co-generated by Colonial's and Norwest's geologists, Norwest constructed 3D geologic models for the North, Middle and South Blocks and conducted resource estimation and resource classification for these blocks. Subsequently, Norwest completed a Preliminary Economic Assessment (PEA) of the project. The PEA involved the application of preliminary mine planning on a resource base that included inferred geologic resources. The mine planning, cost estimates and economic analysis were based on a conceptual study only. Norwest also assisted with the development of a coal processing scheme and potential product strategies. For this, washabilities for each seam sample were wash-simulated using Limn®, a high performance, contemporary process design for high value metallurgical coals.

SECTION 4 GEOLOGICAL SETTING

The Huguenot Coal Project lies within a belt of Mesozoic strata situated along the eastern flank of the Rocky Mountains of northeastern British Columbia. These strata were uplifted during the Laramide Orogeny and now form part of the Rocky Mountain Foothills. Intense folding and thrust faulting strongly affected the strata during the mountain-building. The coal seams of greatest potential are found within Lower Cretaceous strata, consisting of the Bullhead and Fort St. John Groups. These strata can be characterized as alternating sequences of marine and non-marine clastic lithologies deposited from a series of transgressive - regressive sedimentary cycles in response to periodic uplift of the Cordillera.

The thickest coal seams are contained within the Gates and Gething Formations and are believed to have formed within deltaic and marine strand-plain depositional environments. Marine strata of the Moosebar Formation separate these two phases of continental sedimentation. Minor coal seams are present within stratigraphically lower (Minnes Group) and higher (Boulder Creek Formation) units. However, these coals are thin and are not considered to have economic potential. The stratigraphic sequence in the study area is shown in Figure 4-1 while regional correlation of coal seams at Huguenot correlated with those present to the northwest (at Belcourt) and to the southeast (at Omega) is illustrated in Figure 4-2. Figure 4-3 regional geology map illustrates the relationships between the various formations that occur within and adjacent to the Huguenot property and shows the main structural geological features.

The stratigraphic succession exposed in the Huguenot area ranges in age from late Triassic to Upper Cretaceous. Triassic rocks are of limited distribution, and are restricted to small areas where the major drainages have exposed the core of a regional anticlinorium (the Belcourt Anticlinorium). These are overlain by an Upper Jurassic to Upper Cretaceous sequence of inter-bedded clastic lithologies of both marine and continental origin, some of which contain coal seams. Brief descriptions of the Upper Jurassic and Cretaceous formations encountered in this region are presented below.

4.1 REGIONAL STRATIGRAPHY

4.1.1 Minnes Group

This is a thick sequence that ranges in age from Upper Jurassic to Lower Cretaceous. The lower portion of this unit contains massive sandstones and conglomerates while the upper part mostly comprises cyclic beds of argillaceous, fine-grained sandstone, siltstone, carbonaceous shale and coal seams. Coal seams are numerous but they are usually less than one meter thick and are discontinuous. The change from Minnes Group strata to the overlying Cadomin Formation is abrupt. Locally, the contact is disconformable, although there is a marked angular discordance regionally.

4.1.2 Cadomin Formation (Bullhead Group)

The Cadomin Formation is the basal unit of the Lower Cretaceous Bullhead Group and mainly consists of massive to poorly bedded, coarse to very coarse-grained conglomerate. A layer of coarse-grained sandstone, located immediately below the conglomerate, is included within this formation. Typically, the conglomerate is poorly sorted and contains well-rounded pebbles, cobbles and boulders of black, white, and green chert, white and grey quartzite, quartz, and (in places) minor limestone. The clasts are set within a siliceous matrix of fine- to coarse-grained sandstone, although portions of the conglomerate may also be clast supported. Discontinuous, lenticular, sandy horizons may be present. Owing to its highly resistant nature, particularly in comparison with contiguous units, the Cadomin is usually well exposed and forms a prominent marker horizon throughout the region. This, together with the rust coloured gravelly weathering of the conglomerate, makes the Cadomin Formation one of the best stratigraphic markers in the region. The thickness of this formation is highly variable but it appears to be in the order of 10m thick on the property.

4.1.3 Gething Formation (Bullhead Group)

The Gething Formation conformably overlies the Cadomin and forms the upper unit of the Bullhead Group. In the Huguenot area it ranges from 60 to 100m in thickness (averaging approximately 70m) although, regionally, it may be considerably thicker due to various depositional factors. It is primarily a non-marine sequence composed of fine- to coarse-grained, calcareous sandstones, conglomerate, siltstone, carbonaceous claystone, and thin coal seams. Conglomeratic units typically occur in the lower and middle parts of this formation while a series of brown, calcareous, lithic, thinly-bedded (0.5 to 1m), and cross-laminated sandstones predominate in the upper parts. These upper sandstones commonly contain pebbles and coal stringers and often exhibit bioturbation and soft sediment deformation.

Historical exploration reports describe three coal zones named, in ascending stratigraphic order, Zones A, B, and C, located near the base, middle and top of the formation, respectively. Although projected across the length of the property, correlations are tentative over large distances due to variable coal zone development and limited data. The lowermost zone (A) appears to be the best developed. Zone C is located just below the Gething-Moosebar contact; the stratigraphic position of this coal zone is similar to that of the Bird-GT zone which is mined at the Trend Mine, to the north.

The presence of thin interbeds of bentonite characterize the uppermost part of the formation, while the upper contact of the Gething is defined by a thin bed of pebble conglomerate with clasts set within a mudstone matrix that contains aphanitic glauconite. This glauconitic horizon is considered equivalent to the Bluesky Formation found further east, and signifies the start of marine sediments belonging to the overlying Moosebar Formation.

4.1.4 Moosebar Formation (Fort St. John Group)

The Moosebar Formation is the lowermost formation of the Fort St. John Group. The Moosebar Gething contact is abrupt and is placed at the base of a thin glauconite-bearing conglomerate, which represents the onset of the Moosebar marine transgression. The Moosebar is separated into two zones; a lower claystone/shale zone and an upper zone composed of alternating claystone, siltstone, and sandstone layers. The lower part consists of approximately 20m of monotonous dark grey to black shale grading upward to laminated siltstone and claystone; numerous sideritic concretions are present throughout. These beds grade upwards into a sequence of alternating claystone, siltstone, and very fine-grained sandstone which form the upper part of the formation. The sandstone beds thicken and become more numerous upwards (together with an overall increase in grain size) with an attendant decrease and gradual disappearance of siltstone and claystone. This inter-layered sequence of sandstone, siltstone, and claystone represents the prodeltaic transition from marine sediments to massive continental sands at the base of the overlying Gates Formation.

The top of the Moosebar Formation is described as being at the base of the first thick sandstone unit (typified by the first sandstone bed that is at least one meter in thickness) within the Gates Formation. The arbitrary selection of the Moosebar - Gates contact contributes to regional variability in formation thickness. Consequently, the thickness of this formation is somewhat variable across the property, but averages about 70m.

The Moosebar shales are recessive weathering and exposures are normally restricted to areas of high relief where creek channels or gullies often cut along the strike of the easily eroded beds.

4.1.5 Gates Formation (Fort St. John Group)

The Gates Formation conformably overlies the Moosebar Formation. The Gates contains the largest systematically explored coal resources within the North-East Coal Block and is the main coal-bearing unit within the project area. To the north, in the Quintette–Bullmoose area, the Gates is divided into three informal sub-divisions; namely, Torrens member, middle Gates and upper Gates. The main coal seams occur within the middle Gates while thinner, non-economic, coal seams are present within the upper Gates. No sub-division of the formation has been attempted in the Huguenot area, other than recognition of the Torrens member. However, significant coal seams are present in the equivalents of both the middle and upper Gates. At Huguenot, the Gates Formation averages approximately 310m in thickness. A generalized stratigraphic section through the Gates Formation is illustrated in Figure 4-4.

Gates coal seams appear to have developed directly on marine strandplains. Longshore drift of sand played an important role in the formation of these strandplains, which became isolated behind barrier bar delta fronts. Extensive freshwater lagoons developed, which became sites of significant peat formation (Legun, 2002). Thick, lateral accumulations of peat developed shoreward of thick, regionally extensive sheets of shoreface sand and gravel, traceable along strike for about 230km (Lamberson and Bustin, 1989).

The Torrens member forms the lowermost sub-division of the Gates Formation. It includes the transition zone strata above the Moosebar contact plus an overlying, resistive, sandstone unit that forms prominent cliffs and ridges that can be used to outline the various structural configurations of the coal measures. At Huguenot, the Torrens member ranges from approximately 40 to 45m thick.

The Torrens member is overlain by several cycles of coal deposition represented by fining-upward sequences culminating with coal deposition. Coal seams developed in the lower cycles, particularly Seams 1 and 5, typically show the greatest seam thickness and continuity. In the Quintette area, the middle Gates is overlain by a massive medium-to-coarse-grained, conglomeratic sandstone and pebble conglomerate sequence, informally called the Babcock member. The lateral equivalent of this unit at Huguenot may be represented by a thick, sandstone-dominated sequence with occasional conglomeratic lenses, located above Seam 5.

This sandstone unit is overlain by predominantly finer-grained lithologies consisting mostly of intercalating fine-grained sandstone, siltstone and claystone with several thin coal seams (Seam 6 to 10). A very thin bed of chert pebbles with ferruginous cement marks the contact with the overlying marine sediments of the Hulcross Formation.

4.1.6 Hulcross Formation (Fort St. John Group)

The Hulcross Formation is a marine sequence predominantly composed of blocky, medium to dark grey, sandy shale with thin interbeds of siltstone and very fine-grained, often laminated or cross-laminated, sandstone. Although there is some similarity between the Hulcross shale and Moosebar shale they can usually be distinguished by their relationships to surrounding strata and the absence of glauconitic sandstones at the base of the Hulcross. Across the Huguenot property, the Hulcross varies in thickness from approximately 30 to 40m.

The contact of the Hulcross with the underlying Gates Formation is distinct, and often marked by a very thin, chert-pebble conglomerate with ferruginous cement. The sequence becomes increasingly silty towards the top, and thicker sandstone interbeds develop, resulting in a gradational contact with the overlying Boulder Creek Formation.

4.1.7 Boulder Creek Formation (Fort St. John Group)

The Boulder Creek Formation is composed of three lithological units. The lower unit consists mainly of light grey, fine- to coarse-grained sandstone and is approximately 20m thick; coarse-grained sandstones, conglomerates and carbonaceous beds are common. The middle unit is approximately 30m thick and consists of predominantly grey to black claystone and siltstone with occasional coaly and carbonaceous horizons. The upper 35m consists mostly of fine- to coarse-grained, grey to brown, sandstone and grey siltstone. A thin pebble conglomerate with a siltstone to claystone matrix marks the upper contact.

The thickness of the Boulder Creek Formation tends to increase as the Hulcross thins; in the Huguenot area it ranges between approximately 85 and 90m in thickness.

4.1.8 Shaftesbury Formation (Fort St. John Group)

The Shaftesbury Formation can be divided into three units which, mapped elsewhere, are referred to, in ascending stratigraphic order, as the Hasler, Goodrich, and Cruiser Formations. The historical coal assessment reports for the old Belcourt property indicate that Denison's geologists were able to differentiate between these units, but there was no attempt to map them separately.

The lower unit consists of dark grey to black, sideritic claystone, siltstone, minor sandstone and localized thin, pebble conglomerates. The unit is almost homogenous and bedding is discernible only by the occasional appearance of resistant thin beds of resistant sandstone. The middle unit is predominantly a grey to brown, medium-grained, laminated to medium-bedded to massive, micaceous sandstone. Carbonaceous claystone and siltstone occur as interbeds. The upper unit comprises dark grey to black, laminated to thin interbeds of silty claystone, siltstone and fine-grained sandstone. Pebble bands occur locally. This unit is characteristically light orange to red in colour due to weathering of ferruginous horizons.

4.2 COAL SEAM DEVELOPMENT

Exploration conducted by Denison throughout the former Belcourt property concentrated upon defining potentially economic coal resources contained within the Gates Formation. Localized potential for Gething coal seams is indicated by several thin seams typically in the order of 1 to 2.5m thick. The potential for coal seams in other formations appears very limited. The exploration conducted in 2008 also focussed on Gates Formation coal seams, although one drillhole to test Gething coal seams was also completed. Exploration conducted by Colonial in 2011 and 2012 was concentrated on defining the coal resource potential within the Gates Formation.

4.2.1 Gething

On the Huguenot property, the Gething Formation typically contains three coal zones. Historically, in ascending order, these have been referred to as Zones A, B, and C. The best developed of these is Zone A, which is situated just above the contact with the Cadomin Formation. This zone contains up to four coal splits, the thickest two of which occur near the top of the zone. These splits can exceed 1.5m in thickness, while the others are generally less than 1.0m thick. In one instance, Denison trenched an 8.2m coal seam within this lower zone. However, this occurrence is believed to be thickened due to faulting.

Thick sandstone separates Zones A and B; this latter zone consists of several thin, poorly developed coal seams. Zone C is close to the Gething - Moosebar contact and consists of two or three thin coal splits. The stratigraphic position of this upper coal zone appears to be similar to that of the Bird-GT zone.

Within the North Block, the Gething seams are designated, in ascending order, GT1, GT2, and GT3. Seam GT1 ranges from 1.75m (BD 7811) to 2.17m (HR08-05), Seam GT2 varies from 0.32 to 0.61m, and GT3 is 1.2m thick. Although geological mapping, trenching, and drilling suggest that the Gething coal seams offer limited potential, additional work is warranted to fully evaluate these coal measures.

4.2.2 Gates

The Gates Formation is well established as being the most prolific coal-bearing formation in north-eastern British Columbia. From northwest to southeast, significant thicknesses of Gates coal first occur in the Bullmoose Mountain area and continue southeast to the provincial border (a distance of almost 140km) and beyond.

On the Huguenot property, coal seams and coal zones are numbered in ascending stratigraphic order with 1 representing the oldest and 10 the youngest. The term ‘coal zone’ has been used historically to encompass a number of closely-spaced coal horizons within a distinct lithological unit. Such units were used for correlation in areas where individual coal seams were difficult to recognize due to changes in seam characteristics or their transition into carbonaceous and coaly intervals. Individual coal splits within a coal zone were distinguished by letter (e.g., Seams 6A, 6B, 6C, and 6D). Wherever possible, historical seam/zone/split designations have been maintained, although some modifications have occurred based upon results from the more recent work.

Correlations have been established for the main coal seams across the Huguenot property, although continuous correlations have not been definitively demonstrated for some of the minor seams. Seam correlations are well established with the adjoining Belcourt South deposit, situated immediately to the north. The Torrens sandstone provides a marker horizon for the base of the Gates coal measures. The more important characteristics of the seams that reach minimum mining section thickness criteria (i.e., 0.60m) are summarized in the Section 5.

4.3 STRUCTURE

Structural geology within the region is characterized by large-scale folding and associated thrust faulting within alternating layers of competent sandstone and incompetent mudstone and coal. The regional structural trend is NW-SE, parallel to the Rocky Mountain structural belt. Structural style may vary along and across this trend reflecting differences in lithologies and distance from the Front Ranges of the Rocky Mountains.

Folding within stratigraphic units dominated by finer-grained lithologies can be extremely complex, often typified by short-wavelength, chevron folds. More competent sequences, such as those containing the coal measures, typically form macroscopic, long-wavelength folds ranging from relatively tight anticline-syncline pairs to open, box folds. Less competent strata, contained within the broader competent sequences, maintain the same structural style as the unit as a whole. Typically, the major fold axes plunge gently to moderately northwest or southeast. Folding of major fold limbs is uncommon but, where present, varies from gentle warps to chevron fold pairs.

Often, the macroscopic folds are cut by thrust faults that slice longitudinally through the belt of coal-bearing strata. Commonly, these structures dip towards the southwest, although smaller, north-easterly-dipping thrusts may be present. Within the major thrust sheets, faulting preceded folding; older thrusts are folded, resulting in north-easterly-dipping, and north-easterly-verging, thrusts. On a regional scale, the large thrust faults display staircase-type geometry, characterized by wide “flats” sub-parallel to bedding, joined by narrow “ramps” oblique to bedding. The “flats” are often developed in less competent strata whereas “ramps” are generally contained within competent lithologies. The major faults tend to maintain a constant angle of about 30° to bedding. However, this is not always the case, particularly where smaller structures are involved and where thrusts die out. Minor thrusts frequently splay from the major faults.

The Huguenot Coal Project is located along the north-eastern limb of a broad, northwest-plunging anticlinorium (the Belcourt Anticlinorium). Lower Cretaceous coal measures are located along the western and eastern margins of this structure, while Triassic and Jurassic strata occupy the central portions. The western extent of the anticlinorium is defined by a major, westerly-dipping thrust fault that emplaced Palaeozoic rocks upon the Lower Cretaceous strata. Eastward from the core of the Anticlinorium, the Cretaceous succession is continuous, the youngest strata being those of the Kaskapau Formation. The Huguenot property is located within a narrow, north-westerly-trending belt of tight to relatively open folds and associated north-easterly-verging thrust faults that have placed older units upon younger.

The Gates coal measures are repeated by two easterly-dipping and easterly-verging thrust faults, the Holtslander North and Holtslander South Thrusts. The geology of the Lower Cretaceous succession within the property is shown in Figure 4-5; cross-sections illustrating the main structural elements are presented in Figure 4-6 and 4-7. For descriptive purposes, the three structural slices are referred to as the North, Middle, and South Blocks.

The North Block sits structurally above the Holtslander North Thrust Fault and therefore sits structurally above the Middle and South Blocks. The Holtslander North Thrust Fault is interpreted to be the oldest of thrusts on the property. The coal measures occupy the western limb of a broad synclinal structure called the Holtslander Synclinorium. In the North Block area, this limb is near homoclinal with moderate north-easterly dips. Dip values decrease somewhat at depth, towards the axis of the fold.

The Middle Block, situated between the Holtslander North and Holtslander South Thrust Faults, exhibits moderate to steep, northeast-dipping, near-homoclinal strata that decrease in dip towards the south. A north-south-trending, upright, open, anticline-syncline pair is present along the eastern limit of mapping. Fault imbrications in the floor of the Holtslander South Thrust are also present. A high-angle, eastward-dipping reverse fault, referred to as the Pika Fault, bisects the central portions of this Block, repeating the Seams 1 to 6 Lower (6L).

The South Block lies structurally below the Holtslander South Thrust. Here, the coal measures occur as steep to very steep, mostly easterly-dipping beds that form the eastern limb of an asymmetric anticline. Vertical to steep, westerly-dipping, overturned beds occur within the eastern limb of this anticline and in the footwall of the thrust.

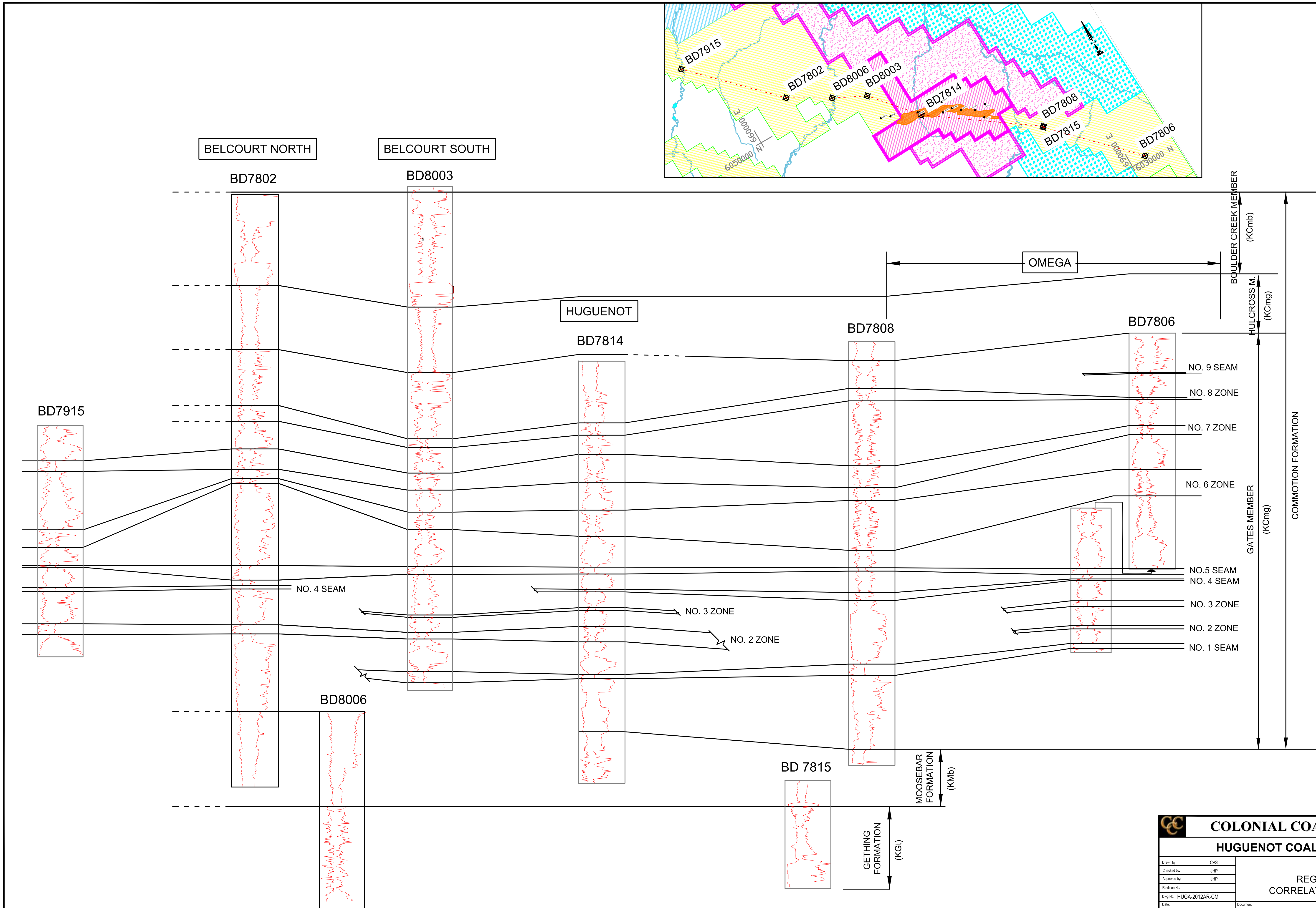
The main elements of the property geology are depicted in Figure 4-5.

Series	Group	Formation		Lithology	Unit Thickness (Meters)
LOWER CRETACEOUS	FORT ST. JOHN	Shaftesbury		Dark grey marine shales, sideritic concretions, some sandstone grading to silty, dark grey marine shale, siltstone and sandstone in lower part, minor conglomerate.	+450
LOWER CRETACEOUS	FORT ST. JOHN	COMMOTION	Boulder Creek	Dark grey marine shales, sideritic concretions, some sandstone grading to silty, dark grey marine shale, siltstone and sandstone in lower part, minor conglomerate.	115
LOWER CRETACEOUS	FORT ST. JOHN	COMMOTION	Hullcross	Dark grey marine shale in the north grading to extremely fossileferous shady beds interlayered with sandstone and thin coal seams in the south.	35
LOWER CRETACEOUS	FORT ST. JOHN	COMMOTION	Gates	Fine-grained marine and non-marine sandstones; conglomerate, coal, shale and mustone.	365
LOWER CRETACEOUS	FORT ST. JOHN	Moosebar		Dark grey marine shale with sideritic concretions, glauconitic sandstones and peebles at base.	60
LOWER CRETACEOUS	BULLHEAD	Gething		Fine to coarse brown calcareous sandstone, coal, carbonaceous shale and conglomerate.	70
LOWER CRETACEOUS	BULLHEAD	Cadomin		Massive conglomerate containing chert and quartzite pebbles.	10
LOWER CRETACEOUS	MINNES	Nikanassin		Thin-bedded grey and brown shales and brown sandstones, containing numerous thin coal seams.	

NOTE:

MODIFIED FROM DENISON MINES LIMITED (1979b)

COLONIAL COAL CORP.		
HUGUENOT COAL PROJECT		
Drawn by: CVS	TABLE OF FORMATIONS	
Checked by: JHP		
Approved by: JHP		
Revision No.		
Dwg No. HUG-A-2012ARPT-FORMA		
Date: 2015-02-26	Document:	Figure No. 4-1



COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

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Dwg No.	HUGA-2012AR-CM
Date:	2015-02-26

REGIONAL
CORRELATION CHART

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Figure No. **4-2**

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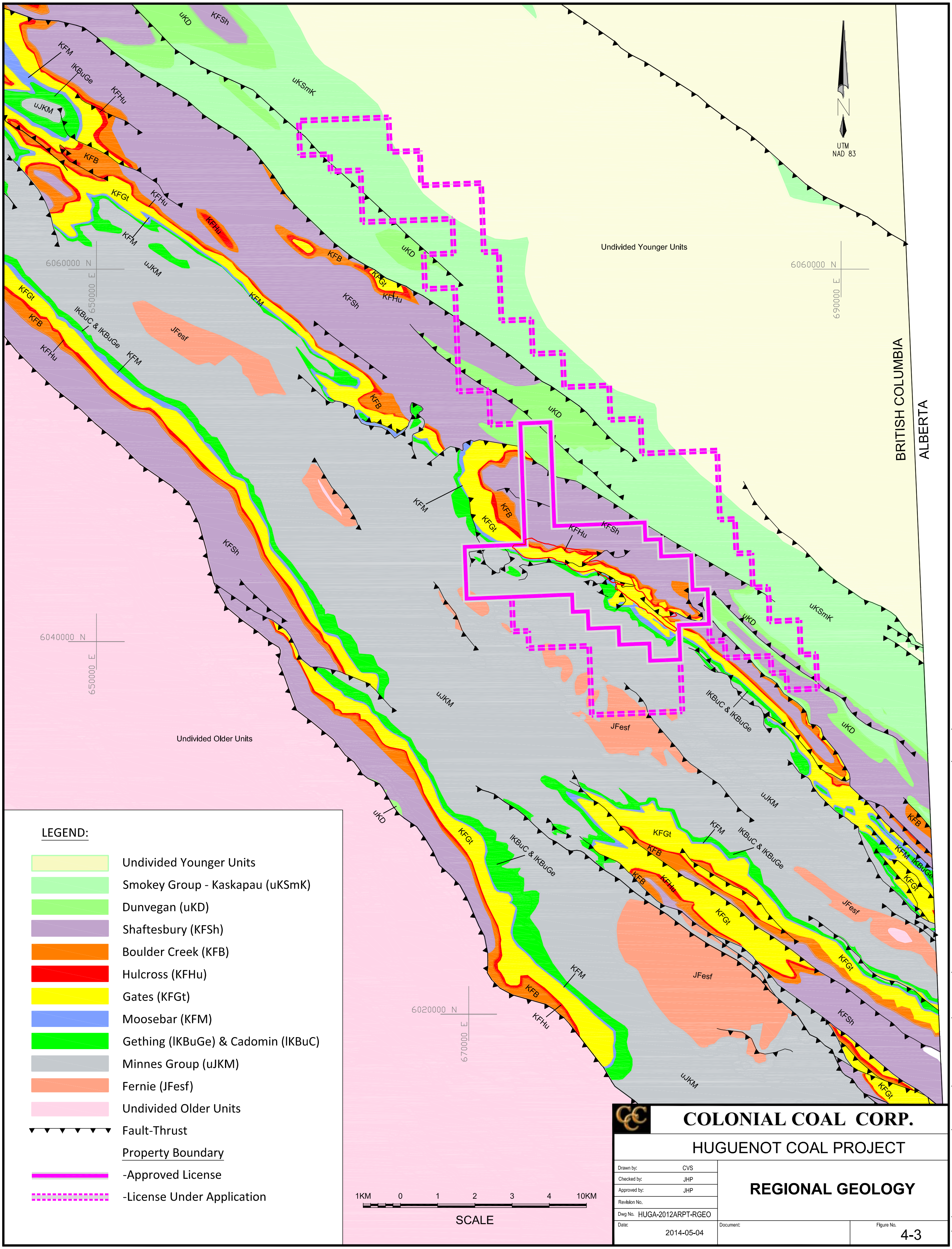
LEGEND:
Undivided Younger Units
Smokey Group - Kaskapau (uKSmK)
Dunvegan (uKD)
Shaftesbury (KFSh)
Boulder Creek (KFB)
Hulcross (KFHu)
Gates (KFGt)
Moosebar (KFM)
Gething (lKBuGe) & Cadomin (lKBuC)
Minnes Group (uJKM)
Fernie (JFesf)
Undivided Older Units
Fault-Thrust
Property Boundary
-Approved License
-License Under Application
UTM NAD 83
N
BRITISH COLUMBIA
ALBERTA
Undivided Younger Units
Undivided Older Units
6060000 N
650000 E
690000 E
6040000 N
6020000 N
670000 E
1KM 0 1 2 3 4 10KM
SCALE
COLONIAL COAL CORP.
HUGUENOT COAL PROJECT
REGIONAL GEOLOGY
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Dwg No. HUGA-2012ARPT-RGEO
Date: 2014-05-04
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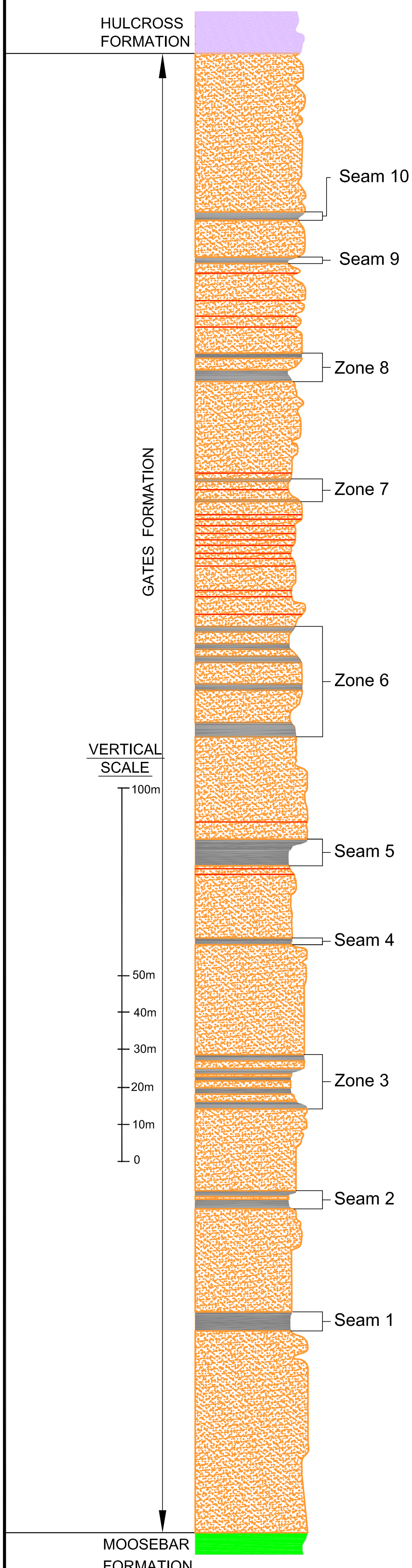

Seam 10: Single Coal Seam with one or two rock bands.

8 - 13 m interbedded siltstone and claystone with sandstone horizons which sometimes demonstrate a subtle coursing-upward sequence just below Seam 10.

Seam 9: Single coal seam with a carbonaceous floor.

15-19 m fine-grained sandstone, grading upward into siltstone and claystone, then carbonaceous claystone at the base of Seam 9.

Zone 8: Includes Seams 8 and 8B.

25 - 33 m sandstone, siltstone, and claystone.

Zone 7: Consists of two to three coal plies. Not of economic interest.

17 - 29 m sandstone, siltstone, and claystone.

Zone 6: Composed of a lower section (6L and 6A) and an upper section of Seams 6B, 6C, and 6D.

13 - 17 m Claystone, carbonaceous claystone and siltstone.

Seam 5: Single Coal Seam present throughout the property.

8-22 m fine-grained sandstone with silty laminae.

Seam 4: Consists of an upper section (4U) and lower section (4L).

15-57 m sandstone and interbedded siltstone with conglomerate lenses. Fining upward to a carbonaceous zone at the base of Seam 4.

Zone 3: Composed of coal plies 3A, 3B, 3C and 3D. Plies 3B and 3D have economic potential in the north. 3A is of interest in the Middle Block.

7 - 11 m sandstone and interbedded siltstone between Seam 2 and Zone 3 in the north, and 23 - 36 m of sandstone, siltstone, and claystone in the south.

Seam 2: Comprises several thin coal plies separated by thin rock bands. In the north, the upper portion becomes a coaly zone and only the lower ply (2A) is of economic interest.

14 - 17 m sandstone, siltstone and interbedded claystone at top. Section thickens to 41 m sandstone in the south.

Seam 1: Single Coal Seam present throughout the property.

45 m Sandstone ("Torrens Member").

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

GENERALIZED STRATIGRAPHIC SECTION - GATES FORMATION

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Figure No.	4-4

LEGEND

SHAFTESBURY FORMATION	MOOSEBAR FORMATION	SEAM 1	SEAM 4	SEAM 6D	SEAM 9	PROPERTY BOUNDARY
BOULDER CREEK FORMATION	GETHING FORMATION	SEAM 2A	SEAM 5	SEAM 6L	CREEK	THRUST FAULT
HULCROSS FORMATION	CADOMIN FORMATION	SEAM 3B	SEAM 6A	SEAM 8	TOPOGRAPHIC CONTOUR	FAULT
GATES FORMATION	MINNES GROUP	SEAM 3D	SEAM 6BC	SEAM 8B	ROAD (RECLAIMED)	DRILLHOLES

FIGURE 4-5

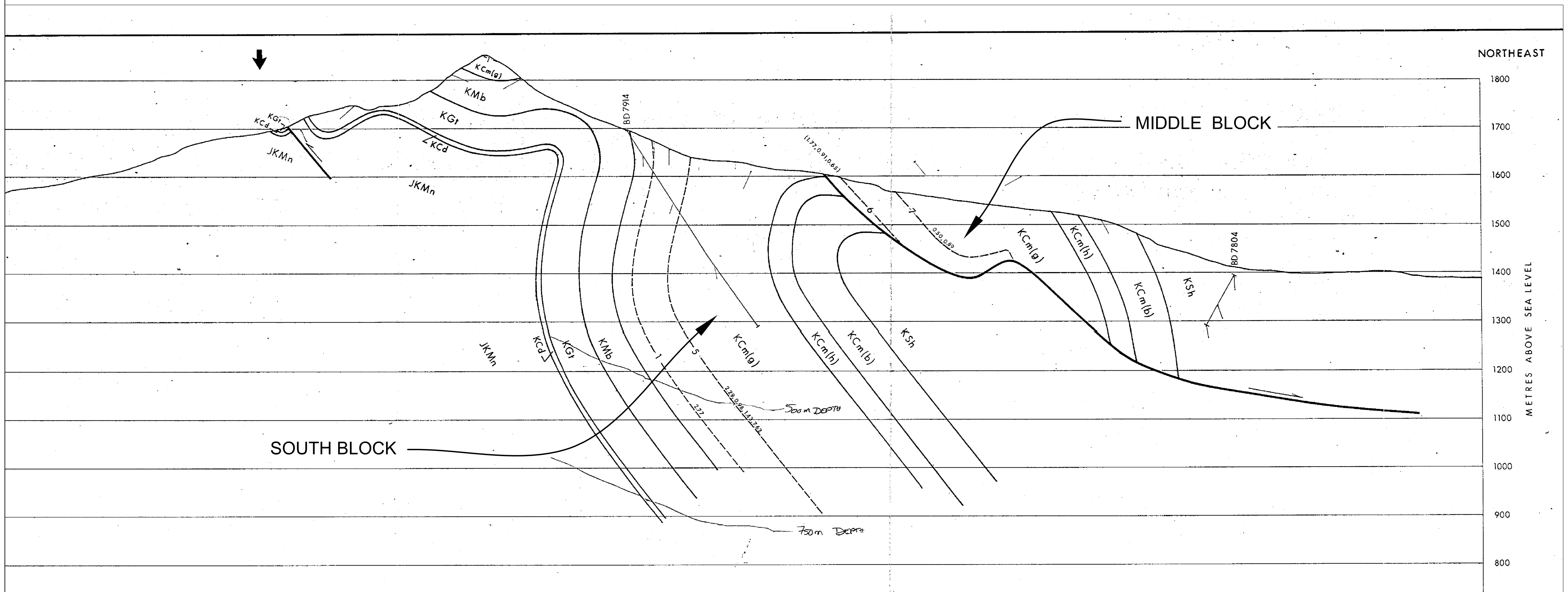
COLONIAL COAL CORP.

PROPERTY GEOLOGY MAP

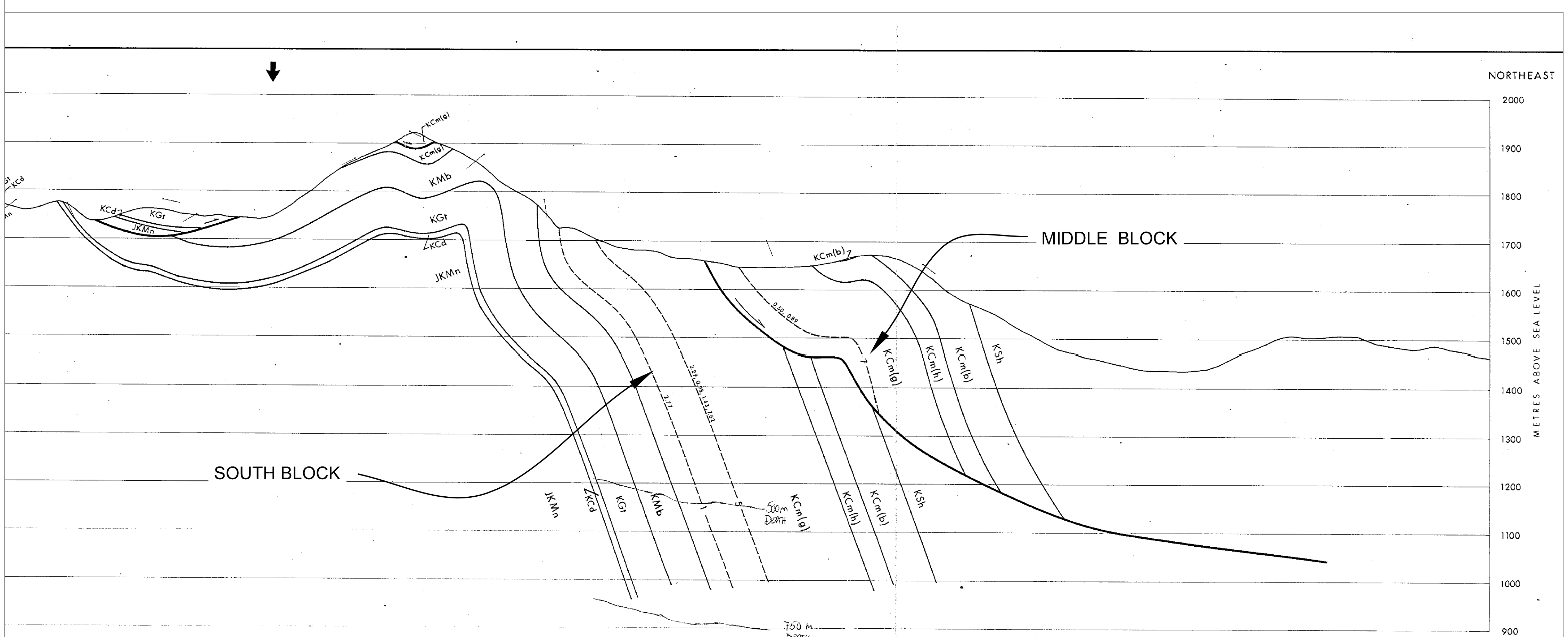
DATE: 08/02/2013 | SCALE: 1"=500'

PROJECT: 497-3

NORWEST CORPORATION



SECTION T21000



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LEGEND:

KSh	SHAFTESBURY FORMATION
KCm(b)	BOULDER CREEK FORMATION
KCm(h)	HULCROSS FORMATION
KCm(g)	GATES FORMATION
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
JKMn	MINNES GROUP
BD7914	DRILL HOLE
	BASELINE LOCATION
	THRUST FAULT
	BEDDING
2.77	TRUE THICKNESS OF COAL SEAM OR INDIVIDUAL COAL SPLIT

SCALE

0 50 100 200 300 400
METRES

NOTE:

TAKEN FROM DENISON (1979b)

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

STRUCTURAL CROSS-SECTIONS
T21000 - T22800

Drawn by:	CVS
Checked by:	JHP
Approved by:	JHP
Revision No.	
Dwg No.	HUG-A-AR-SECSTR-A
Date:	2014-09-17
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Figure No.	4-6

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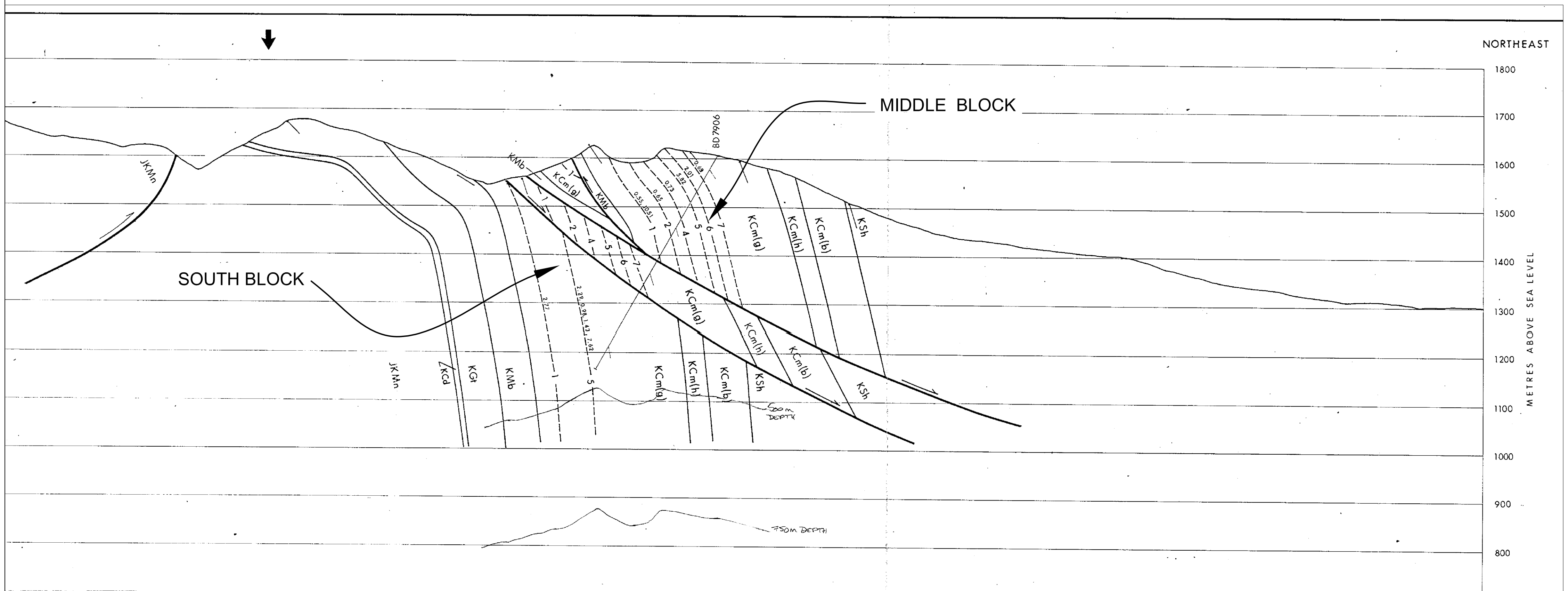

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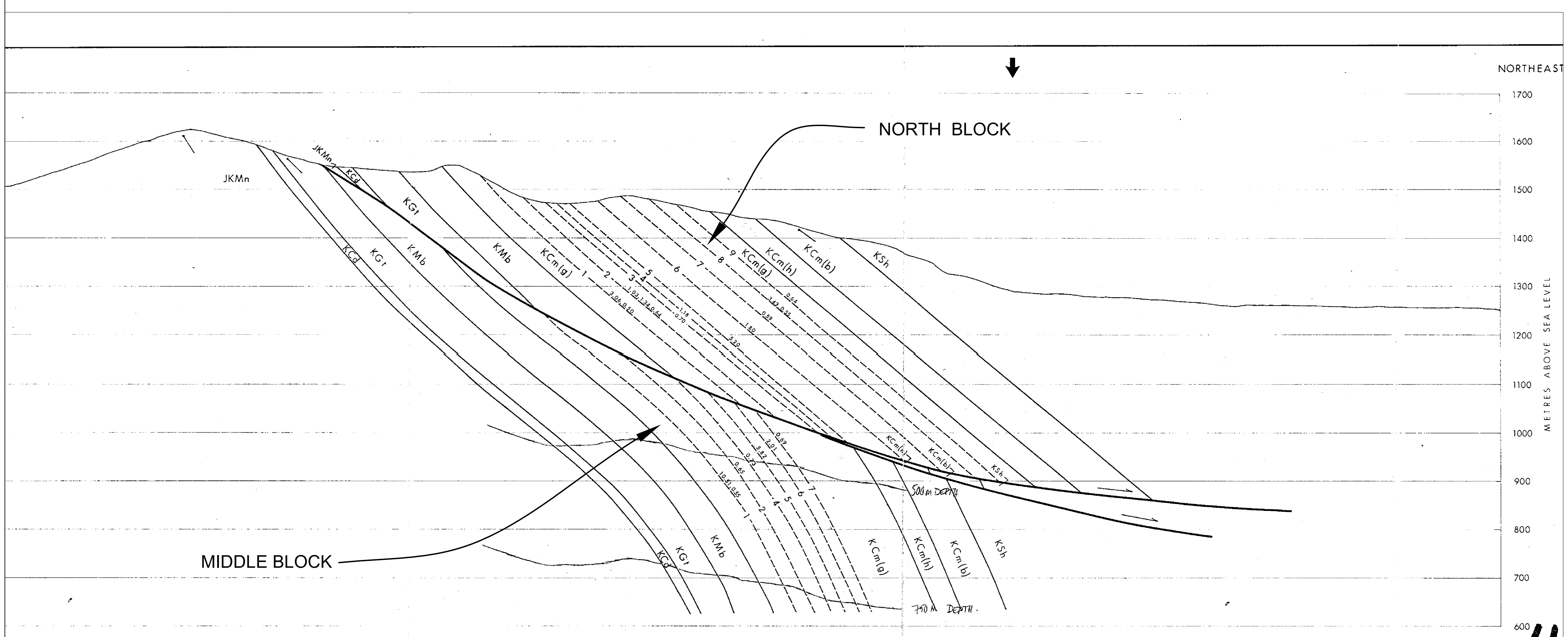

SECTION T27600

LEGEND:

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KCm(h)	HULCROSS FORMATION
KCm(g)	GATES FORMATION
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
JKMn	MINNES GROUP
BD7914	DRILL HOLE
↓	BASELINE LOCATION
	THRUST FAULT
	BEDDING
2.77	TRUE THICKNESS OF COAL SEAM OR INDIVIDUAL COAL SPLIT

SCALE

METRES

NOTE:

TAKEN FROM DENISON (1979b)

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

Drawn by:	CVS	STRUCTURAL CROSS-SECTIONS T24200 - T27600
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Date: 2014-09-17	Document:	Figure No. 4-7

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SECTION 5 COAL SEAM DESCRIPTION

The following summaries of coal seam descriptions and structural geology are presented for each of the North, Middle and South Blocks individually. Based on exploration programs carried out between 2008 and 2012 detailed information is available for all three blocks and resources have been estimated and reported under NI 43-101. In the discussion below, the term 'mining section' refers to that part of a coal seam that is considered to be potentially minable. Mining sections have been defined either from discrete coal seams where all, or most, of the coal-bearing interval forms a single mining section, or as parts of a coal zone where one or more coal layers occurring in relatively close vertical proximity to one another, form separate mining sections. Thin, internal, rock bands, if present, are included in the mining sections but thicker rock bands (in this instance 0.31m or more, as defined in GSC Paper 88-21) are omitted, even though, in practice, some would almost certainly be mined with coal in medium- to large-scale production scenarios. In the discussions presented below, the mining sections are taken to a minimum true thickness of 0.60m. Coal at Huguenot can form discrete coal seams of variable thickness, or form thin seams interbedded with coaly shale and carbonaceous shale to form coal zones which, in themselves, are mappable stratigraphic units Some "zones" consist of only one mappable coal layer/ply where other zones may include multiple mappable coal layers.

5.1 NORTH BLOCK

A total of ten coal seams and/or coal zones are present within the North Block. Seam/coal zone nomenclature used in this report follows that used by Denison across their former Belcourt property; in ascending order they are numbered 1 through 10. The main coal splits that form part of a coal zone are assigned the number of the zone plus a letter. The letter 'A' indicates the lowermost coal split in a series; however, this is complicated in Coal Zone 6 by the presence of coal splits below Seam 6A. Consequently, this part of the zone is referred to as 6 Lower (6L).

All seams/coal zones with the exception of Seams 7 and 10 provide potentially mineable coal intervals. The main coal seams are Seams 1, 5, 6B, and 8; these are the thickest and most laterally continuous of the coal seams. Typically, the minor seams (i.e., 2/2A, 3B/3BL, 3D, 4, 6L, 6A, 6CL, 6D, and 9) meet seam thickness or coal/rock ratio minimums only over portions of the blocks. Seams not considered to be potentially mineable, can still be traced geologically throughout the remainder of the block. Other coal seams/splits such as 3A, 8B and some splits above Seam 9 might locally exceed 0.60m in thickness but are not currently deemed to be persistent enough to present mineable targets.

The distributions of the main Gates coal seams are illustrated in Figure 4-4 while correlations of each of these coal seams are shown in Figures 5-1 to 5-3. Thickness ranges for the coal seams, together with mining section thicknesses extracted from those seams, are presented in Table 5-1. There is no evidence of thickening or thinning of coal seams due to structural deformation.

Table 5-1: North Block Coal Seam & Mining Section True Thickness Ranges

Seam	Seam Thickness (m)		Mining Section (m)		Mining Section Average Thickness
	Overall Minimum	Overall Maximum	Min. (>0.60m)	Max	>0.6m
9	0.22	0.67	0.66	0.67	0.67
8	2.56	3.38	2.56	3.38	3.02
6D	0.27	1.61	0.61	1.61	0.76
$6C_L$	0.22	0.88	0.60	0.60	0.60
6B	1.41	2.76	1.41	2.76	2.19
6L	1.08	4.95	1.08	4.95	1.87
5	3.39	8.34	3.39	8.34	5.93
4_U	0.34	0.84	0.60	0.84	0.71
3D	0.34	0.72	0.65	0.72	0.68
3B	1.25	1.44	1.25	1.44	1.37
$3B_L$	0.48	0.89	0.73	0.89	0.77
2A	0.49	0.89	0.60	0.89	0.72
1	1.49	4.39	1.49	4.39	3.41

Note: The above Seam true thicknesses are from drill data only.

5.1.1 Seam 1

This is the basal seam within the Gates Formation and occurs approximately 40 to 46m above the Moosebar Formation contact and is persistent throughout the property. Seam 1 is consistent throughout the North Block. The true seam thicknesses are the same as those used for the mining sections and range from 1.49m (HR11-01) to 4.39m (HLD12-10). As detailed below two coal splits are present above the top of the main seam. These splits are currently included in the mining section, in the area where the 2012 large diameter cores were obtained, and account for the maximum thickness provided above. Other than these intersections, within the 2012 large diameter core holes, the seam reaches a maximum thickness of 4.39m in borehole HR08-14.

Seam 1 is characterized by a thick, comparatively clean lower section and a thinner (0.50 to 1.50m) upper section that contains one to two thin, carbonaceous claystone bands (Figure 5-1). The top 0.30 to 0.40m of the seam appears to increase in ash toward the southeast end of the block. The roof of the seam is generally composed of carbonaceous claystone to claystone, while the floor comprises 0.40 to 0.50m of claystone with carbonaceous bands that overlie the typically fine- to medium-grained, resistant sandstone of the Torrens member. This seam correlates to Belcourt South's Seam 1 lower (Borntreager et al, 2009).

Seams 1 and 2 are separated by approximately 15m of strata. These consist of almost equal thicknesses of interlaminated, fine-grained sandstones and siltstones at the bottom, fine- to medium-grained, calcareous sandstone in the middle and inter-bedded siltstone and claystone at the top.

5.1.2 Zone 2 (Seam 2A)

Coal Zone 2 typically varies from approximately 3m to 5m thick across the North Block. It consists of one main, relatively clean, basal coal split (2A) overlain by three, thin, coaly plies separated from one another by thin rock bands (Figure 5-1). Only Seam 2A is considered to be of potential economic importance. It always exceeds minimum thickness criteria except in the mid-portions of the Block (as seen in HR08-14 and BD7814). Where this seam thickness exceeds minimum cut-off, it ranges from 0.6m (HR12-08 and HLD12-04) to 0.9m (HLD12-10) in thickness.

Seam 2 and Zone 3 are separated by approximately 6 to 20m of interlaminated siltstones and sandstones and beds of bioturbated, fine-grained, calcareous sandstone. The inter-seam thickness increases from north to south.

5.1.3 Zone 3 (Seams 3B/3B$_L$ and 3D)

This coal zone is composed of four coal splits separated by rock bands of variable thickness. In ascending order, the coal splits are named 3A to 3D (Figure 5-1). The overall thickness of the zone varies from 7.5m (HR08-07) to 14m (HR12-11): most of this thickness range is due to variations in the 3C/3D rock band. Only Seams 3B and 3D; are considered to be of potential economic importance.

Seam 3B lies approximately 1 to 2.5m above 3A. A 0.2 to 0.4m thick rock band is often present in the middle of the seam. Northwest from BD7814, only the lower portion of this seam is thick enough to be considered of potential economic interest, and here it is referred to as Seam 3B lower (3BL). Where it exceeds the minimum mining section thickness, it ranges from 0.7m (HR08-01 and HR12-11) to 0.9m (HR12-08) thick. Southeast of Holtslander Creek, the mining section is represented by the full 3B coal split, which ranges in thickness from 1.25m (HR11-03) to 1.44m (HR11-01). This seam is correlated with Seam 3 at Belcourt South.

Seam 3D is located between 2 to 7m above 3B and forms a clean seam which ranges from 0.3m (HR08-07) to 0.7m (HR11-03) in thickness. It forms a mining section only in the central portion of the North Block in drillholes BD7814 (0.66m), HR08-14 (0.65m) and HR11-03 (0.72m).

The inter-seam separation between Zone 3 and Seam 4 ranges from approximately 57m in the northwest to 30m around Holtslander Creek, and is 18.5m in the southeast. The lower half of the sequence is predominantly calcareous, fine-grained sandstones with siltstone inter-beds; occasional conglomeratic lenses are present in the northwestern portion of the block. The sandstone-siltstone sequence is overlain by approximately 10m of claystone with several thin coal plies; this coaly horizon persist throughout the southern half of the North Block and throughout the Middle and South Blocks. This, in turn, is followed by fine-grained, bioturbated, calcareous sandstone which is in contact with a carbonaceous zone below Seam 4.

5.1.4 Seam 4

Seam 4 typically consists of a lower, high-ash coaly horizon, referred to as 4 lower (4L), overlain by a relatively clean coal split called 4 upper (4U) (Figure 5-2). (Only in the South Block is 4L incorporated into a mining section with 4U). Other than in the northwestern portion of the North Block, Seam 4U always forms a mineable thickness, ranging from 0.60m (HR08-01) to 0.84m (HR11-03).

Seam 4 is separated from Seam 5 by 8.5 to 19.5m of clean, fine-grained, calcareous sandstones with occasional silty laminae. This sequence thickens from northwest to southeast.

5.1.5 Seam 5

Seam 5 is one of the most consistently developed coal seams on the property and maintains potentially mineable thickness over the entire length of the Huguenot deposit. Within the North Block, prospective mining sections vary from 3.39m (HR08-07) to 8.34m (HR11-03) although most intersections are between 5 and 6m thick. Seam 5 is characterized by a relatively clean lower section (typically, 3.0 to 3.5m) and an upper section which contains one to three carbonaceous rock or poor coal bands (Figure 5-2). The most distinctive of these is situated immediately above the lower section and ranges in thickness between 0.2 and 0.3m. One to two thinner rock bands sit above this horizon. Both the floor and roof lithologies of Seam 5 consist of coaly/carbonaceous claystone with occasional thin coal stringers. Seam 5 correlates with Seam 5 at Belcourt South.

The inter-seam separation between the top of Seam 5 and the bottom of Zone 6 varies between approximately 12.5m and 30m. It is thinnest around drillhole HR08-01 but thickens to the northwest and southeast. The sequence is commonly composed of inter-layered claystone and carbonaceous claystone with minor siltstone and fine-grained sandstone lenses. In the southeast, where thickest, the inter-seam sequence is dominated by a fining-upward sequence from coarse- to medium-grained, sandstone; thin conglomeratic lenses may also be present.

5.1.6 Zone 6 (Seams 6L, 6B, $6C_L$ and 6D)

Coal Zone 6 contains five main coal splits separated by rock bands and, often, thin coal plies. This zone exhibits variable thickness. In most of the drillholes, it is approximately 20m thick, although it is about 27m thick in HR08-01, due to the presence of a sandstone lens between the 6A and 6B coal splits. In ascending order, the coal splits of interest are named 6L, 6A, 6B, 6C, and 6D. The vertical separation between these splits varies across the block. In the north, Seams 6L and 6A (Figure 5-2) form a lower coal interval while Seams 6B, 6C, and 6D form an upper interval, with a 9m (HR08-07) to 16m (HR08-01) 6A/6B separation. The thickness between the upper and lower coal intervals decreases towards the central parts of the block such that, around Holtslander Creek, the main coal splits have a more regular distribution through the zone, being separated from one another by between 2 and 5m. South of Holtslander creek, 6L separates from 6A, which appears to stay closer to 6B.

For previous resource estimations, (Perry & Morris 2010) the 6B-6D coal interval was considered to form two mining sections. In the northwest of the block, the lower coal ply of Seam 6C (6CL) was added to Seam 6B to form the composite mining section 6BCL. In the central and southern areas, the interval between 6B and 6CL thickens such that each coal split was evaluated separately; Seam 6D was always reported separately. However, for resource estimations included herein, each coal split is evaluated separately. It should be noted that in most practical mining scenarios, the 6BCD interval represented in the northwest of the block would potentially be mined in its entirety. Here, the 6B – 6D interval ranges between 3.84m (HB08-6CA) and 5.71m (HR08-01) in thickness. As the 2008 “bulk” sample was taken within the northwest part of the North Block, it represented the entire 6BCD interval and was treated as one continuous mining section. The 6BCD interval correlates with 6 Upper at Belcourt South.

Seam 6L is the lowest seam of potential economic importance within this coal zone 6. Within the North Block, 6L forms a concentration of coal splits and highly carbonaceous claystone and coaly bands that increase in coal content towards the southeast. Throughout most of the North Block, the 6L mining section is composed of two coal plies separated by a thin (0.15 to 0.30m) rock band. The mining sections vary in thickness from 1.08m (HR08-10) to 4.95m (HR12-05); they increase in thickness towards the southeast, eventually incorporating higher coal splits due either to a thickening of these splits or thinning of the intervening rock band, or both. The 6L horizon continues to degrade northwesterly to become a carbonaceous-coaly zone at Belcourt South (BD 7801).

Seam 6A in the northern part of the block is situated just above Seam 6L, being separated only by a thin (<1m) rock band. In the central and southern portions of the block, 6L and 6A are separated by approximately 12m. Seam 6A is characterized by a central coal ply with thin rock bands near the floor and roof. It meets thickness cut off criteria in the northwestern parts of the block but has not been included in the resource estimates presented herein. It is poorly developed or absent in the southern half of the block. The 6A-6B interval is quite variable in thickness, ranging from 8.8m (HR08-06) to 15.6m (HR08-01) in the north, but thins to 2.4m in the centre of the block (BD 7814). It is poorly developed or absent in the southern half of the North Block. At Belcourt South, 6A is called 6 Lower.

Seam 6B consistently forms a mining section throughout the North Block. Typically, it has a clean lower half and an upper half that contains one to two thin rock bands (Figure 5-3); the thicknesses of 6B ranges from 1.4m (HLD12-15) to 2.76m (HR11-03). Northwest of Holtslander Creek, the 6B-6C parting decreases to between 0.2 to 0.3m such that the lower ply of 6C could be added to 6B, resulting in the composite mining section, 6BCL. Such a mining section would range in thickness from 2.4m (HB08-6C-B) to 3.3m (HR08-01).

Seam 6C is usually composed of two coal plies separated by a relatively thin rock band. The lower coal ply (6CL) represents good coal while the upper ply (6CU) is high in ash. Ply 6CL meets the 0.60m thickness cut-off only in HD11-11 and HD11-12. As stated above, data from other drillholes demonstrates instances where thinner intersections of 6CL could be incorporated with Seam 6B to form a 6BCL mining section. Where incorporated into the composite mining section 6BCL, the 6CL ply varies between 0.2m and 0.88m in thickness.

Seam 6D is the uppermost seam in Zone 6. It is a relatively clean seam which occasionally has a thin band of high-ash coal or coaly rock near its centre. This seam is consistently developed throughout the North Block although seam thicknesses locally drop below mining section cut-off. Mining sections vary between 0.6m (HR08-07) and 1.6m (HLD12-14).

The inter-seam separation between Zone 6 and Zone 8 typically ranges between approximately 70 and 80m. The inter-seam strata are composed of a sequence of fine-grained sandstones with siltstone inter-beds which fine upward into a claystone to carbonaceous claystone sequence. It should be noted that within the claystone sequence, several uneconomic coal plies and a series of small carbonaceous bands are present; these are loosely referred to as Zone 7. The strata of above Zone 7 contain occasional sandstone and siltstone interbedded lenses.

5.1.7 Zone 8 (Seam 8)

This coal zone is composed of two component seams called 8 and 8B. Overall, this zone ranges in thickness from approximately 5m (HR08-06) to 7m (HR11-11).

Seam 8 ranges from approximately 2.6m (HR12-01) to 3.4m (HB08-8A) and is characterized by relatively thick lower and upper coal plies, separated by a rock band (Figure 5-3). The lower coal ply varies in thickness from approximately 1.20 to 2.10m, contains a thin 0.2 to 0.3m rock band near its top and has a thick, relatively clean, bottom section. The main rock band varies in thickness between approximately 0.3 and 0.7m and sometimes contains a thin coal ply. The upper ply typically ranges in thickness from 0.8 to 1.3m, has a clean top half and a high-ash bottom section due to one to two thin rock bands. A thin rider is situated between approximately 0.2 and 0.4m above the main seam. Although in some instances, the internal rock band might exceed NI

43-101 guidelines, in most practical mining scenarios the Seam 8 can be expected to be mined in its entirety. The 2008 bulk sample treated the entire coal seam, accordingly.

The separation between Zone 8 and Seam 9 ranges between approximately 13 to 19m, although for most of the block it is at the higher end of this range. The strata consist of fine- to medium-grained, siliceous sandstone which grades upward into a claystone/siltstone sequence, followed by a carbonaceous interval which forms the floor of Seam 9.

5.1.8 Seam 9

Seam 9 is a thin coal seam that tops a coaly to carbonaceous interval (Figure 5-3). Mining thicknesses are restricted to the southern half of the North Block and range from 0.66m (BD7814) to 0.67m (HD11-11).

The separation between Seam 9 and Zone 10 is approximately 18m and consists of variable thicknesses of interbedded siltstone and claystone with sandstone horizons.

5.1.9 Zone 10

Zone 10 has been intersected only in holes HD11-11 and HD11-12 where it comprises a pair of thin coal seams separated from one another by approximately 1m of rock. Neither of these thin seams offer economic potential in the North Block.

5.1.10 Structure

The structural geology of the North Block is illustrated on the structure contour maps for Seams 1, 5 and 8 (Figure 5-4) and is shown on the cross-sections (Figures 5-5 to 5-8). The North Block sits structurally above the Holtslander North Thrust Fault. Gates Formation coal measures occupy the western limb of a broad synclinal structure called the Holtslander Synclinorium. In the northwest, the strata are near homoclinal with moderate (approximately 45°) north-easterly dips. To the south, the strike swings easterly such that, in the southeast, dips are to the north. They are also steeper in the southeast, reaching approximately 50°. Dip values decrease at depth to between 30° and 35°, reflecting proximity to the axial zone of the syncline.

5.2 MIDDLE BLOCK

A total of ten coal seams and/or coal zones are present within the Middle Block. All seams/coal zones with the exception of Seam 7 provide potentially mineable coal intervals. The main coal seams are Seams 1, 5, 6L, and 8; these are the thickest and most laterally continuous of the coal seams. Apart from Seam 10 (locally high in ash) and Seam 6D (usually high ash) all other minor seams (i.e., 2/2A, 3B, 4U, 6B and 9) meet seam thickness and coal/rock ratio minimums across the Middle Block. Where Seams 10 and 6D are not considered potentially mineable, they can still be traced geologically. Coal seams in the Middle Block are progressively terminated towards the south by the Holtslander South Thrust Fault such that the lowermost seams only extend as far south as the central portion of the block. Only seams stratigraphically higher than Seam 6B are present at the southern end of the block.

The distributions of the main Gates coal seams are illustrated in Figure 4-4 while correlations of each of these coal seams are shown in Figures 5-9 to 5-11. Thickness ranges for the coal seams, together with mining section thicknesses extracted from those seams, are presented in Table 5-2. Occasional fault repeats are present in the section as are some instances of fault-thinning. Seam thicknesses provided below exclude any structural thickened or thinned values.

Table 5-2: Middle Block Coal Seam & Mining Section True Thickness Ranges

Seam	Seam Thickness (m)		Mining Section (m)		Mining Section Average Thickness
	Overall Minimum	Overall Maximum	Min (>0.60m)	Max	>0.6m
10	0.60	0.98	0.60	0.98	0.73
9	0.64	0.96	0.64	0.96	0.77
8	1.27	2.71	1.27	2.71	1.72
6D	0.48	0.83	0.66	0.83	0.74
6B	0.64	1.24	0.64	1.24	0.89
6L	1.86	4.98	1.86	4.98	3.27
5	4.37	9.71	4.37	9.71	6.55
4_U	0.75	1.58	0.75	1.58	1.10
3B	0.61	1.08	0.61	1.08	0.82
2HI	0.23	0.98	0.98	0.98	0.98
2EF	0.73	1.43	0.99	1.43	1.21
2D	0.41	1.32	1.09	1.32	1.20
2A	0.70	2.17	0.70	2.17	1.07
1	3.77	9.94	3.77	9.94	7.88

Note: The above Seam true thicknesses are from drill data only.

5.2.1 Seam 1

Seam 1 is essentially the same as seen in the North Block. That is, it is a consistently developed seam characterized by a thick, comparatively clean lower section and a thinner upper section that contains one to two thin, carbonaceous claystone bands (Figure 5-9). Mining sections range from 3.8m (HR11-09) to 10.0m (HD12-06) and the seam thickens from north to south. Localized thinning of Seam 1, similar to that seen in the southeastern portion of the North Block (HR11-01) does not appear to be present. Seam 1 is not present in the southern half of the Middle Block, as it is truncated to the south against the Holtslander South Thrust Fault. Inter-seam separation between Seams 1 and 2 measures approximately 2.5m to 8m. The strata consist of a coarsening-upward sequence of claystones with some thin coaly horizons at the base to interlaminated, fine-grained sandstones and siltstones at the top.

5.2.2 Zone 2 (Seams 2A, 2D, 2EF and 2HI)

Coal zone 2 typically varies from approximately 3.3 to 13.19m thick. It is similar to the North Block in that it consists of one main, relatively clean, basal coal split (2A) overlain by three, thin, coaly plies (2D / 2EF / 2HI) separated from one another by thin rock bands (Figure 5-9). Seam 2A exceeds minimum thickness criteria across the block, ranging from 0.70m (HR11-06) to 2.17m (HR11-12) thick. Seams 2D, 2EF and 2HI only exceed minimum true thickness criteria in the central part of the Middle Block in drillholes HR11-12 (2D = 1.32m; 2EF = 0.99m; 2HI = 0.98m) and HD12-06 (2D = 1.09m; 2EF = 1.43m) As with Seam 1, Zone 2 is not present in the southern half of the block as it terminates against the Holtslander South Thrust Fault. Zone 2 and Zone 3 are separated by between approximately 22 to 38m of interlaminated siltstones and sandstones. Claystone horizons are present immediately below Zone 3.

5.2.3 Zone 3 (Seam 3B)

This coal zone is composed of four coal splits separated by rock bands of variable thickness. In ascending order, the coal splits are named 3A to 3D. The overall thickness of the zone varies from approximately 5.3m (HR11-09) to 6.3m (HLD11-03). Within the Middle Block, only Seam 3B (Figure 5-9) is considered to be of economic importance.

Seam 3B lies approximately 1.5m above 3A. It varies between 0.61m (BD7906) and 1.08m (HLD11-03) in thickness and exhibits similar characteristics to those in the southern half of the North Block, particularly the presence of a thin rock band near the middle of the seam.

The inter-seam separation between Zone 3 and Seam 4 ranges from 35m in the northwest to approximately 50m in the central-south part of the block. This is a mixed sequence of sandstone with occasional thin conglomeratic lenses, and inter-bedded siltstone and claystone horizons. At Pika Creek, the sandstones likely represent channels as they vary from only a few meters in thickness to approximately 15 to 20m over short distances (as may be seen in HLD11-03, HR11-09 and HR11-06). Such thick sandstones have not yet been encountered elsewhere within this sequence. Typically, a coaly zone consisting of three to four coal splits over a 3 to 5m interval is present just below Seam 4. This horizon (CZ4L) persists throughout the southern half of the North Block and throughout the Middle and South Blocks.

5.2.4 Seam 4

Seam 4 typically consists of a lower, high-ash coaly horizon, referred to as 4 lower (4L) overlain by a relatively clean coal split called 4 upper (4U) (Figure 5-9). Throughout the Middle Block, Seam 4U always forms a mineable thickness, ranging from 0.75m (BD7906) to 1.58m (HLD11-03).

In the northern part of the Middle Block, Seam 4 is separated from Seam 5 by about 26m. This comprises a coarsening-upward sequence of siltstone, silty sandstones, and sandstones, eventually succeeded by a 2 to 4m of interbedded claystone/siltstone and sandstone that immediately underlies Seam 5. The inter-seam sequence thins to the southeast, such that, in the mid-portion of the block, it is approximately 12.5m thick. Here, while the sequence still coarsens upward, the strata are finer grained and the sandstones are essentially missing.

5.2.5 Seam 5

Seam 5 mining sections vary from 4.4m (HD11-04) to 9.7m (BD7805). From north to south, this seam extends approximately three-quarters of the way through the Middle Block and terminates against the Holtslander South Thrust Fault southeast of drillholes HD11-04 and BD7805.

As seen in the North Block, this seam is characterized by a relatively clean lower half and an upper half that contains one to three carbonaceous rock or poor coal bands (Figure 5-10). The most distinctive of these is situated immediately above the lower half; another distinctive rock band is sometimes present near the top of the seam. Both floor and roof lithologies of Seam 5 consist of coaly/carbonaceous claystone with occasional thin coal stringers.

The inter-seam separation between the top of Seam 5 and the bottom of Zone 6 varies between approximately 12m and 50m, although it commonly varies between 23m and 36m. It is thinnest around drillhole BD7805 and thickest in drillhole HD11-08. The sequence is commonly composed of inter-layered claystone, siltstone and sandstone lenses; thicker sandstone units, possibly representing channel sands are often present at differing horizons within this sequence. A thin coal horizon may occasionally be present near the middle of the sequence.

5.2.6 Zone 6 (Seams 6L, 6B and 6D)

The most important coal seams within Coal Zone 6 are Seams 6L, 6B and 6D. The other seams (6A and 6C) are often represented but, where present, they either do not attain potentially economic thickness or they contain too many (or thick) rock bands. This coal zone varies in thickness from approximately 30m to 49m; the wide thickness range is often due to the presence of sandstone lenses. Seam 6L is separated from the sequence that contains 6A - 6D; this separation typically comprises 65 % to 75 % of the overall zone thickness.

Seam 6L is the lowest seam of potential economic importance within Coal Zone 6. It forms a far more “coherent” coal seam than is present throughout most of the North Block, although coal splits are often present in the roof and/or floor. Throughout most of the block, the 6L mining section contains two to three rock bands. Mining section thickness varies from 1.9m (BD 7805) to 5.0 m (HD11-08).

Seam 6B, while thin, consistently forms a mining section throughout the Middle Block. It is a relatively clean seam and ranges in thickness from 0.64m (HR11-04) to 1.24m (HR11-15).

Seam 6D is the uppermost seam in Zone 6. It forms a mining section only at the southeastern end of the property in drillholes BD7805 (0.66m) and HD11-03 (0.83m). Seam 6D thickness falls below the minimum mining thickness or is relatively dirty for the remainder of the Middle Block.

The inter-seam separation between Zone 6 and Zone 8 typically ranges between approximately 64 and 86m. The inter-seam strata are composed of a sequence of fine-grained sandstones with siltstone inter-beds and interbedded siltstone and claystone a number of coal splits are present over a wide interval; these form a loosely defined Zone 7. None of the Zone 7 coal splits are currently considered to have economic potential.

5.2.7 Seam 8

Seam 8 ranges from approximately 1.27m (HR11-04) to 2.71m (HLD11-01) in thickness. In most drillhole intersections it is characterized by a relatively thick lower coal ply with one or more rock bands in the upper half of the seam (Figure 5-11). In the northern half of this block, Seam 8 is essentially the same as that described for the North Block. The rock bands thicken towards the south such that the potential mining sections need to be adjusted to eliminate one or more rock bands in the upper parts of the seam in order to maintain acceptable coal: rock ratios. The thin rider seen in the North Block is sometimes present. Seam 8B is not present in the Middle Block.

The separation between Seams 8 and 9 thickens from north to south, ranging from approximately 13 to 20m. The strata mostly consist of finer-grained lithologies with occasional thin sandstone horizons, except for the central area, where a thick sandstone occupies the lower part of the sequence.

5.2.8 Seam 9

Seam 9 is a consistently thin coal seam that occurs throughout the block. One or two thin coal splits are often present in the roof (Figure 5-11). Mining thickness ranges from 0.6m (HR11-04) to 1.0m (HR11-07).

The separation between Seam 9 and Seam 10 varies from approximately 7.5m to 12.5m and typically comprises variable thickness of interbedded siltstone and claystone with sandstone horizons which sometimes demonstrate a gentle coarsening-upward sequence until just below Seam 10.

5.2.9 Seam 10

Seam 10 has been intersected across the Middle Block. It forms a single seam with one or two very thin rock bands and ranges in thickness from 0.60m (HR11-11) to 1.0m (HD11-06).

5.2.10 Structure

The structural geology of the Middle Block is illustrated on the structure contour maps for Seams 1, 5 and 8 (Figure 5-12) and is shown on the cross-sections (Figures 5-13 to 5-19). The Middle Block sits structurally below the Holtslander North Thrust and above the Holtslander South Thrust. The coal measures occupy the western limb of a broad synclinal structure called the Holtslander Synclinorium. At the northern end of the Middle Block the strata dip northeasterly, between 45° and 55°. Dip values increase to between 50° and 85° towards the centre of the block, decreasing to between 30° and 65° at the southern end. A northerly-trending, open, upright, anticline-syncline pair is mapped along the eastern edge of the thrust slice. These structures are interpreted to affect the Holtslander South Thrust as well as the overlying coal measures.

5.3 SOUTH BLOCK

Of the 10 coal seams and/or coal zones present within the South Block, all seams/coal zones except 3, 7 and 10 provide potentially mineable coal intervals. The thickest and most laterally continuous of the coal seams are Seams 1-2Z, 4, 5, and 6L; Seams 6B, 6D, 8 and 9 are present only in the southern half of the block. The distribution of the Gates coal measures within the South Block is largely determined by the presence and attitude of the Holtslander South Thrust Fault. Surface traces of the stratigraphically higher coal seams (above 6L) are progressively terminated towards the north by this thrust fault. This fault also determines the northern limit of the coal seam traces and of the South Block as defined herein.

The distributions of the main Gates coal seams are illustrated in Figure 4-4 while correlations of each of these coal seams are shown in Figures 5-20 and 5-21. Thickness ranges for the coal seams, together with mining section thicknesses extracted from those seams, are presented in Table 5-3. Occasional fault repeats are present in the section as are some instances of fault-thinning. Seam thicknesses provided below exclude any such fault-thickened or -thinned values. Structurally thickening other than by recognisable fault repeats has not been described within this block.

Table 5-3: South Block Coal Seam & Mining Section True Thickness Ranges

Seam	Seam Thickness (m)		Mining Section (m)		Mining Section Average Thickness
	Overall Minimum	Overall Maximum	Min. (>0.60 m)	Max	>0.6 m
9	0.19	0.62	0.62	0.62	0.62
8	0.64	1.95	0.64	1.95	0.96
6D	0.39	0.79	0.79	0.79	0.79
6B	0.58	0.92	0.85	0.92	0.89
6L	1.48	4.98	1.48	4.98	3.00
5	2.59	6.65	2.59	6.65	4.37
4_U	1.43	2.32	1.43	2.32	1.93
2z	2.00	5.18	2.00	5.18	3.64
1	1.44	3.71	1.44	3.71	2.99

Note: The above seam thicknesses are from drill data only.

5.3.1 Seam 1

Seam 1 mining sections range from 1.4m (HD11-07) to 3.7m (HD12-02), although throughout most of the South Block this seam exceeds 2.7 m in thickness. The seam is thinnest in the northern third of the block, ranging between 0.6m (HD11-05) and 1.4m (HD11-07). Seam 1 is essentially the same as seen in the other two blocks (Figure 5-20), with the exception of HD11-05 (0.58m), where the seam is considerably thinner; it is not clear if this is due to stratigraphic or structural reasons.

Throughout the South Block, Zone 2 lies in very close proximity to Seam 1, essentially forming one overall coal zone. The greatest rock thickness between the two seams is 2.30m (HD11-05) but, generally, this rock band is less than 0.40m thick.

5.3.2 2 Zone

Coal Zone 2 typically consists of three main coal splits, separated by two rock bands; other minor rock bands may be found within each of the main coal splits. Individual coal split and rock band thicknesses vary, but the zone maintains reasonably constant characteristics throughout all of the drilled intersections (Figure 5-20). Overall zone thickness ranges from 2.0m (HD11-07) to 5.2m (BD7914).

Zone 2 is separated from Seam 4 by approximately 60m to 105 m. The lower strata are composed principally of interlayered sandstone and conglomerate while the upper strata comprise a mixed sequence of interbedded siltstone, claystone and sandstone. Coal Zone 3 is represented only by Seam 3D, which is always too thin to comprise a mining section. Seam 3D is situated in the upper parts of the interseam sequence, approximately 9m to 23m below Seam 4. Seam 3D is overlain by the coaly zone referred to as CZ4L; the separation between this coaly zone and Seam 4 increase southwards, from 2m in HD11-05 to 13m in HD11-02.

5.3.3 Seam 4

Seam 4 is a combination of the upper and lower splits (Figure 5-20). The lower portion is composed either of several, thinly-interlayered coal plies and rock bands, or two coal plies separated by one thin rock band, plus a thin rock band that separates 4L from 4U. Typically, this latter rock band is only one or two decimetres thick. The upper coal split is comparatively clean of rock bands. Overall, Seam 4 ranges in thickness from 1.43m (BD7914) to 2.32m (HD11-07).

At the northern end of South Block, Seams 4 and 5 are separated by approximately 15m of coarsening-upward strata, represented by siltstone, silty sandstones, and sandstones. These are overlain by 2m to 4m of interbedded claystone and siltstone immediately below Seam 5. The inter-seam sequence thins rapidly to the southeast, such that south of HD11-05 the thickness stays within the range of approximately 0.70m to 4.5m.

5.3.4 Seam 5

Seam 5 mining sections vary from 2.59m (HD11-01) to 6.65 m (HD11-07). As seen throughout the other blocks, this seam is characterized by a relatively clean lower half and an upper half that contains one to three carbonaceous rock and poor coal bands (Figure 5-20). This seam thins from north to south, due to the loss of the uppermost coal ply (or plies) and associated rock band(s). The seam floor comprises a coaly zone consisting of thin coal plies and carbonaceous claystone.

The inter-seam separation between Seam 5 and Zone 6 (i.e. 6L) varies between approximately 31 to 47.5m, although most of the intersections extend over the narrower range of 31 to 38m. The bottom portions of the inter-seam sequence comprise claystone - siltstone that, in the south, contains a thin channel sandstone unit. This is overlain by a predominantly sandstone – siltstone, fining-upward sequence, with interbedded claystone at the top.

5.3.5 Zone 6

Seam 6L is the most important coal seam within Coal Zone 6. Mining sections of Seams 6A and 6D are limited to the southern end of the block. In the southern part of this block, Zone 6 varies in thickness from approximately 32m to 66m. Most of this thickness range is attributed to the presence of sandstone lenses within the thicker intervals. Similar to the Middle Block, Seam 6L is separated from 6A - 6D; this separation typically comprises 75 % to 80 % of the overall zone thickness.

Seam 6L is the only seam of economic importance within Coal Zone 6 with mining section thickness varying from 1.48m (BD 7914) and 4.98m (HD11-02). It typically contains two rock bands; one is located near the roof and the other just above the floor (Figure 5-21). The floor of this seam occasionally comprises a coaly zone consisting of thin coal splits and stringers and highly carbonaceous claystone.

Seam 6B, while thin, forms a mining section in drillhole HD12-03. It is intersected in HD12-03 twice due to a fault repeat ranging in thickness from 0.85m to 0.92m.

Seam 6D is the uppermost seam in Zone 6. It forms a mining section only in drillhole HD12-03 (0.79m).

The inter-seam separation from the top of Zone 6 to Seam 8 is approximately 107m. The sequence consists of interbedded claystone and siltstone with thin, fine-grained sandstone layers. A number of coal splits are present over a wide interval; these form a loosely defined Coal Zone 7; none of these splits are currently considered to have economic potential.

5.3.6 Seam 8

Seam 8 ranges from approximately 0.64m (HD11-09 and HD12-03) to 1.95m (HD11-01). It is characterized by two coal splits, each of similar thickness to one another, separated by a rock band. In some intersections, a thinner, rock band – coal ply pair is present at the top of the seam (Figure 5-21); this might be equivalent to the rider seam seen elsewhere. Seam 8B is not present in the South Block.

The separation between Seams 8 and 9 is approximately 15m to 26m. The strata mostly consist of interbedded claystone and siltstone with occasional, thin, fine-grained sandstone layers.

5.3.7 Seam 9

Seam 9 is a consistent, thin coal seam that occurs throughout the block. One or two very thin rock bands may be present near the top of the seam. Seam thickness ranges from 0.19m (HD12-01) to 0.62m (HD11-01); the latter represents the mining section thickness for this block (Figure 5-21).

5.3.8 Structure

The structural geology of the South Block is illustrated on the structure contour maps for Seams 1, 5 and 8 (Figure 5-22) and is shown on the cross-sections (Figures 5-13 to 5-16). The South Block forms the lowest structural unit. Most of the coal seams are contained within steep, easterly-dipping beds (60° and 75°) which steepen towards the south (70° and 85°); they are often overturned along their up-dip sections (to provide steep, southwesterly dips). These strata form the eastern limb of an asymmetric anticline, the fold axis of which almost defines the western limit of the coal measures. This anticline may represent the eastern side of a large northerly-trending, box fold.

NORTH BLOCK (SEAMS 1, 2A, 3B/3BL& 3D)

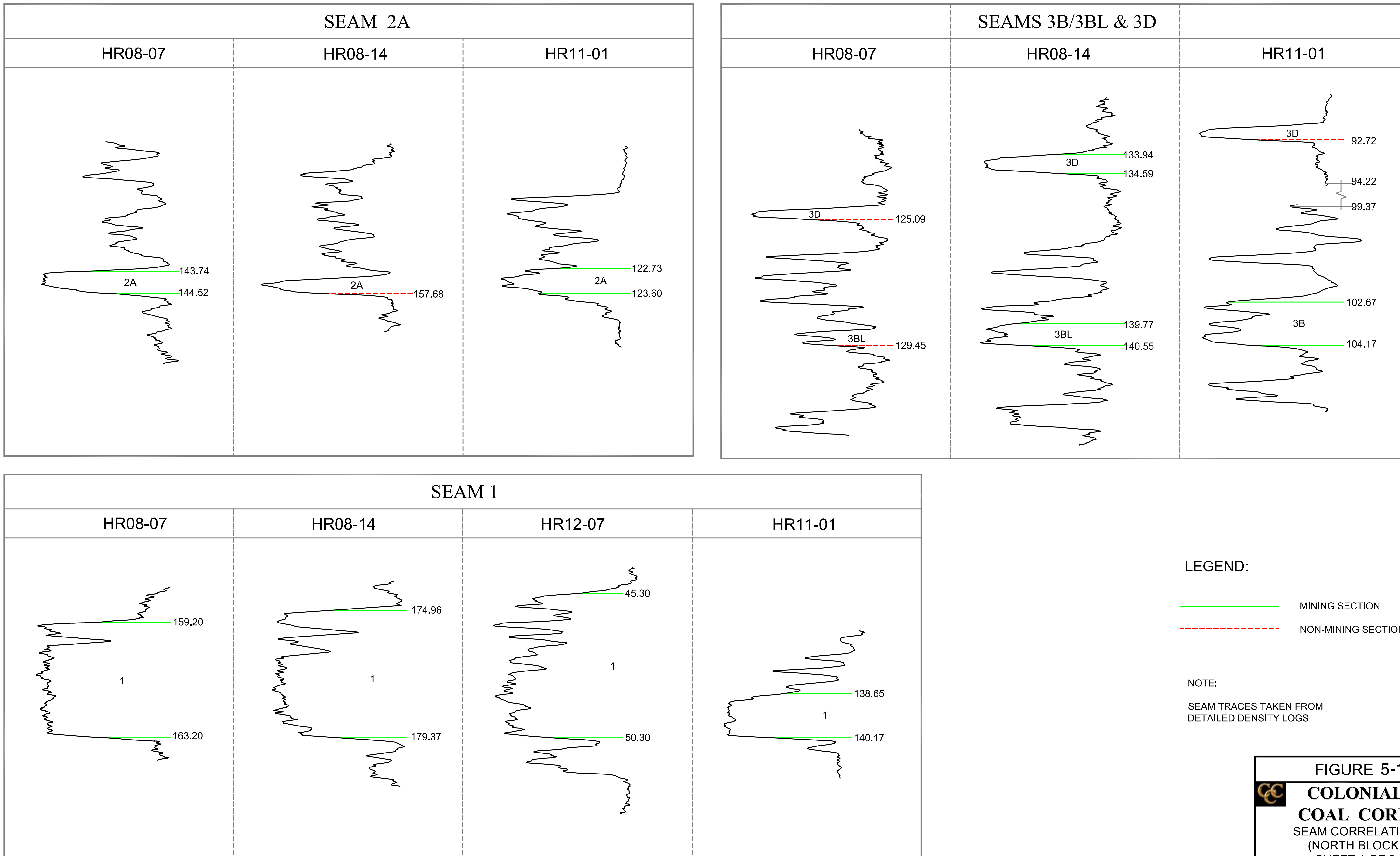


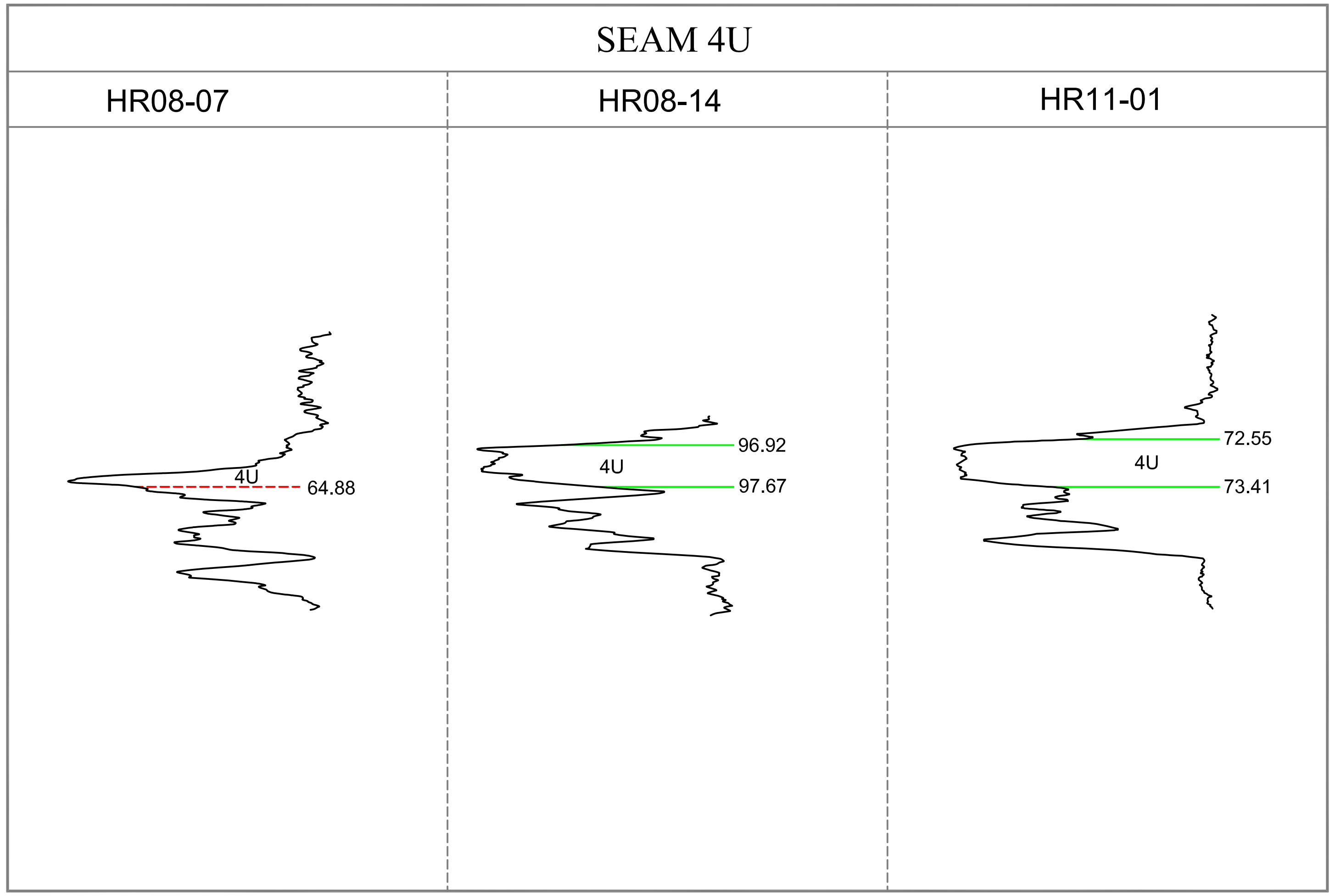
FIGURE 5-1

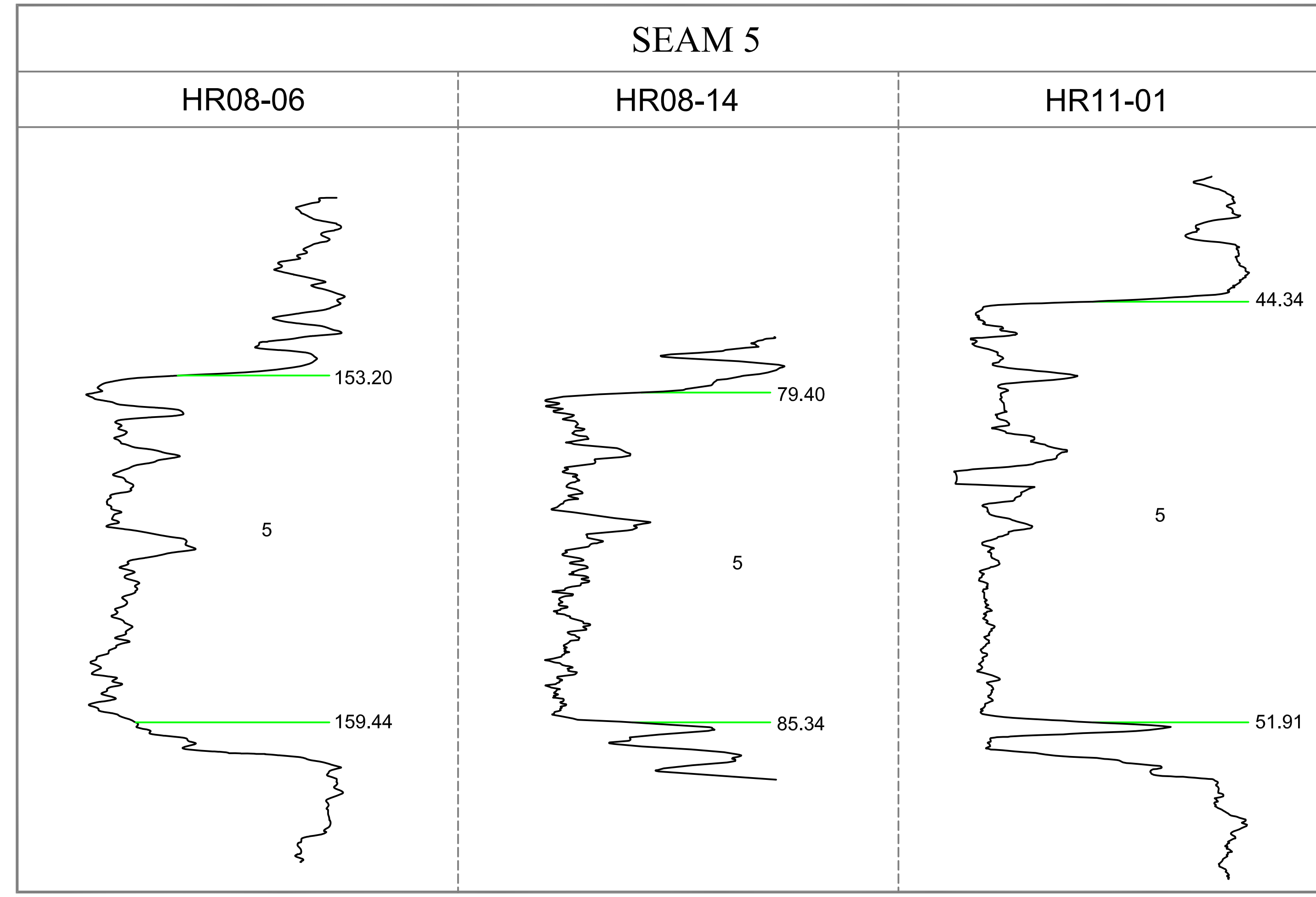
COLONIAL COAL CORP.

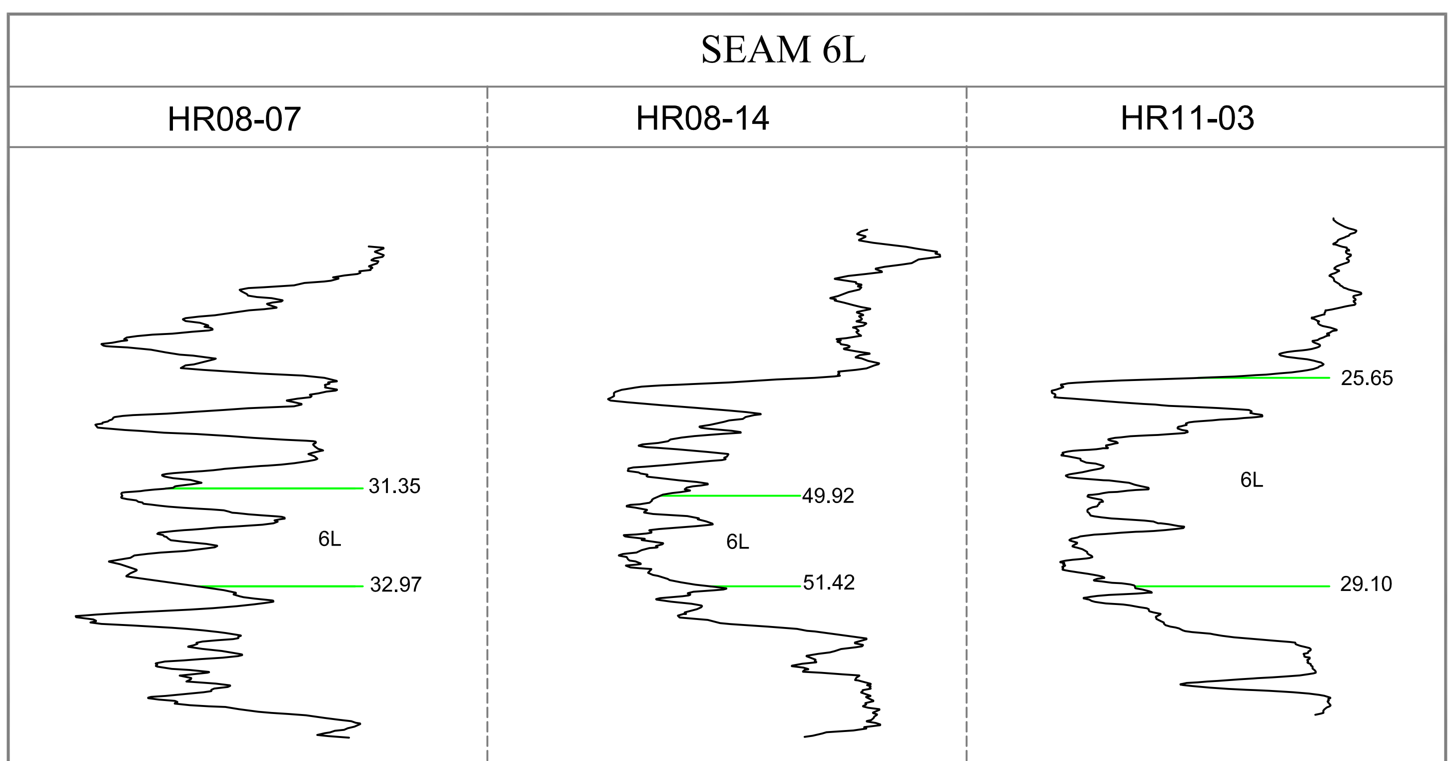
SEAM CORRELATION
(NORTH BLOCK)
SHEET 1 OF 3

DATE: 08/02/2013	SCALE:	NORWEST CORPORATION
PROJECT: 497-3	N.T.S.	

NORTH BLOCK (SEAMS 4U, 5 & 6L)







LEGEND:

MINING SECTION

NON-MINING SECTION

NOTE:

SEAM TRACES TAKEN FROM DETAILED DENSITY LOGS

FIGURE 5-2

COLONIAL COAL CORP.

SEAM CORRELATION (NORTH BLOCK)

SHEET 2 OF 3

DATE: 08/02/2013	SCALE:	NORWEST CORPORATION
PROJECT: 497-3	N.T.S.	

NORTH BLOCK (SEAMS 6B, $6C_L$, 6D, 8 & 9)

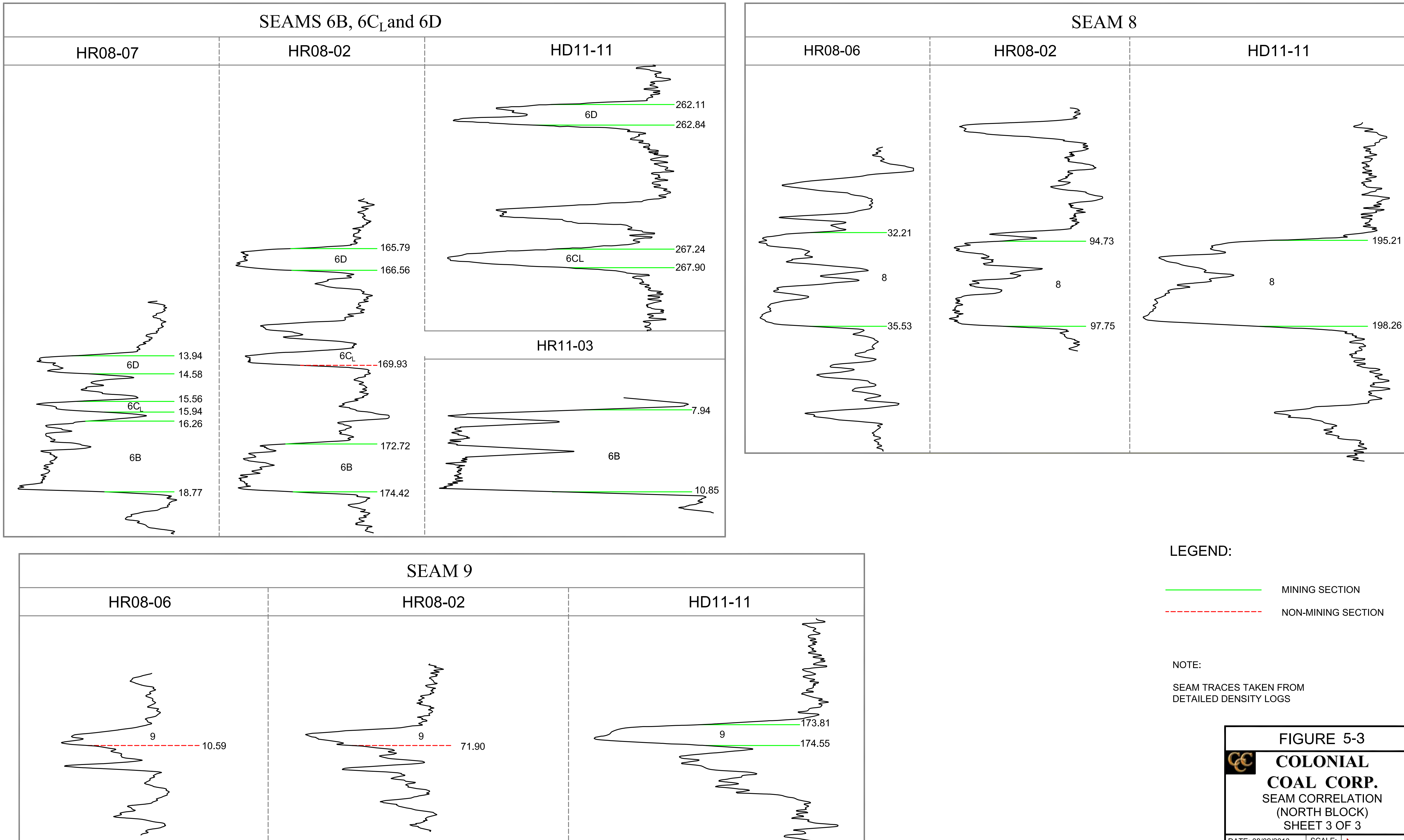


FIGURE 5-3

COLONIAL COAL CORP.

SEAM CORRELATION
(NORTH BLOCK)
SHEET 3 OF 3

DATE: 08/02/2013	SCALE: N.T.S.	NORWEST CORPORATION
PROJECT: 497-3		

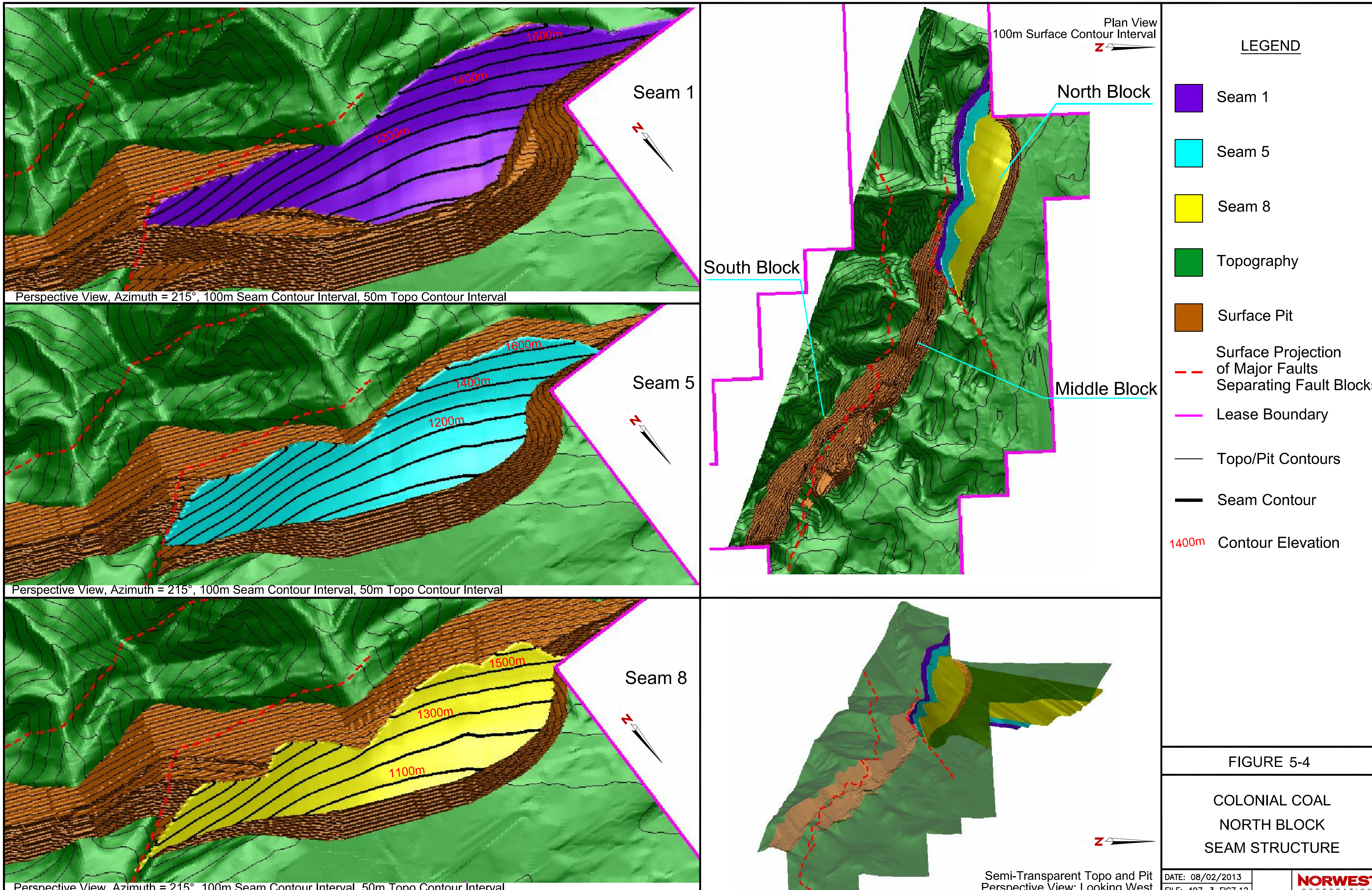
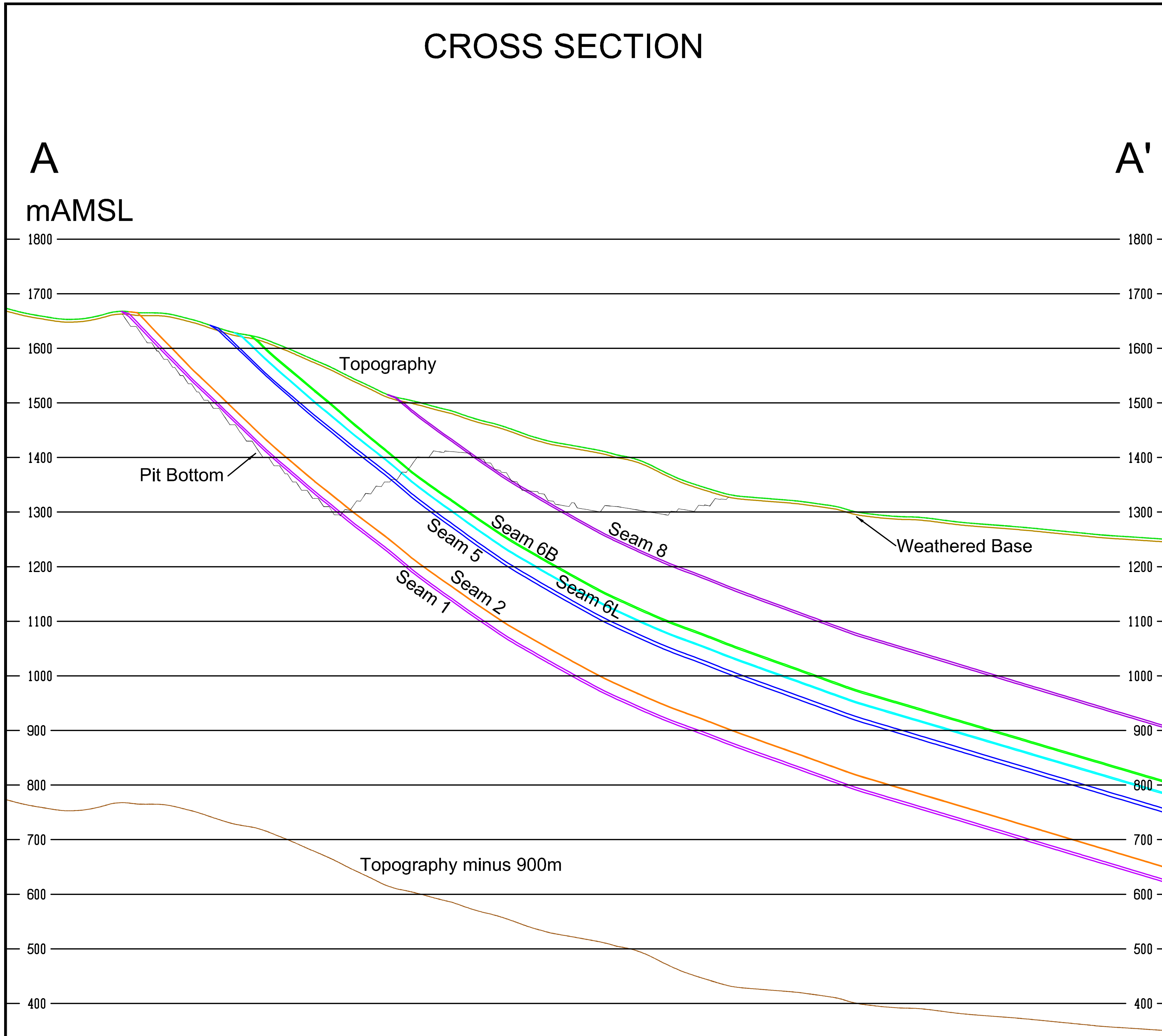
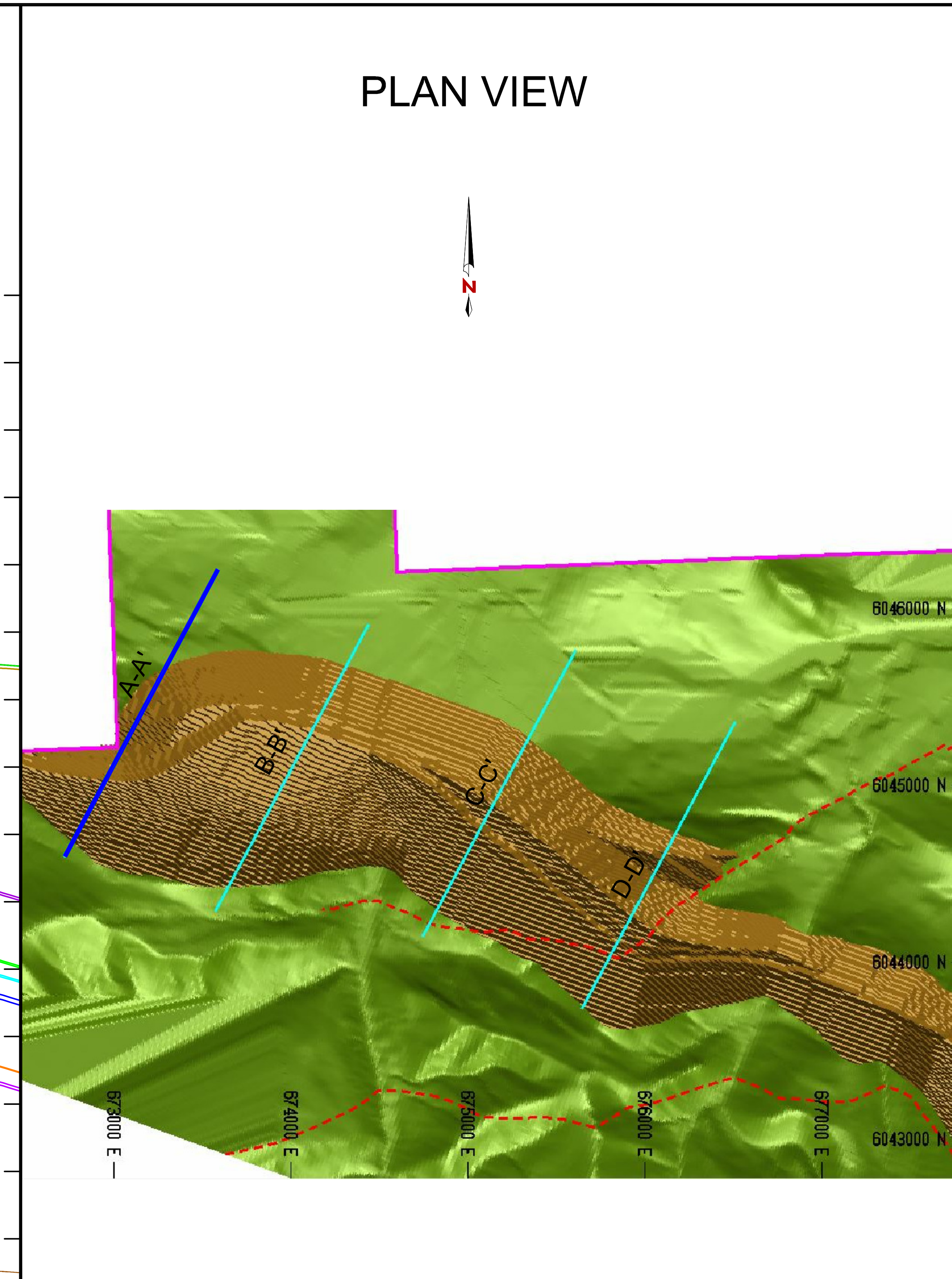


FIGURE 5-4

COLONIAL COAL
NORTH BLOCK
SEAM STRUCTURE





CROSS SECTION

- Fault
- Topography
- Pit Bottom
- Weathered Base
- Topo Minus 900m
- Seam 1
- Seam 2
- Seam 5
- Seam 6L
- Seam 6B
- Seam 8

PLAN VIEW

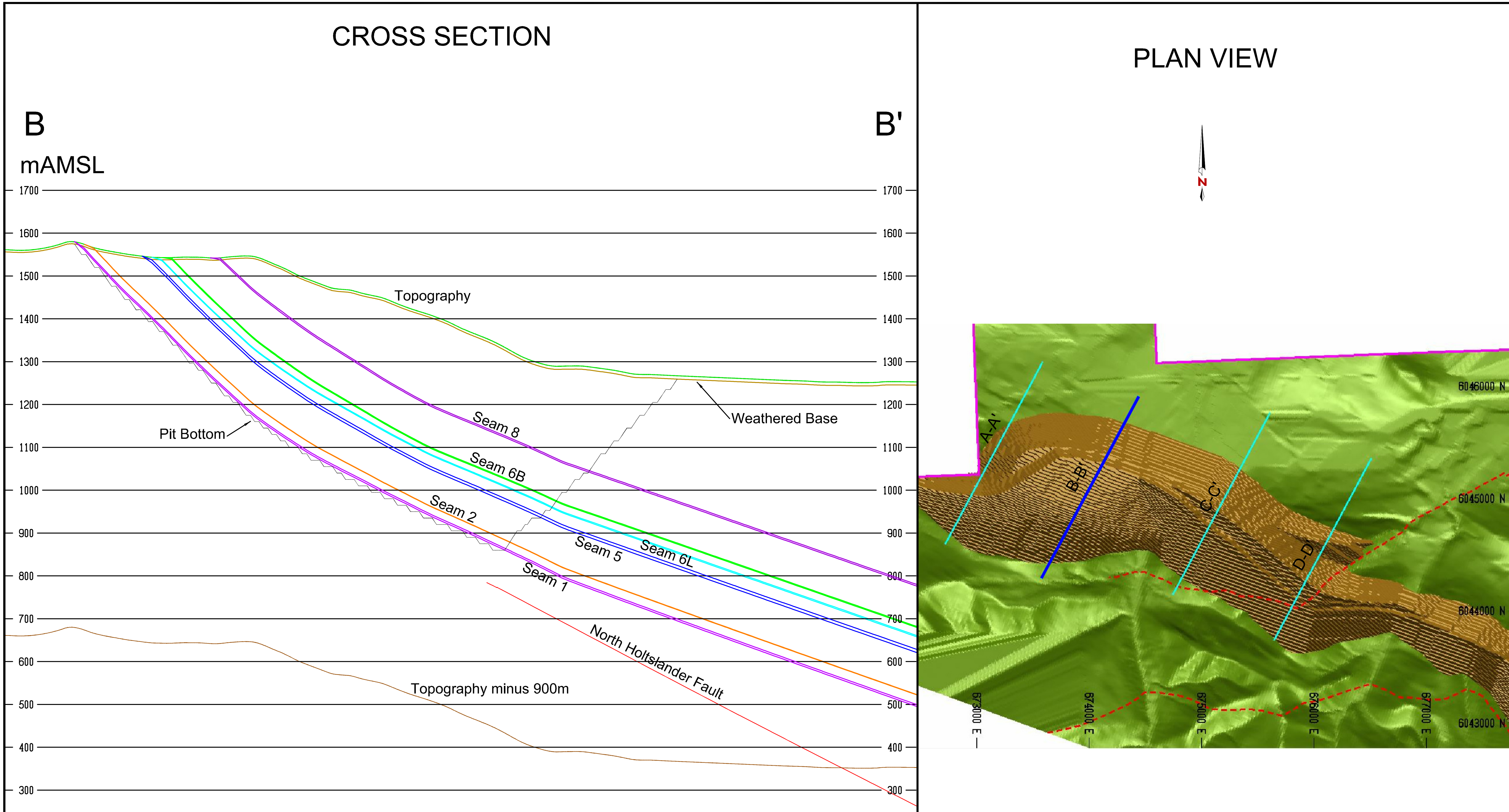
- Cross Section Line
- Fault at Surface
- Lease Boundary
- Topography
- Pit Bottom

FIGURE 5-5

COLONIAL COAL
NORTH BLOCK
CROSS SECTION A-A'

DATE: 08/02/2013
FILE: 497-3 FIG7.13

NORWEST CORPORATION



CROSS SECTION

- Fault
- Topography
- Pit Bottom
- Weathered Base
- Topo Minus 900m
- Seam 1
- Seam 2
- Seam 5
- Seam 6L
- Seam 6B
- Seam 8

PLAN VIEW

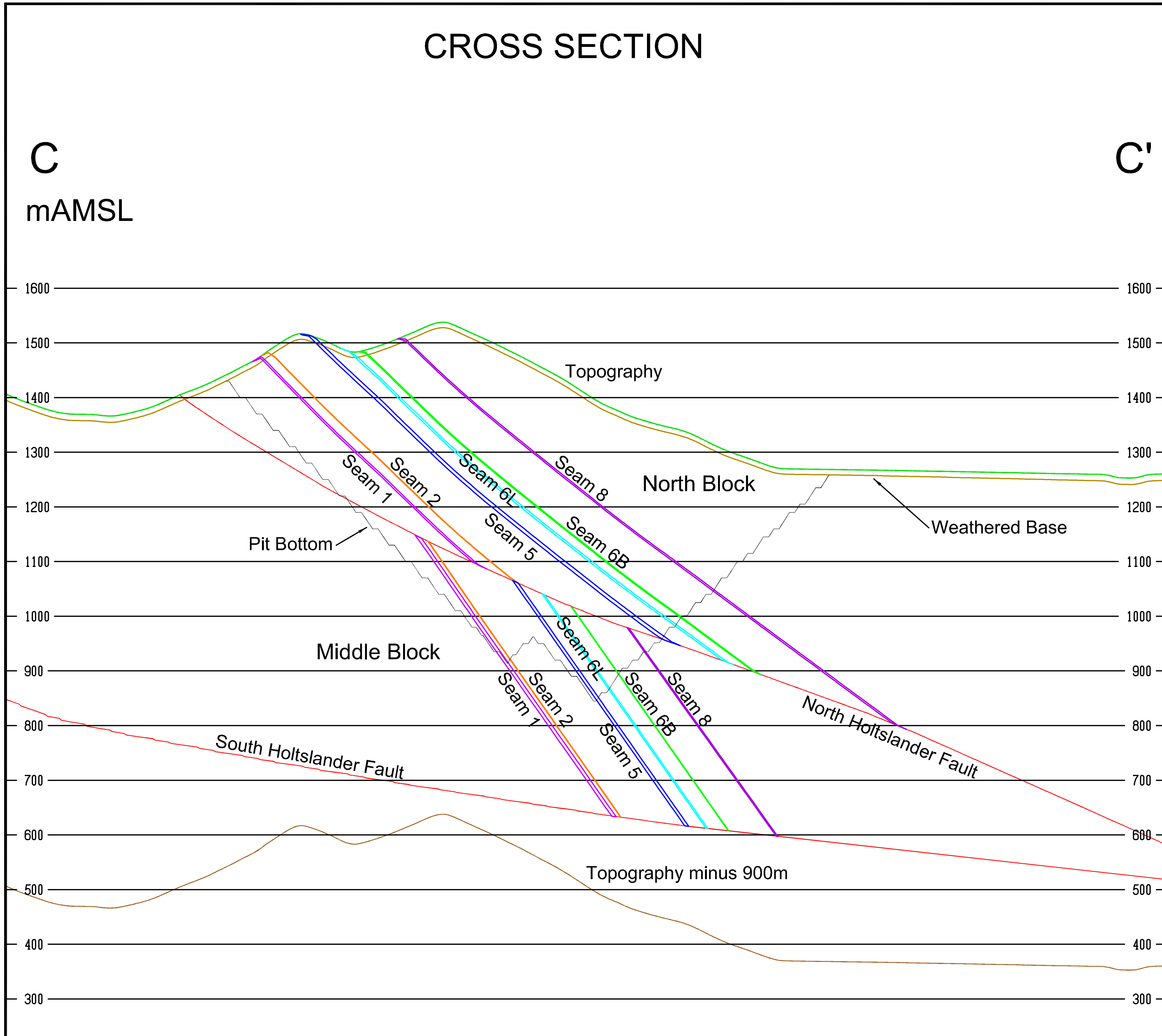
- Cross Section Line
- Fault at Surface
- Lease Boundary
- Topography
- Pit Bottom

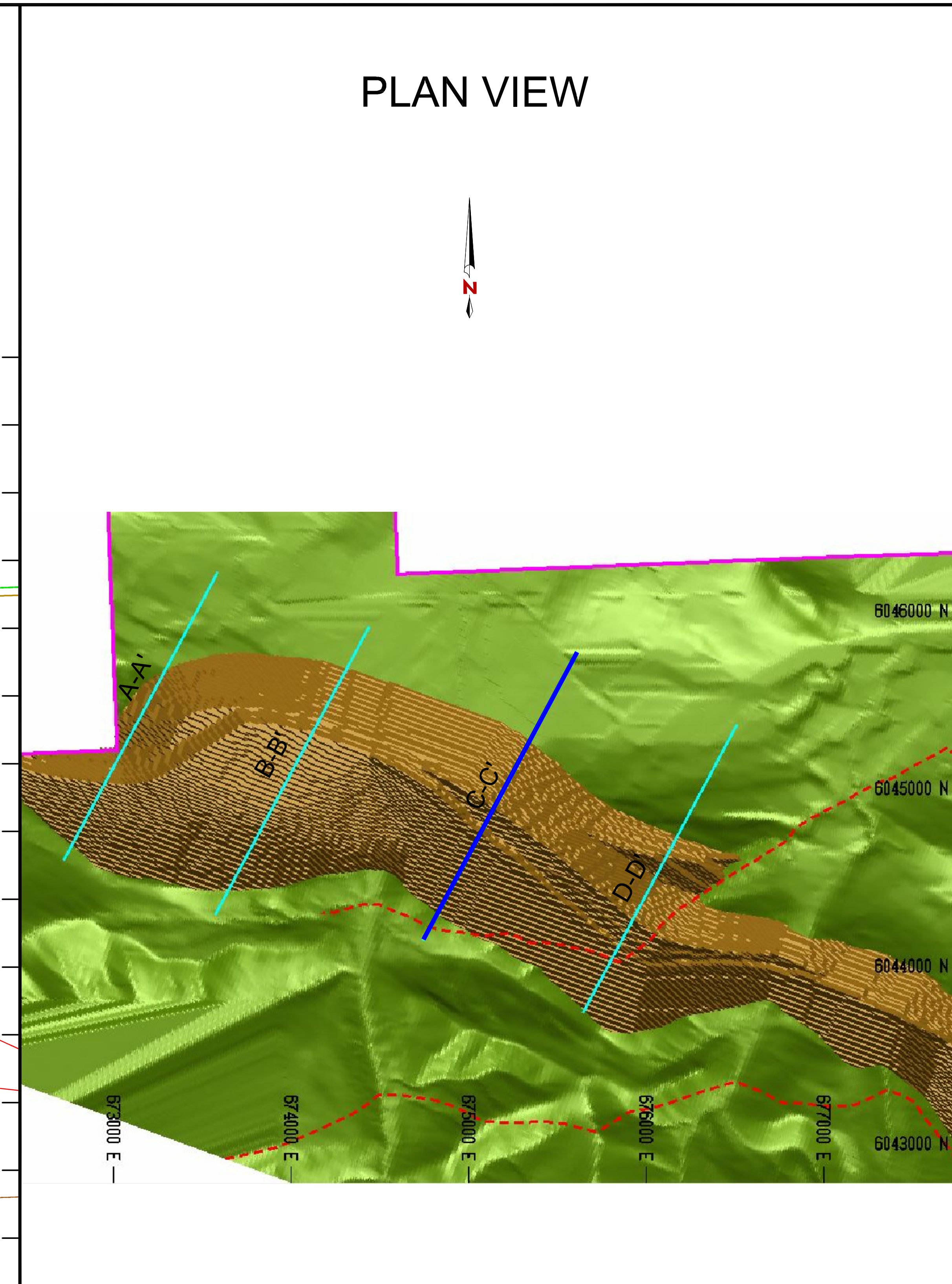
FIGURE 5-6

COLONIAL COAL
NORTH BLOCK
CROSS SECTION B-B'

DATE: 08/02/2013
FILE: 497-3 FIG7.14

NORWEST CORPORATION





CROSS SECTION

Fault	Weathered Base	Seam 1	Seam 6L
Topography	Topo Minus 900m	Seam 2	Seam 6B
Pit Bottom		Seam 5	Seam 8

PLAN VIEW

Cross Section Line	Topography
Fault at Surface	Pit Bottom
Lease Boundary	

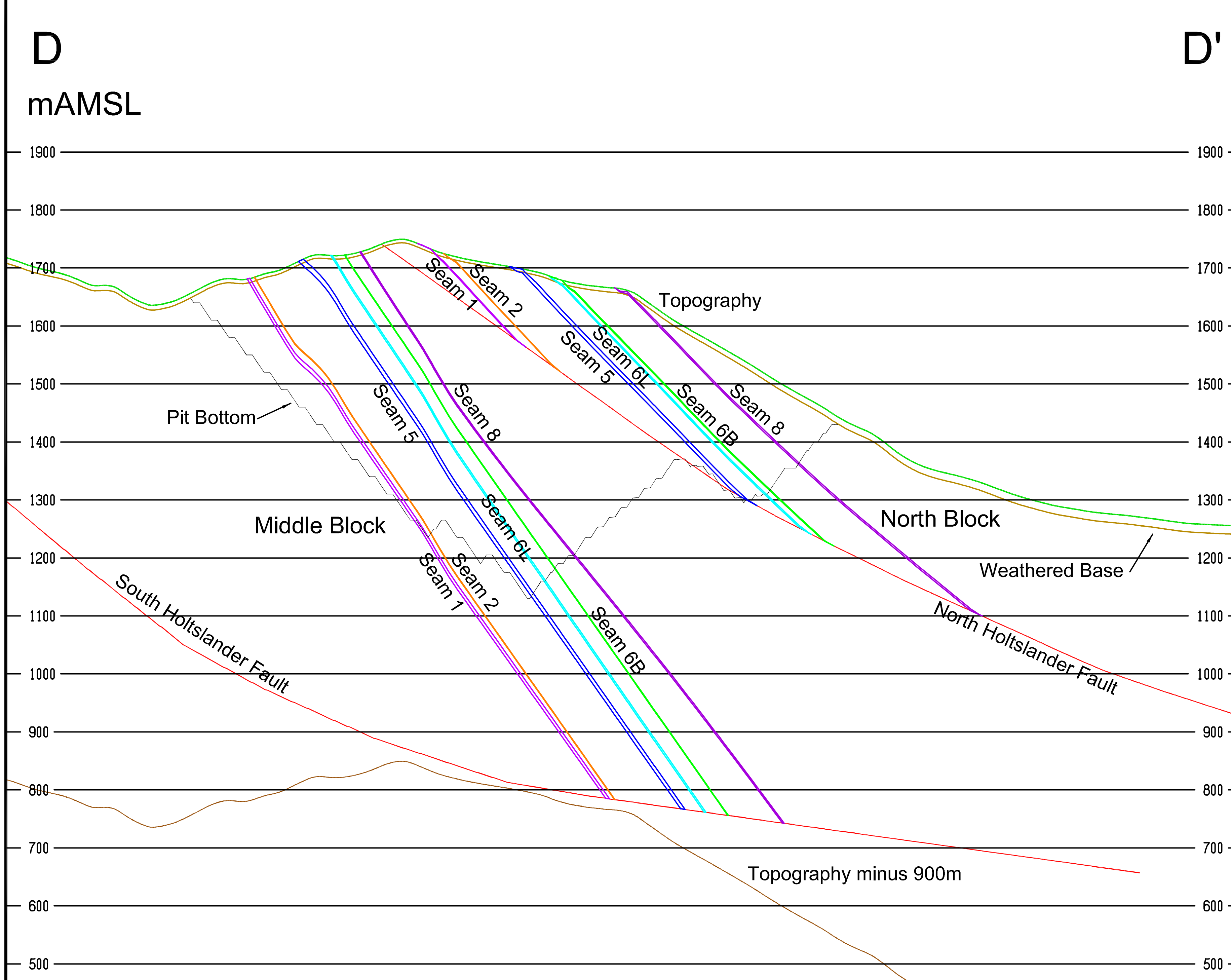
FIGURE 5-7

COLONIAL COAL
NORTH BLOCK
CROSS SECTION C-C'

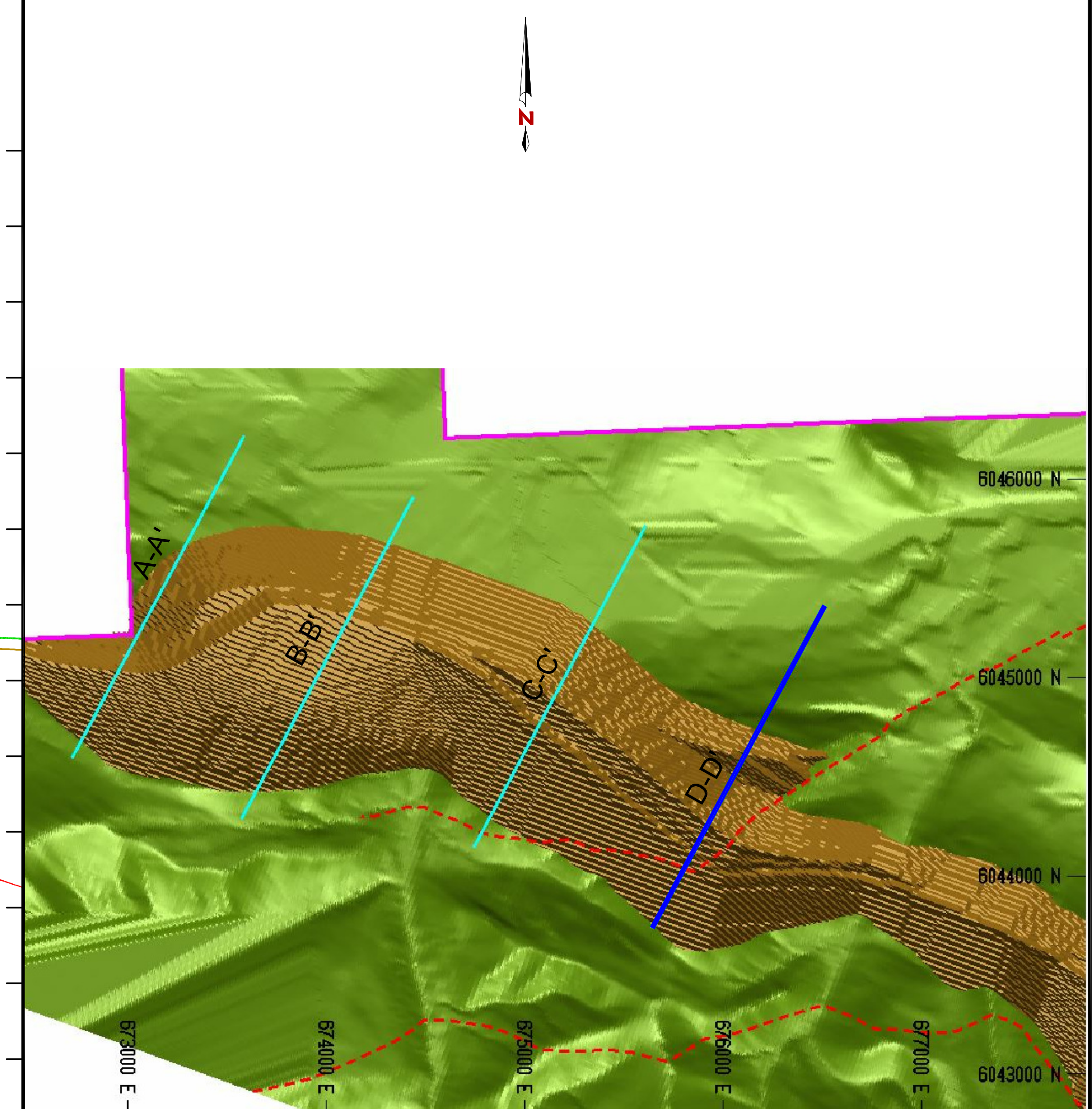
DATE: 08/02/2013
FILE: 497-3 FIG7.15

NORWEST CORPORATION

CROSS SECTION



PLAN VIEW



CROSS SECTION

	Fault		Weathered Base		Seam 1		Seam 6L
	Topography		Topo Minus 900m		Seam 2		Seam 6B
	Pit Bottom				Seam 5		Seam 8

PLAN VIEW

	Cross Section Line		Topography
	Fault at Surface		Pit Bottom
	Lease Boundary		

FIGURE 5-8

COLONIAL COAL
NORTH BLOCK
CROSS SECTION D-D'

DATE: 08/02/2013
FILE: 497-3 FIG7.16

NORWEST CORPORATION

MIDDLE BLOCK (SEAMS 1, 2Z, 3B & 4U)

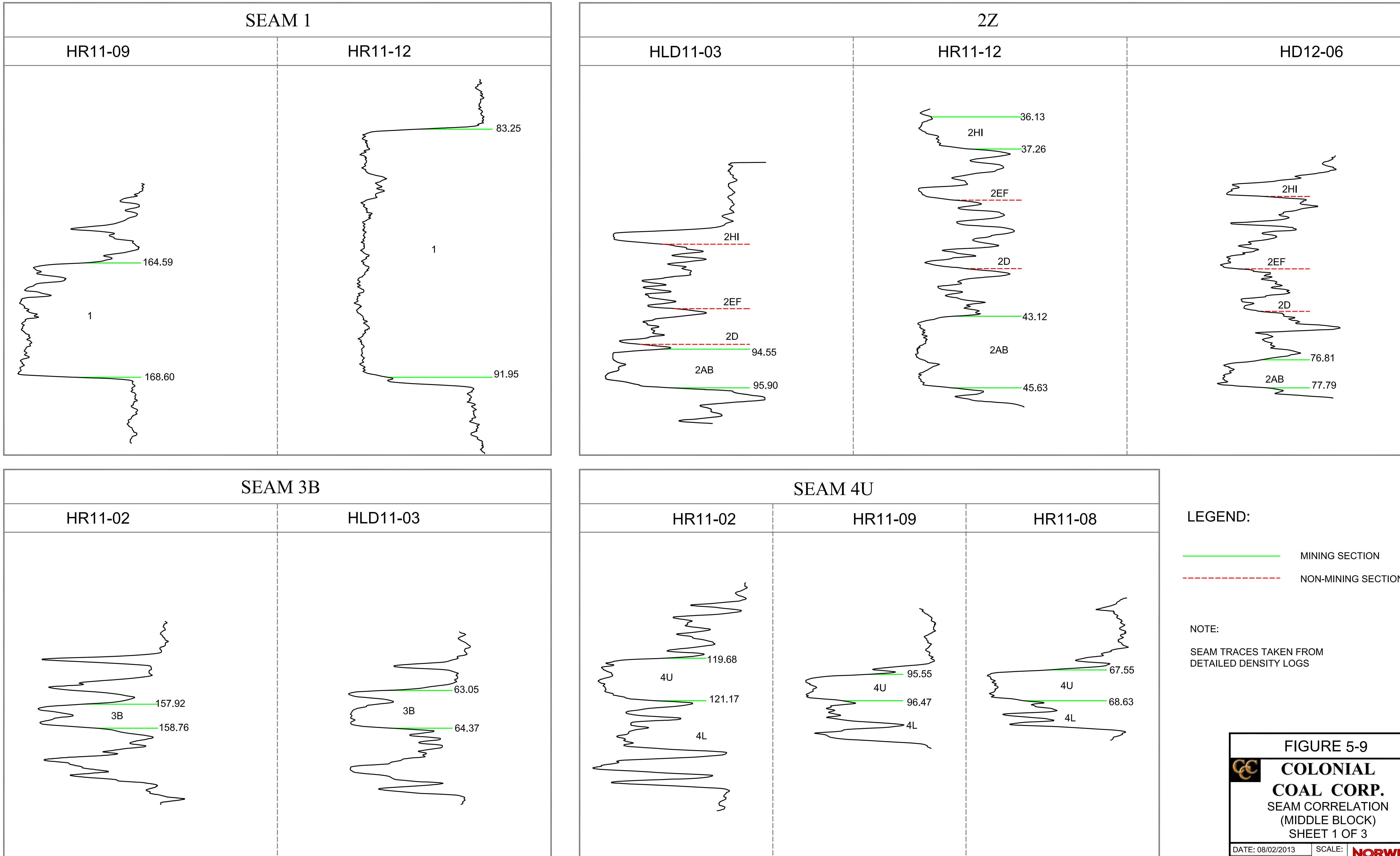


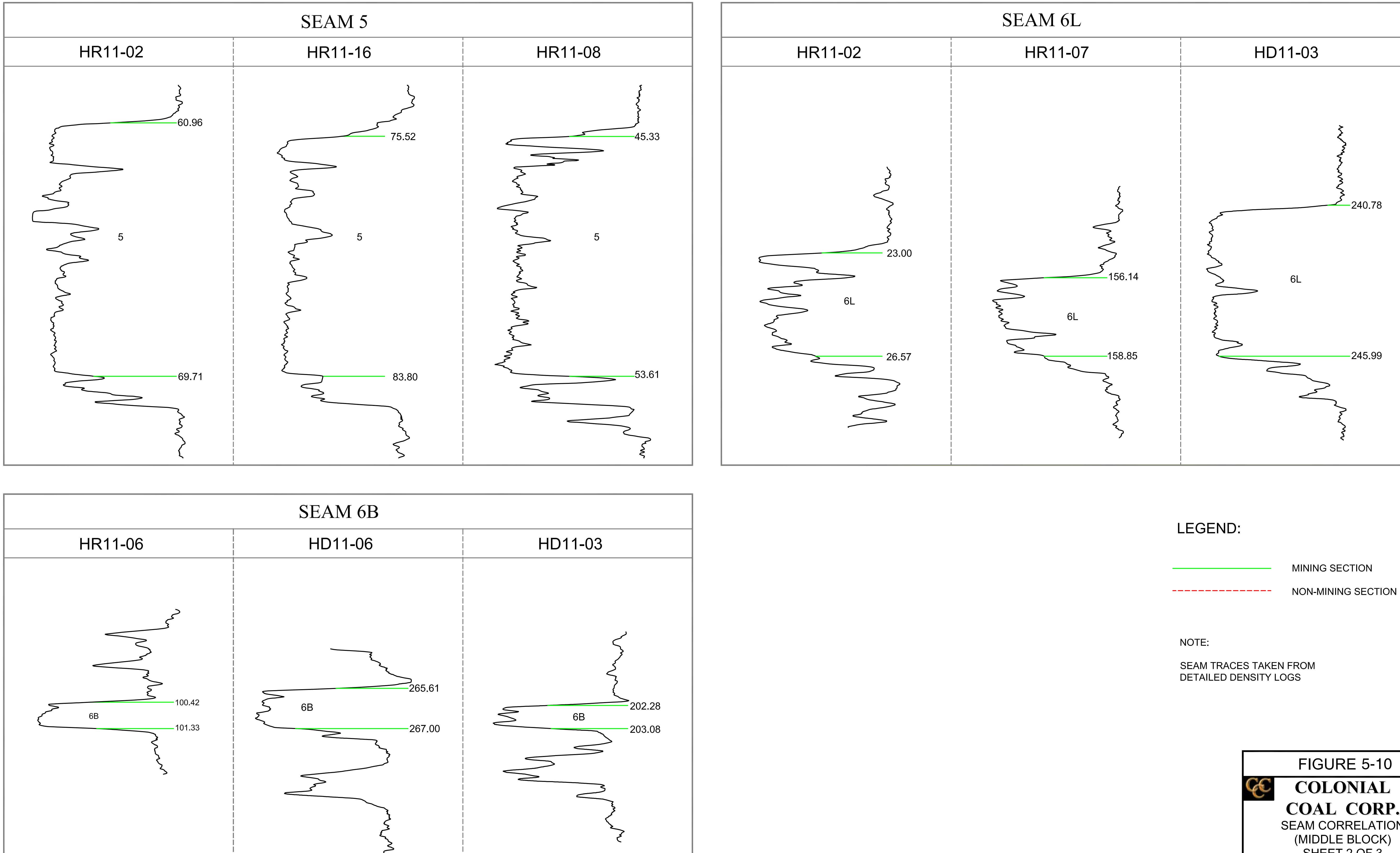
FIGURE 5-9

COLONIAL COAL CORP.

SEAM CORRELATION
(MIDDLE BLOCK)
SHEET 1 OF 3

DATE: 08/02/2013	SCALE: N.T.S.	NORWEST CORPORATION
PROJECT: 497-3		

MIDDLE BLOCK (SEAMS 5, 6L & 6B)



LEGEND:

MINING SECTION

NON-MINING SECTION

NOTE:

SEAM TRACES TAKEN FROM
DETAILED DENSITY LOGS

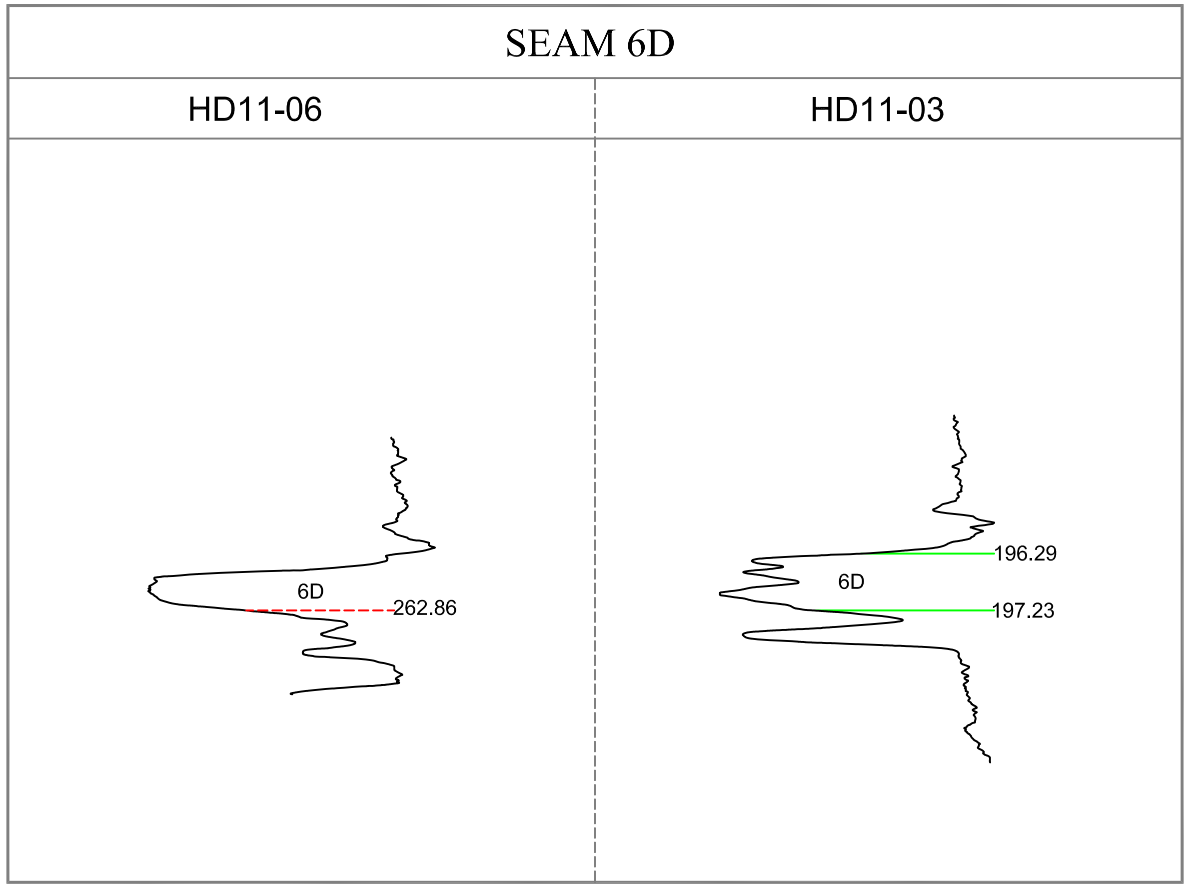
FIGURE 5-10

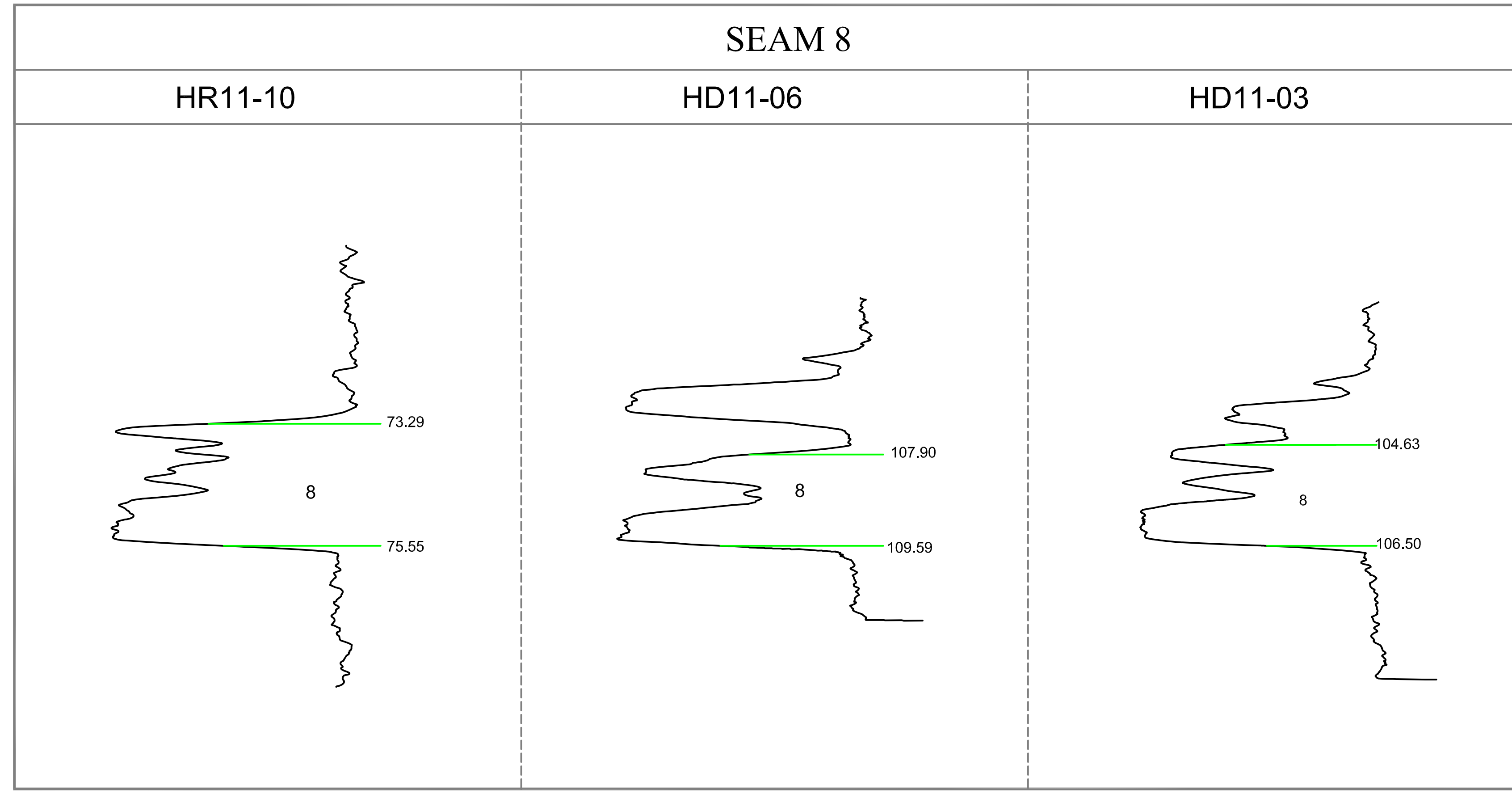
COLONIAL COAL CORP.

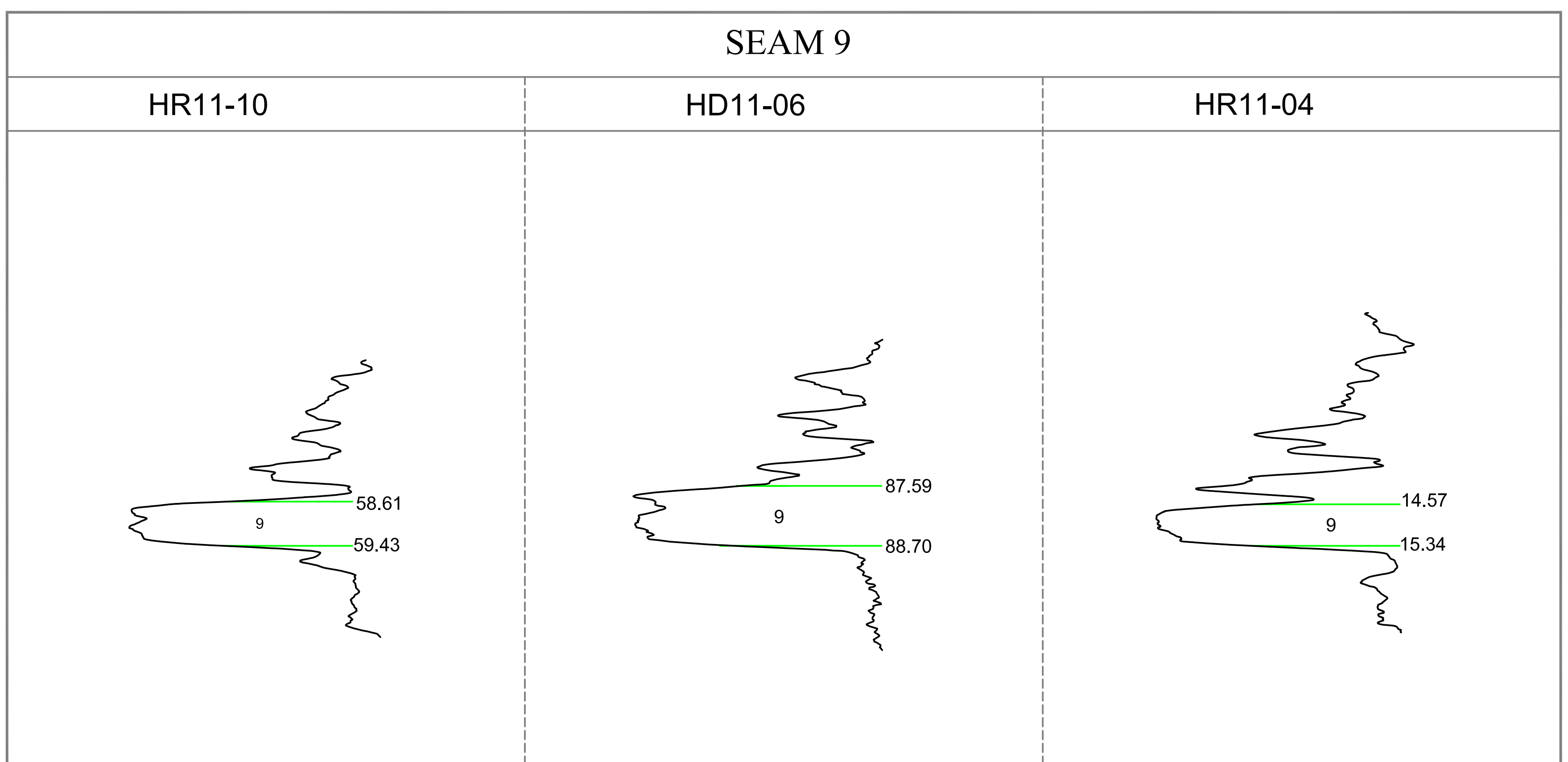
SEAM CORRELATION
(MIDDLE BLOCK)
SHEET 2 OF 3

DATE: 08/02/2013	SCALE:	NORWEST CORPORATION
PROJECT: 497-3	N.T.S.	

MIDDLE BLOCK (SEAMS 6D, 8 & 9)







LEGEND:

MINING SECTION

NON-MINING SECTION

NOTE:

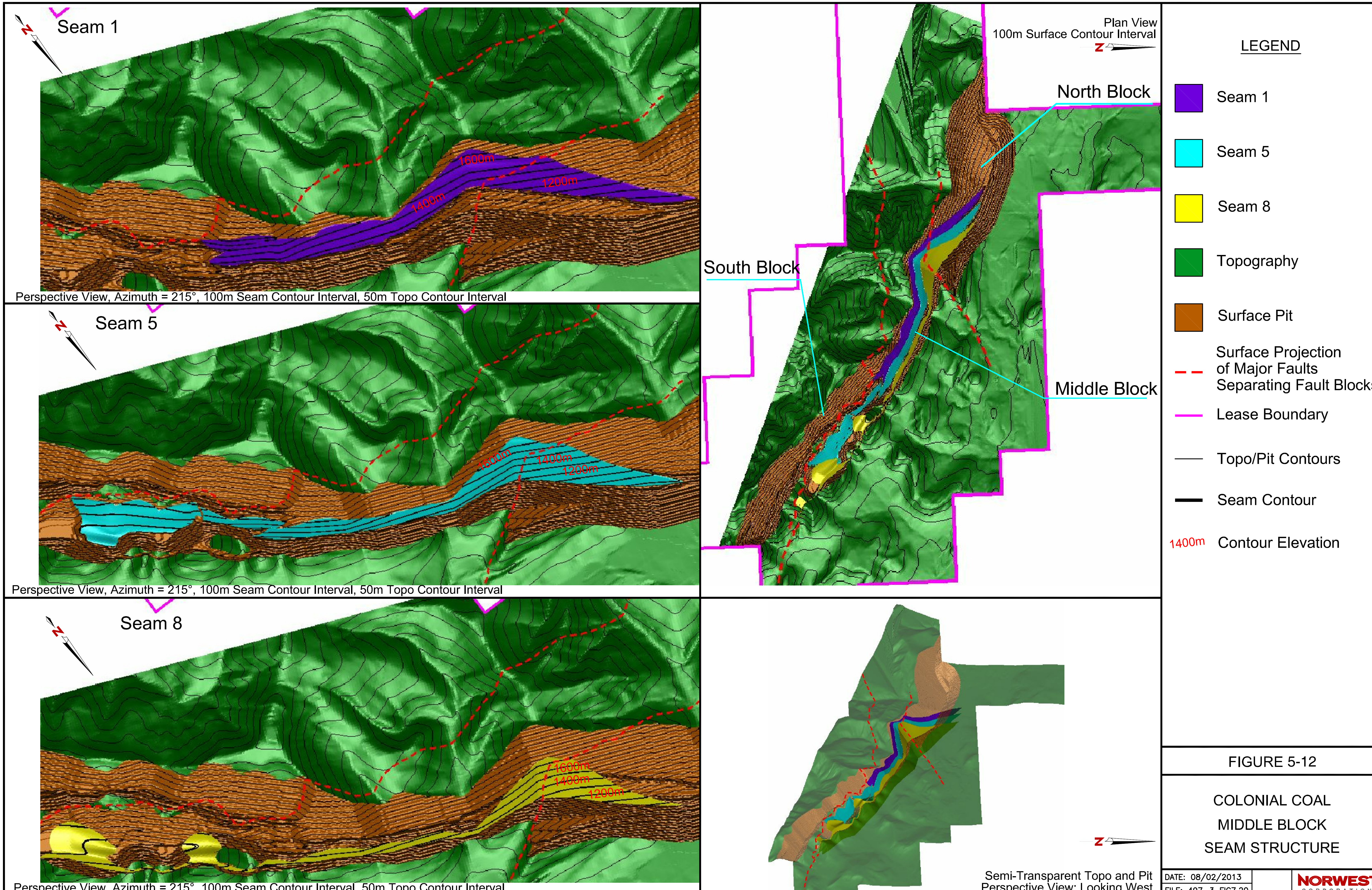
SEAM TRACES TAKEN FROM
DETAILED DENSITY LOGS

FIGURE 5-11

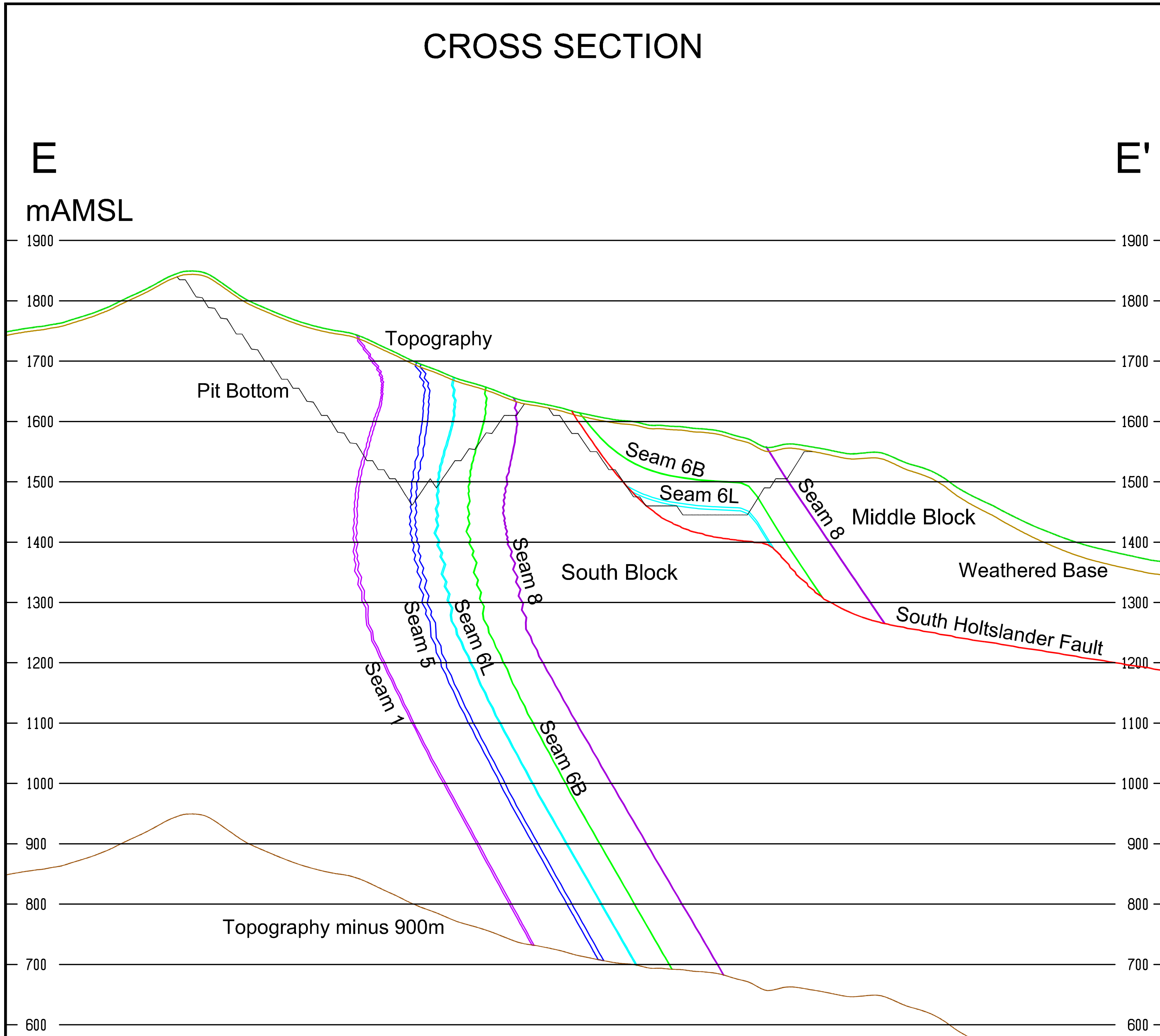
COLONIAL COAL CORP.

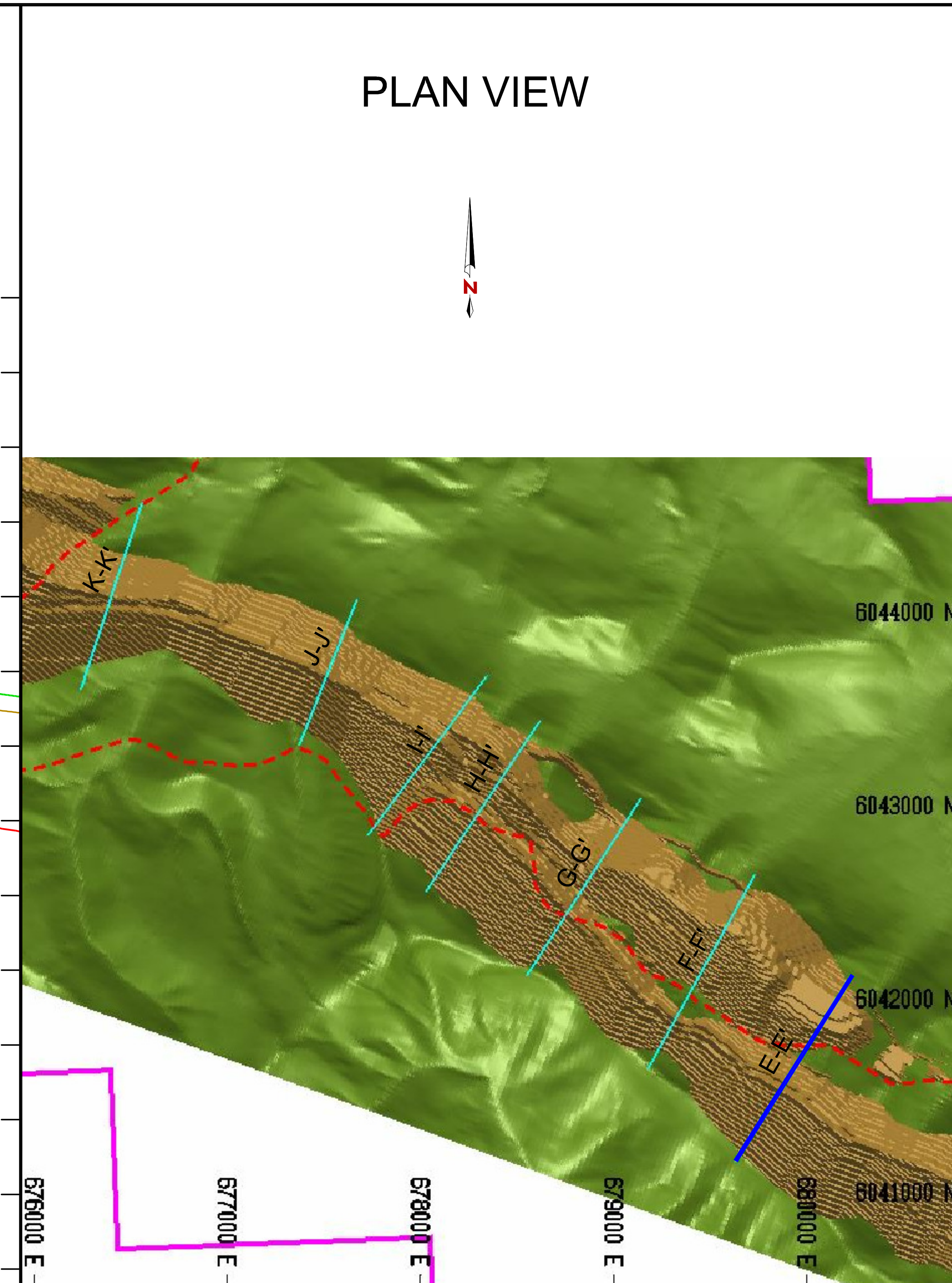
SEAM CORRELATION
(MIDDLE BLOCK)
SHEET 3 OF 3

DATE: 08/02/2013	SCALE:	NORWEST CORPORATION
PROJECT: 497-3	N.T.S.	



Seam 1
1600m
1200m
1400m
Perspective View, Azimuth = 215°, 100m Seam Contour Interval, 50m Topo Contour Interval
Seam 5
1600m
1400m
1200m
Perspective View, Azimuth = 215°, 100m Seam Contour Interval, 50m Topo Contour Interval
Seam 8
1600m
1400m
1200m
Perspective View, Azimuth = 215°, 100m Seam Contour Interval, 50m Topo Contour Interval
Plan View
100m Surface Contour Interval
Z
North Block
South Block
Middle Block
Z
Semi-Transparent Topo and Pit
Perspective View: Looking West
LEGEND
Seam 1
Seam 5
Seam 8
Topography
Surface Pit
Surface Projection of Major Faults Separating Fault Blocks
Lease Boundary
Topo/Pit Contours
Seam Contour
1400m
Contour Elevation
FIGURE 5-12
COLONIAL COAL
MIDDLE BLOCK
SEAM STRUCTURE
DATE: 08/02/2013
FILE: 497-3 FIG7.20
NORWEST
CORPORATION





CROSS SECTION

Fault	Weathered Base	Seam 1	Seam 6L
Topography	Topo Minus 900m	Seam 2	Seam 6B
Pit Bottom		Seam 5	Seam 8

PLAN VIEW

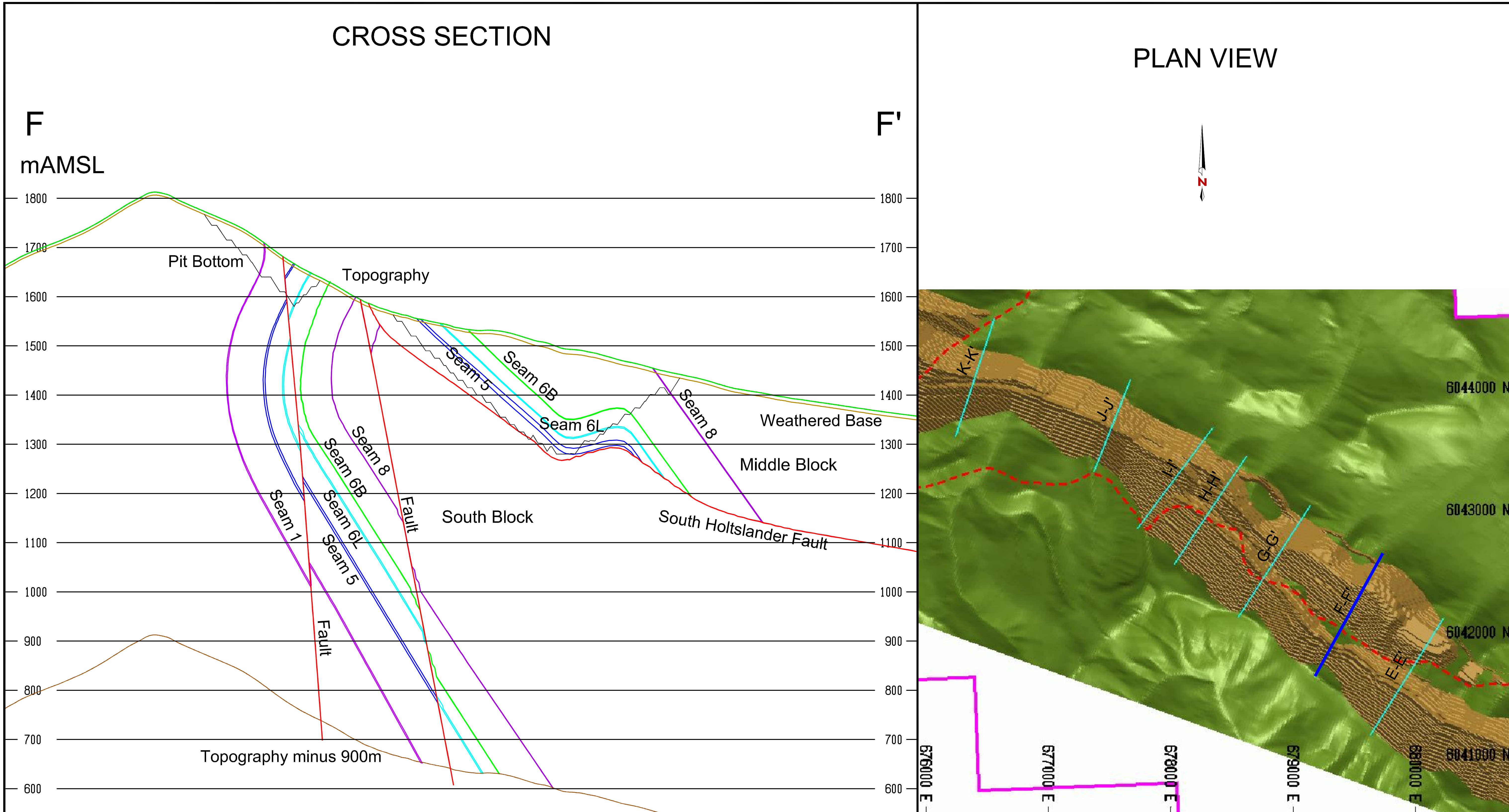
Cross Section Line	Topography
Fault at Surface	Pit Bottom
Lease Boundary	

FIGURE 5-13

COLONIAL COAL
MIDDLE-SOUTH BLOCK
CROSS SECTION E-E'

DATE: 08/02/2013
FILE: 497-3 FIG7.21

NORWEST CORPORATION



CROSS SECTION

Fault	Weathered Base	Seam 1	Seam 6L
Topography	Topo Minus 900m	Seam 2	Seam 6B
Pit Bottom		Seam 5	Seam 8

PLAN VIEW

Cross Section Line	Topography
Fault at Surface	Pit Bottom
Lease Boundary	

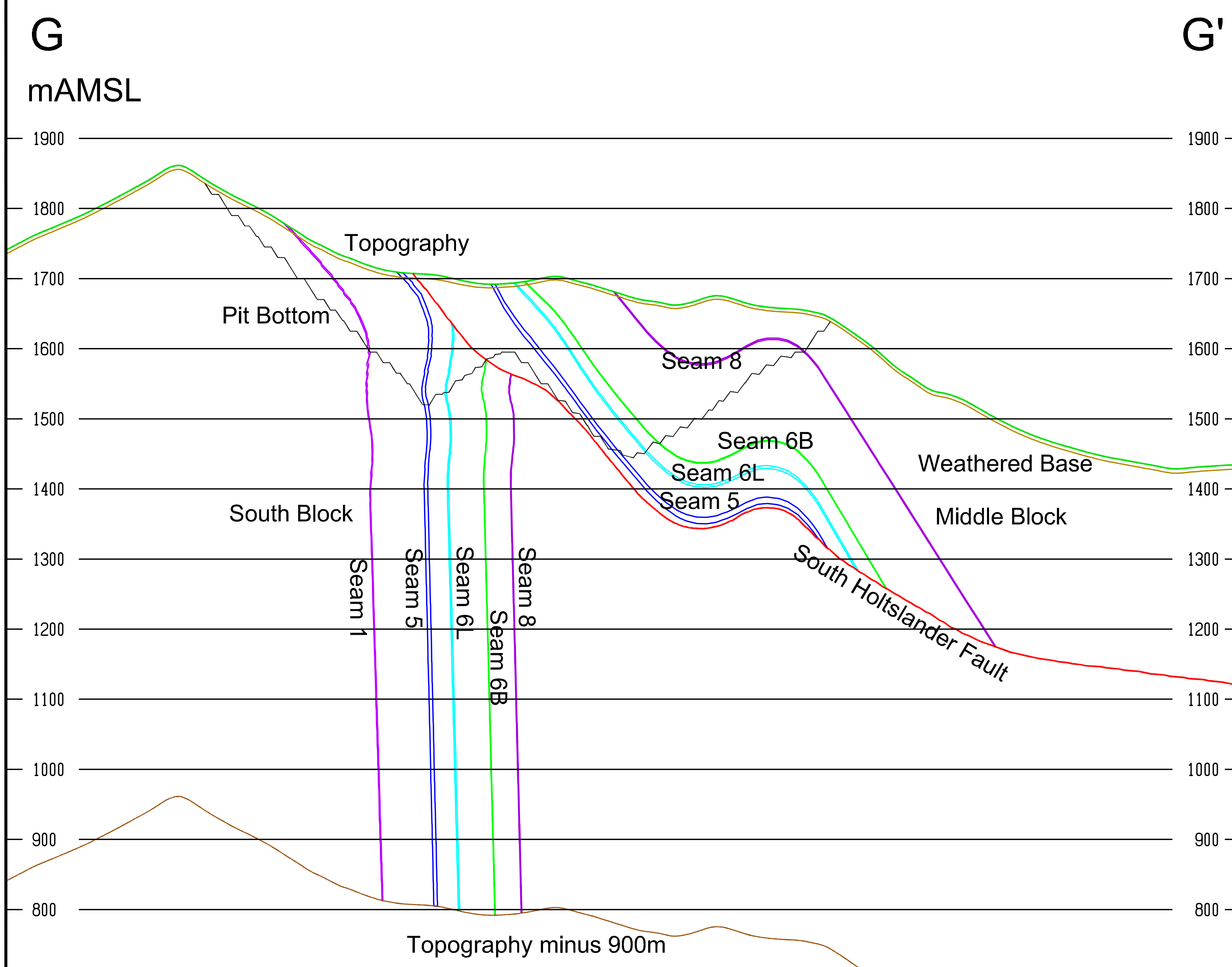
FIGURE 5-14

COLONIAL COAL
MIDDLE-SOUTH BLOCK
CROSS SECTION F-F'

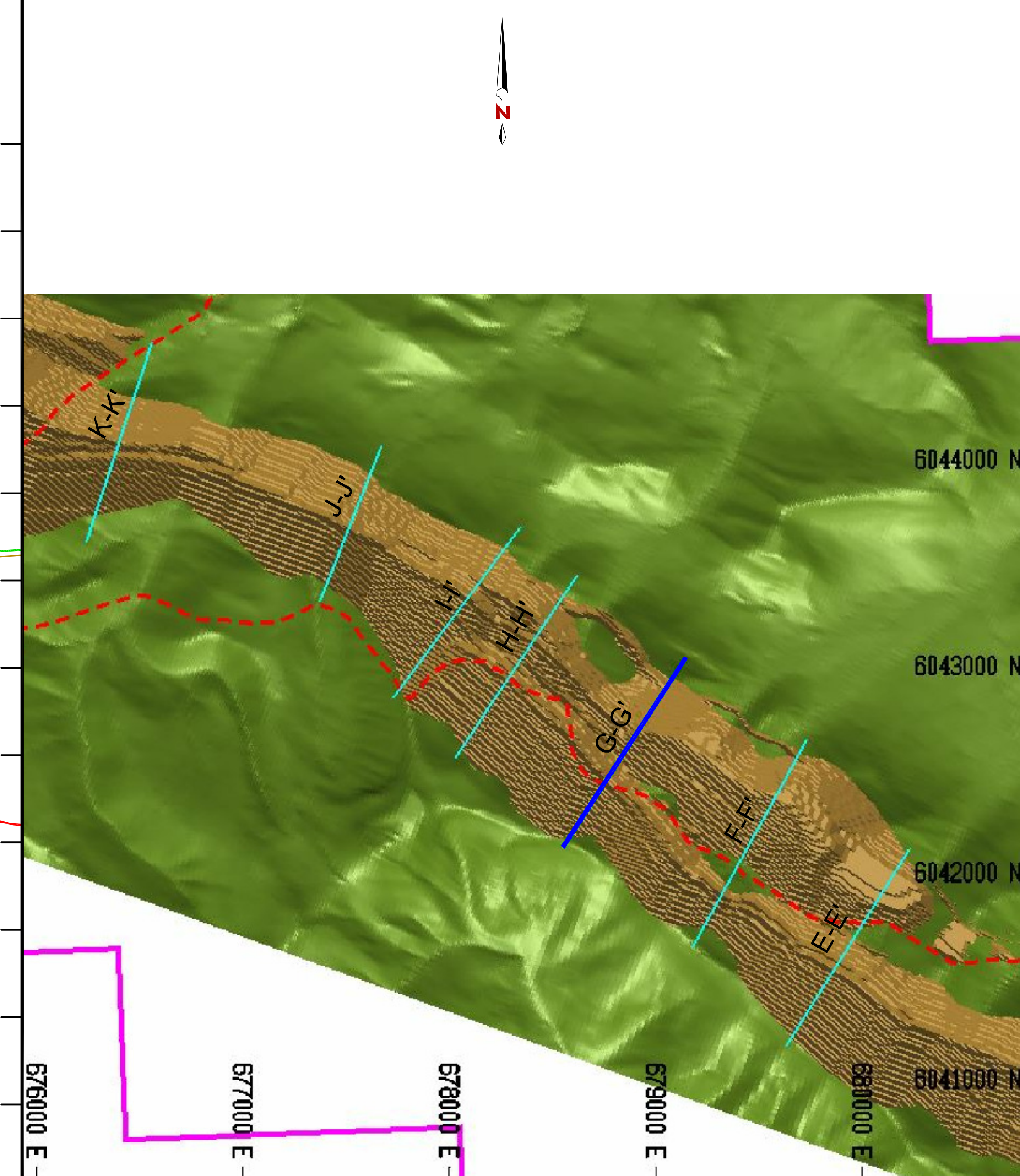
DATE: 08/02/2013
FILE: 497-3 FIG7.22

NORWEST CORPORATION

CROSS SECTION



PLAN VIEW



CROSS SECTION

Fault	Weathered Base	Seam 1
Topography	Topo Minus 900m	Seam 2
Pit Bottom		Seam 5
		Seam 6L
		Seam 6B
		Seam 8

PLAN VIEW

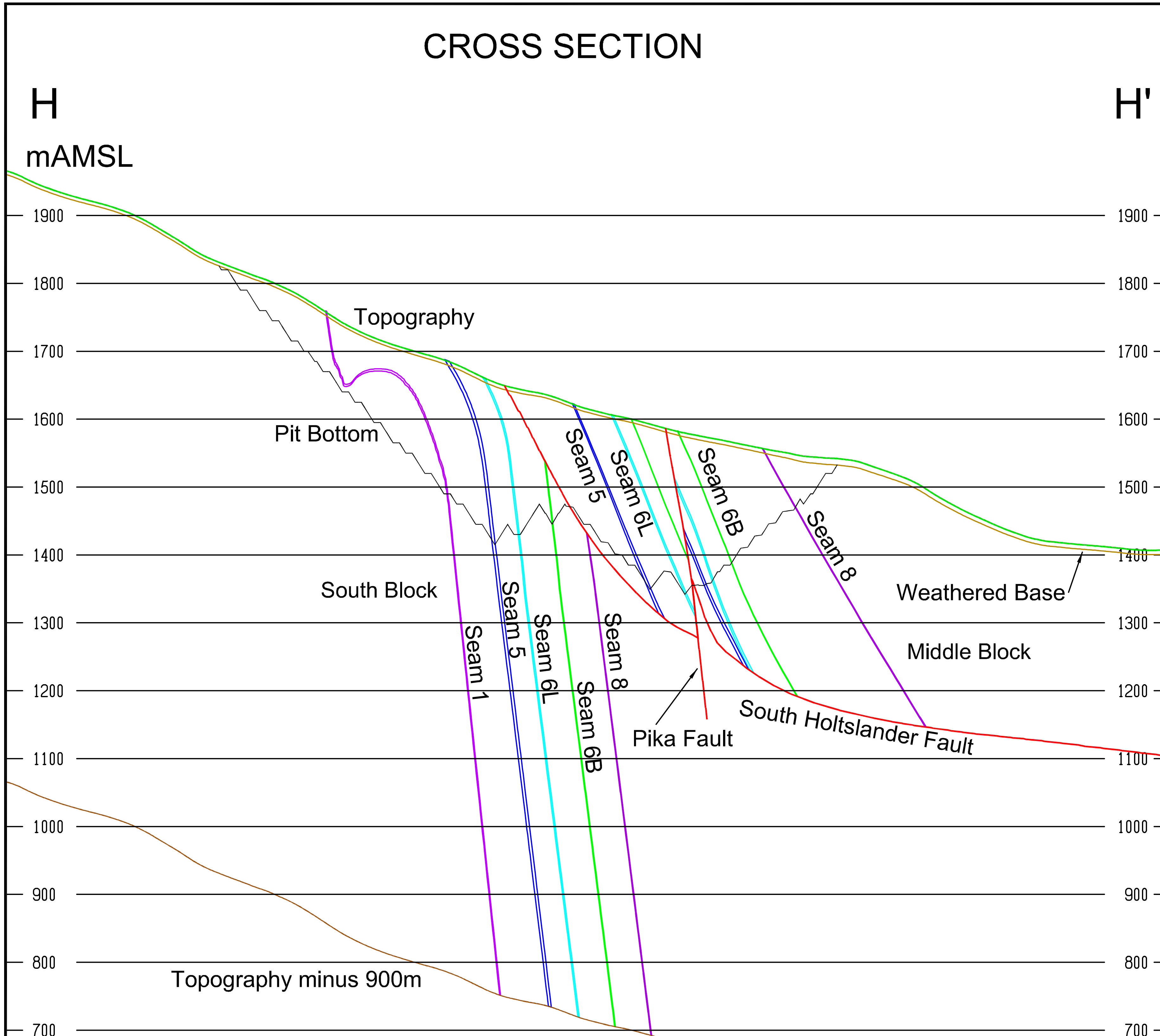
Cross Section Line	Topography
Fault at Surface	Pit Bottom
Lease Boundary	

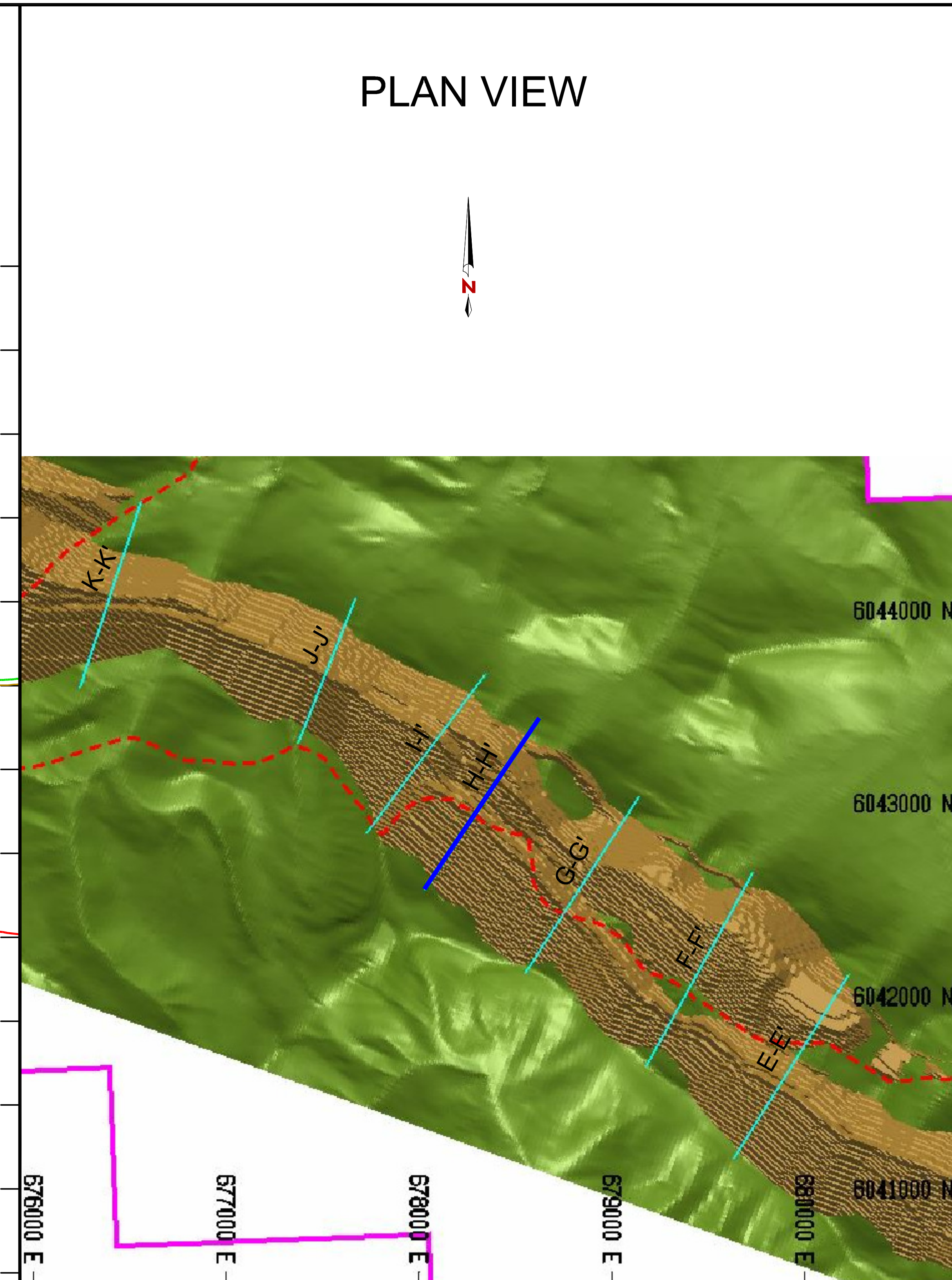
FIGURE 5-15

COLONIAL COAL
MIDDLE-SOUTH BLOCK
CROSS SECTION G-G'

DATE: 08/02/2013
FILE: 497-3 FIG7.23

NORWEST CORPORATION





CROSS SECTION

Fault	Weathered Base	Seam 1
Topography	Topo Minus 900m	Seam 2
Pit Bottom		Seam 5

Seam 6L	
Seam 6B	
Seam 8	

PLAN VIEW

Cross Section Line	Topography
Fault at Surface	Pit Bottom
Lease Boundary	

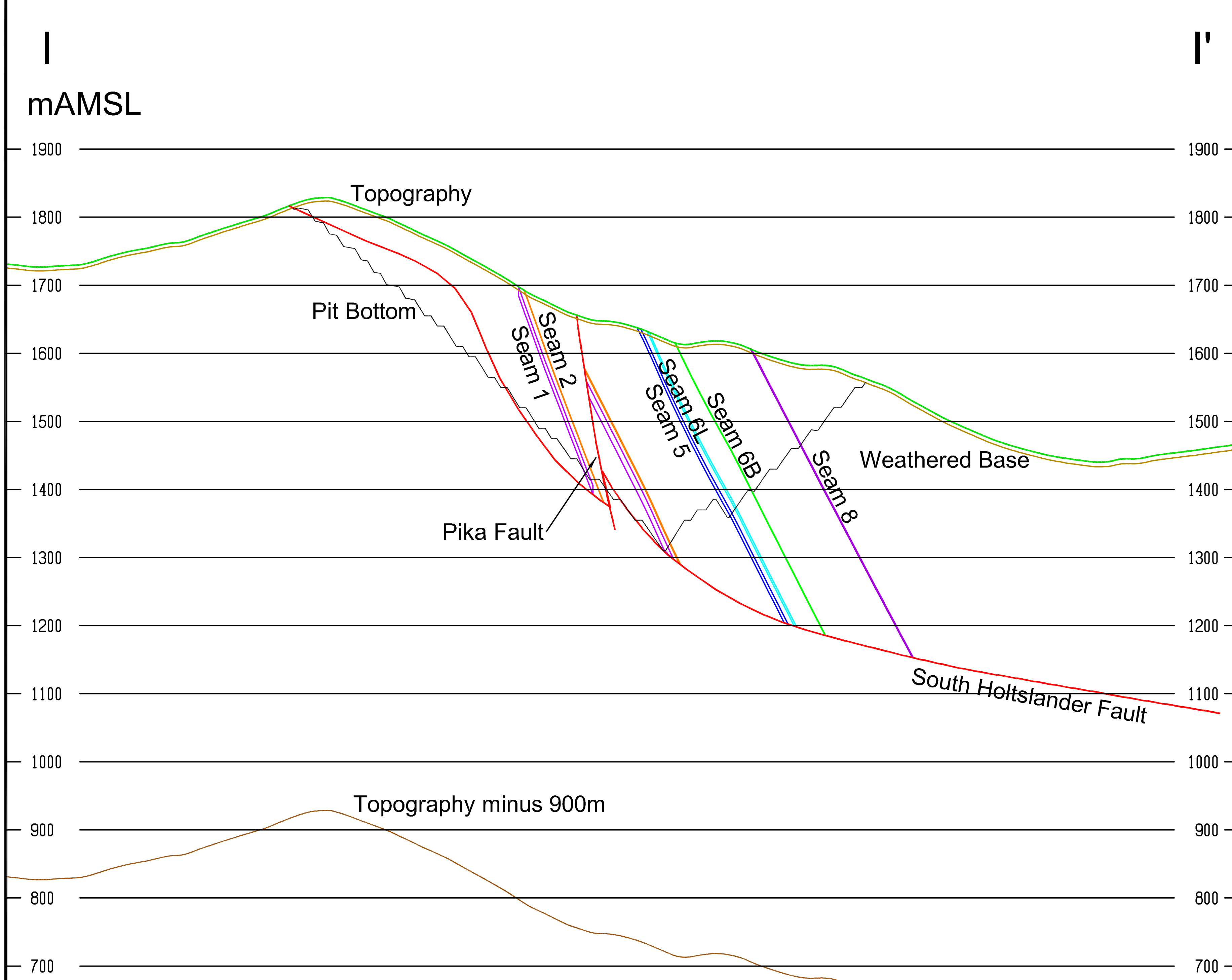
FIGURE 5-16

COLONIAL COAL
MIDDLE-SOUTH BLOCK
CROSS SECTION H-H'

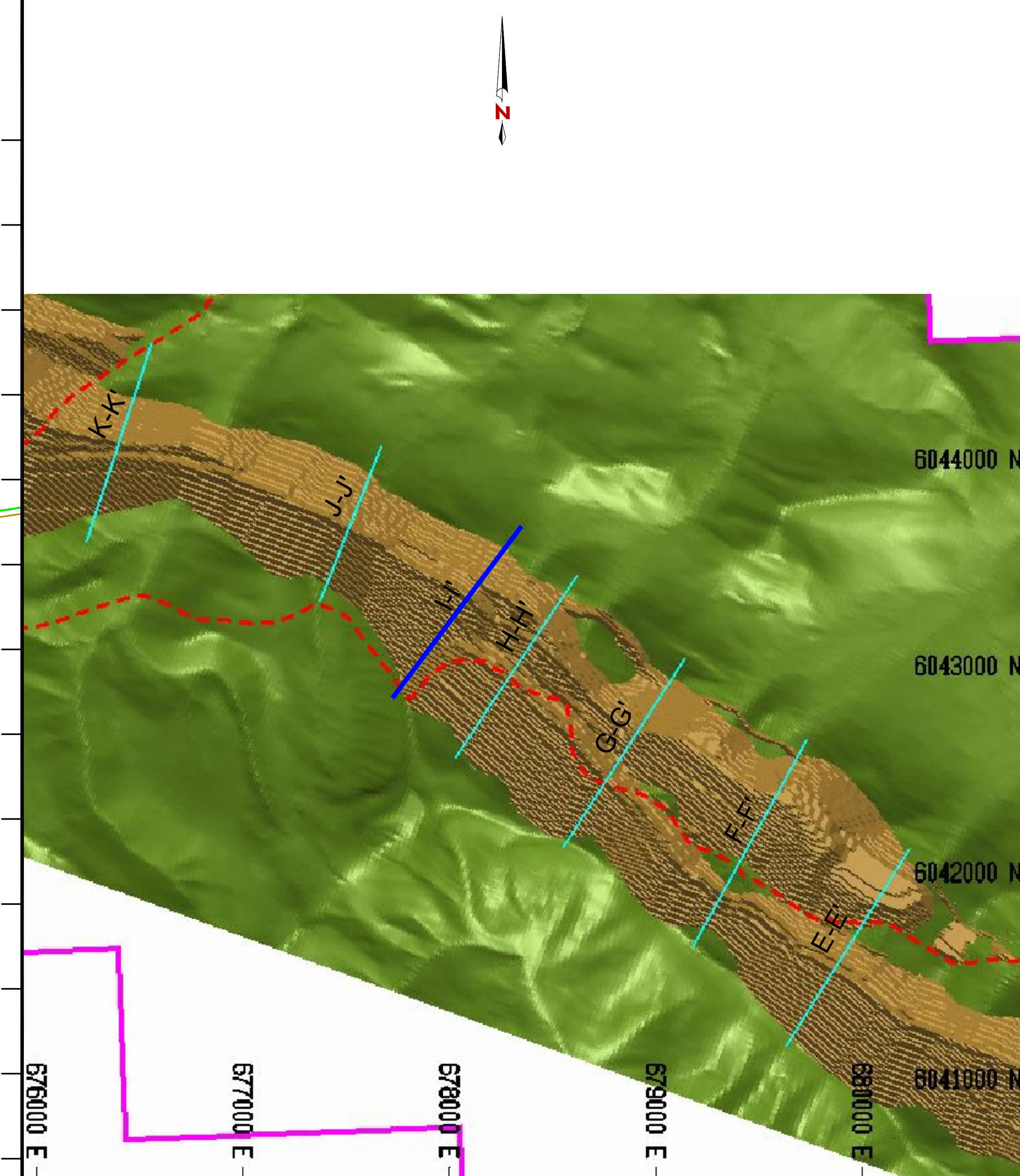
DATE: 08/02/2013
FILE: 497-3 FIG7.24

NORWEST CORPORATION

CROSS SECTION



PLAN VIEW



CROSS SECTION

- Fault
- Topography
- Pit Bottom
- Weathered Base
- Topo Minus 900m
- Seam 1
- Seam 2
- Seam 5
- Seam 6L
- Seam 6B
- Seam 8

PLAN VIEW

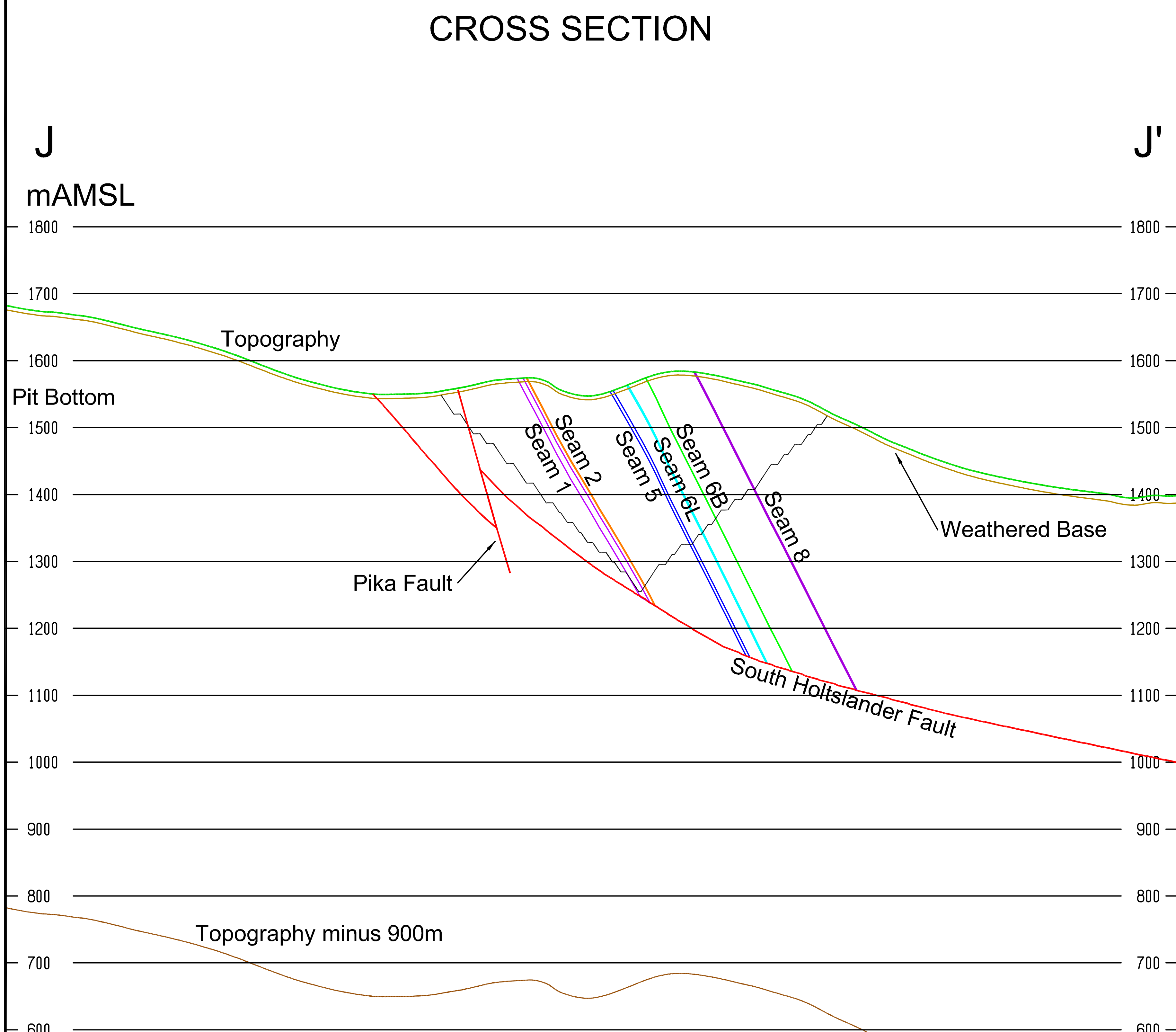
- Cross Section Line
- Fault at Surface
- Lease Boundary
- Topography
- Pit Bottom

FIGURE 5-17

COLONIAL COAL
MIDDLE BLOCK
CROSS SECTION I-I'

DATE: 08/02/2013
FILE: 497-3 FIG7.25

NORWEST CORPORATION



CROSS SECTION

Fault
Topography
Pit Bottom
Weathered Base
Topo Minus 900m
Seam 1
Seam 2
Seam 5
Seam 6L
Seam 6B
Seam 8

PLAN VIEW

Cross Section Line
Fault at Surface
Lease Boundary
Topography
Pit Bottom

FIGURE 5-18

COLONIAL COAL
MIDDLE BLOCK
CROSS SECTION J-J'

DATE: 08/02/2013
FILE: 497-3 FIG7.26

NORWEST CORPORATION

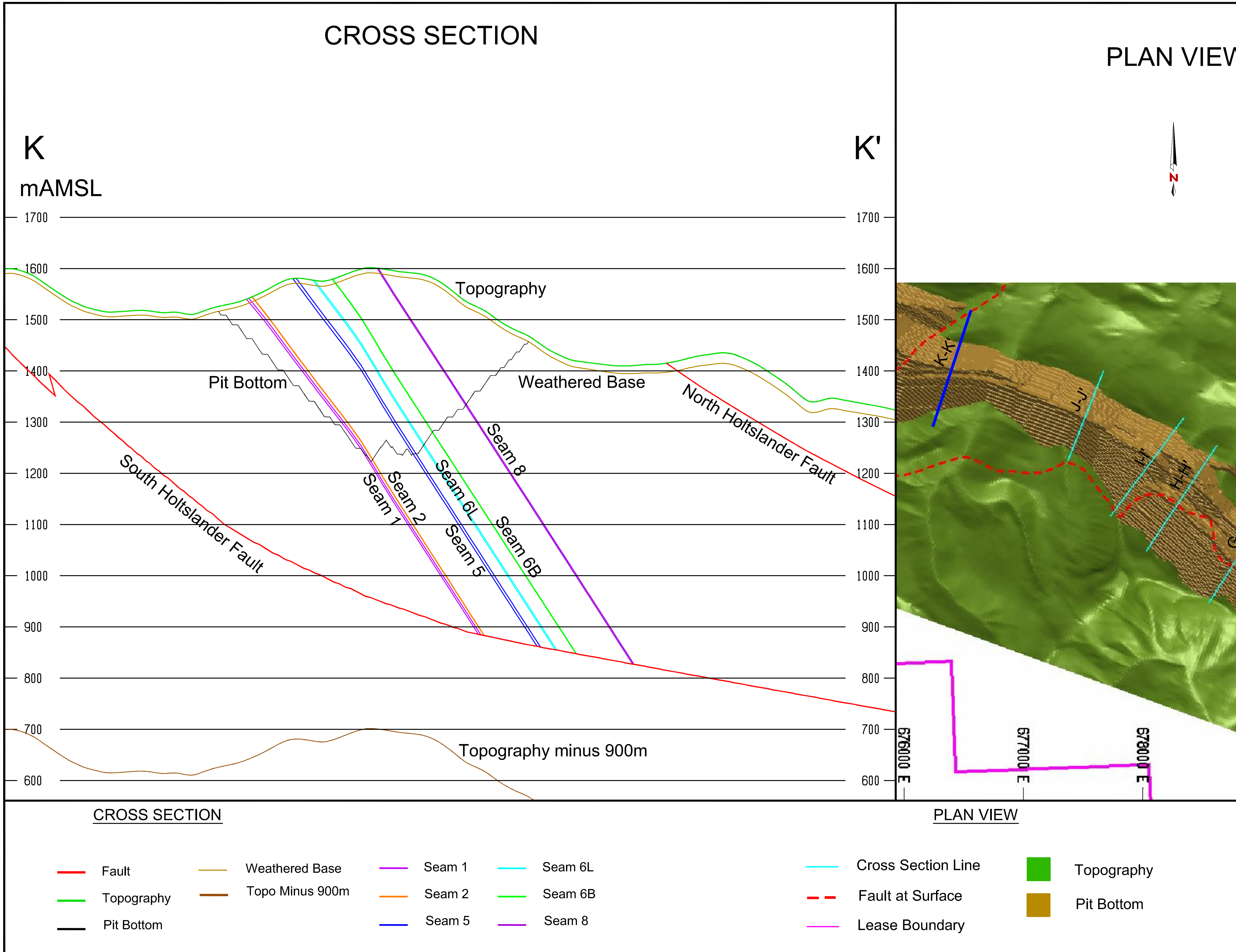
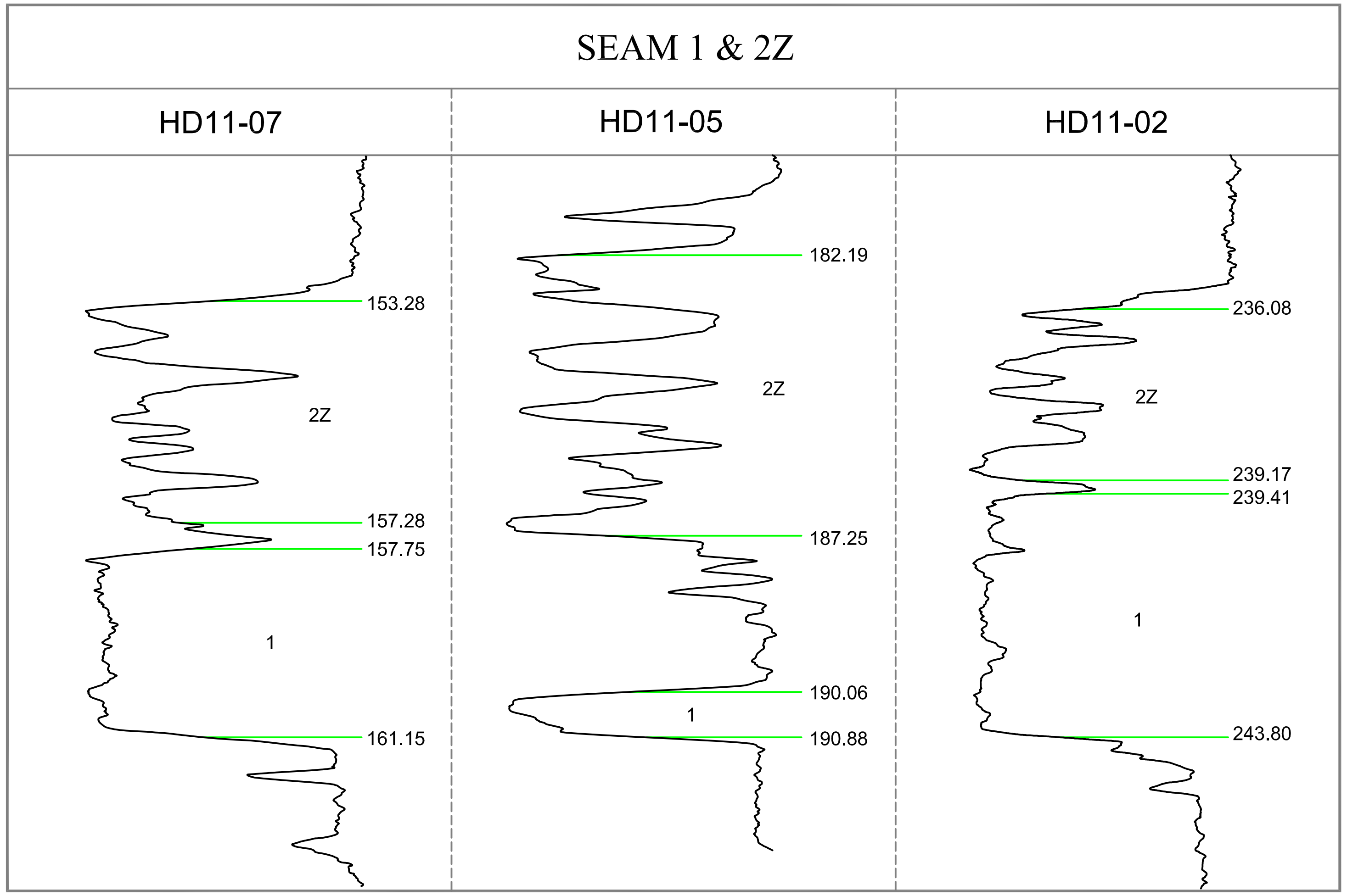


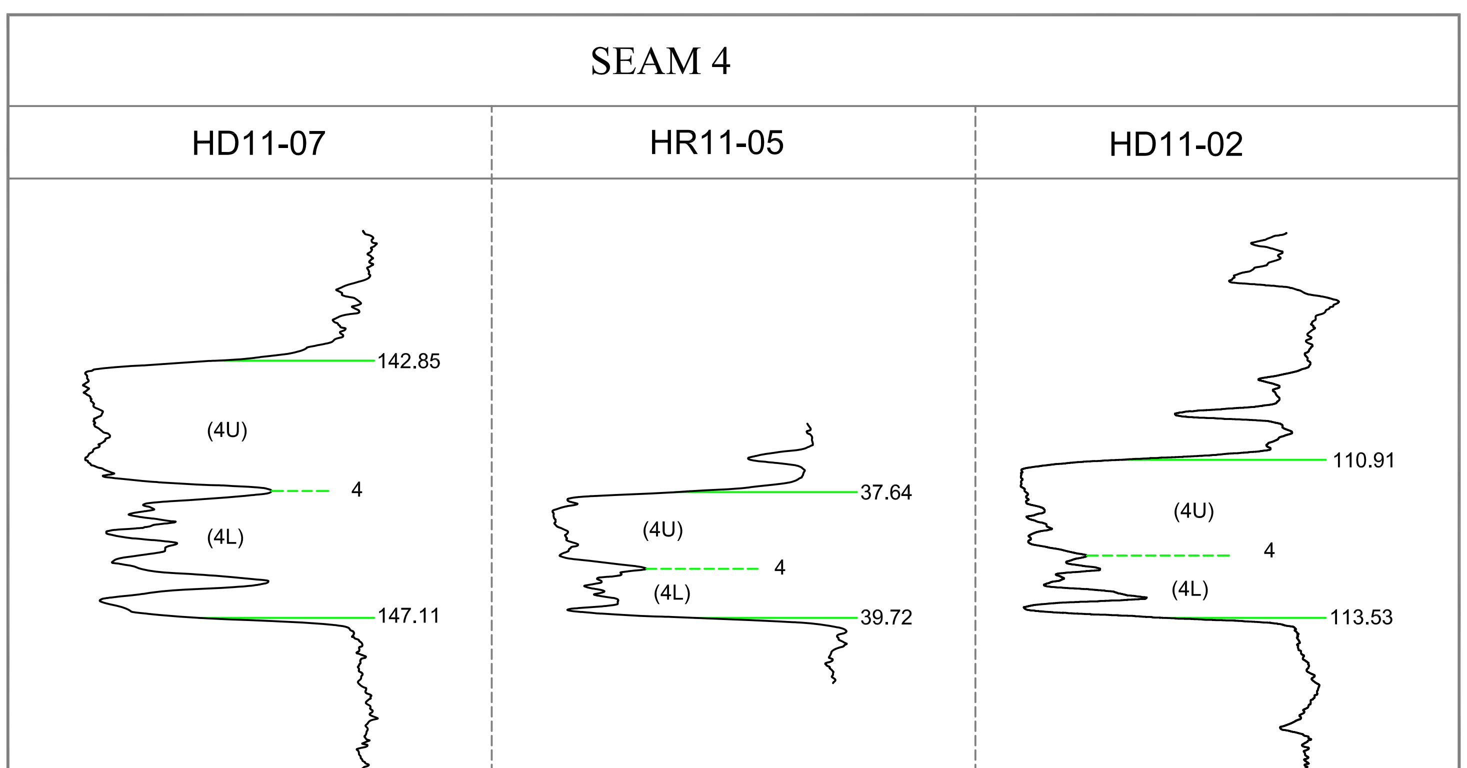
FIGURE 5-19

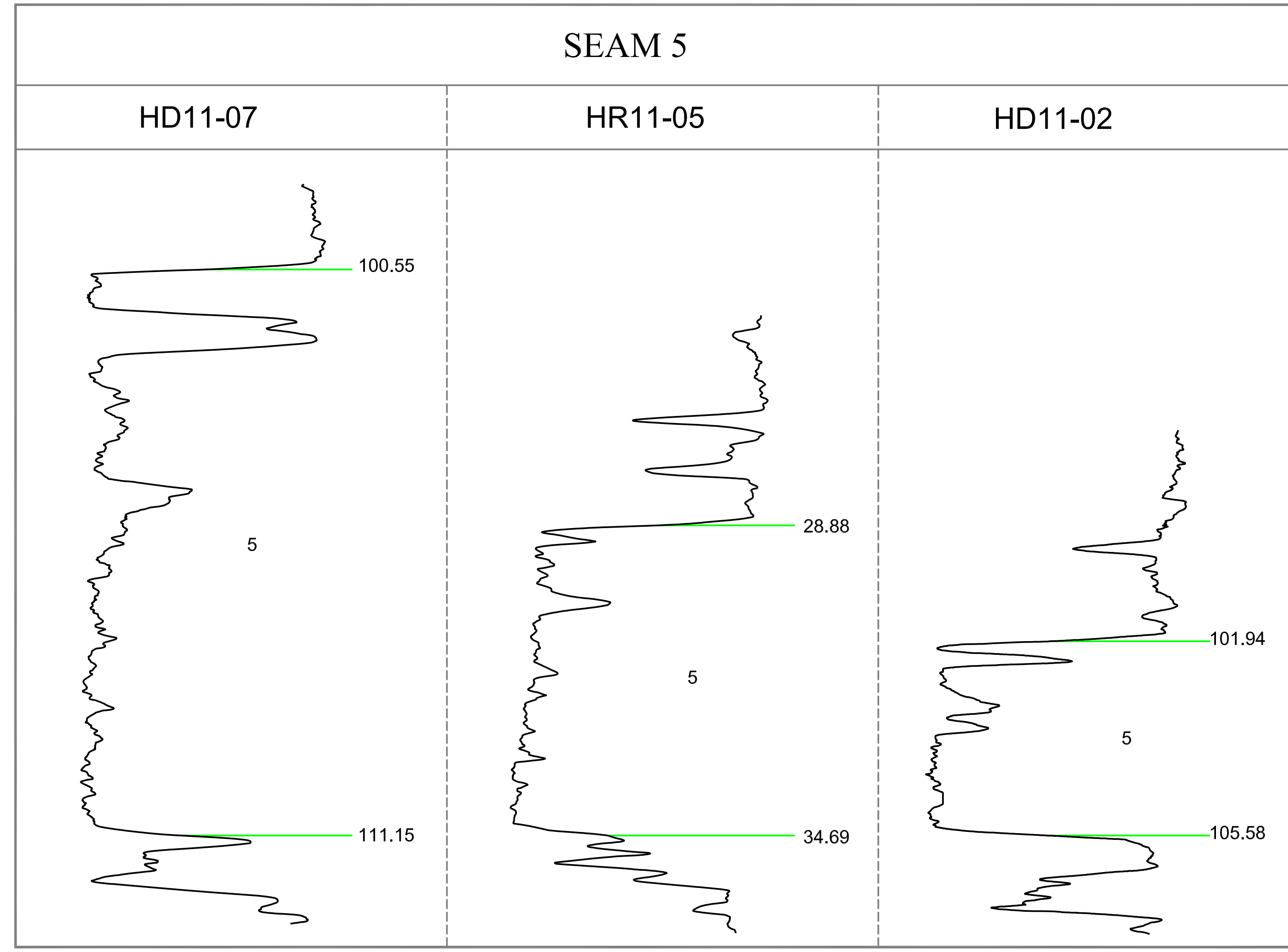
COLONIAL COAL
MIDDLE BLOCK
CROSS SECTION K-K'

DATE: 08/02/2013
FILE: 497-3 FIG7.27
NORWEST CORPORATION

SOUTH BLOCK (SEAMS 1, 2Z, 4 & 5)







LEGEND:

- MINING SECTION
- UPPER AND LOWER SEPARATION
- NON-MINING SECTION

NOTE:

SEAM TRACES TAKEN FROM
DETAILED DENSITY LOGS

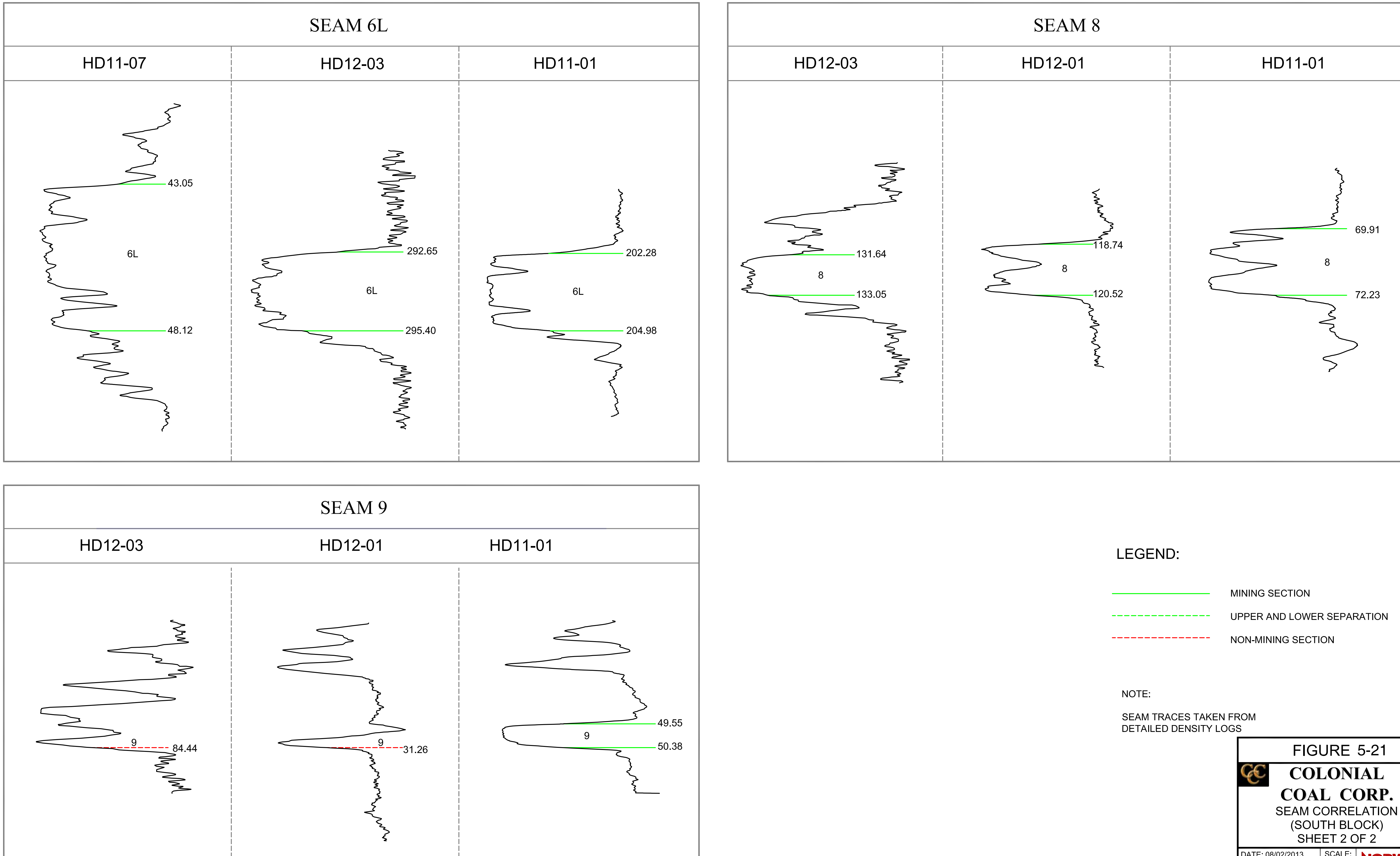
FIGURE 5-20

COLONIAL COAL CORP.

SEAM CORRELATION
(SOUTH BLOCK)
SHEET 1 OF 2

DATE: 08/02/2013	SCALE: N.T.S.	NORWEST CORPORATION
PROJECT: 497-3		

SOUTH BLOCK (SEAMS 6L, 8 & 9)



LEGEND:

MINING SECTION

UPPER AND LOWER SEPARATION

NON-MINING SECTION

NOTE:

SEAM TRACES TAKEN FROM
DETAILED DENSITY LOGS

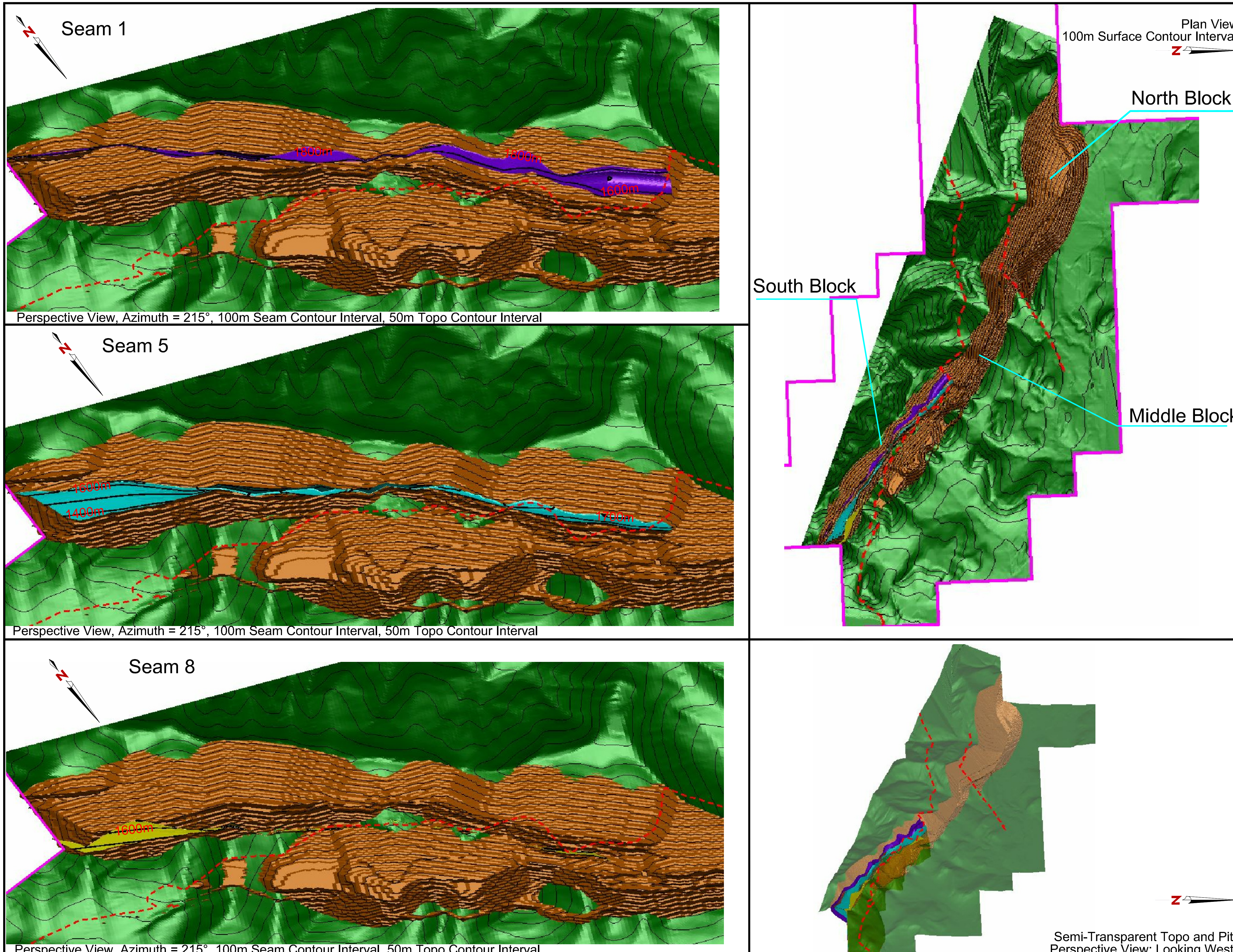
FIGURE 5-21

COLONIAL COAL CORP.

SEAM CORRELATION
(SOUTH BLOCK)
SHEET 2 OF 2

DATE: 08/02/2013 | SCALE: N.T.S. | PROJECT: 497-3

NORWEST CORPORATION



LEGEND

- Seam 1
- Seam 5
- Seam 8
- Topography
- Surface Pit
- Surface Projection of Major Faults Separating Fault Blocks
- Lease Boundary
- Topo/Pit Contours
- Seam Contour
- 1400m Contour Elevation

FIGURE 5-22

COLONIAL COAL
SOUTH BLOCK
SEAM STRUCTURE

DATE: 08/02/2013
FILE: 497-3 FIG7.30

NORWEST CORPORATION

SECTION 6 COAL QUALITY

Data presented in this section include historical coal quality taken from Denison (1979a, 1979b, and 1981), and results obtained from Colonial's 2008, 2011 and 2012 exploration programmes. All 2012 coal quality data including analytical, attrition-sizing, washability, petrography and carbonization results plus detailed sample logs are presented in Appendix V.

6.1 RAW COAL QUALITY

The overall in-situ (or raw) coal quality data for the seams of interest in the North, Middle and South Blocks, are presented in Tables 6-1 through 6-3, respectively. All data are from the exploration programs carried out by Colonial. The values of in-situ coal quality presented in Tables 6-1, 6-2 and 6-3 below, are weight averages using the true seam intersections from each of the cored and non-cored (rotary) drillholes. Adjustments to the coal quality were made for sections of core loss and coal qualities were assigned to each seam intersected by rotary holes. These adjustments were achieved by comparison of geophysical logs and evaluation of the coal quality results from incremental ply samples from coal seam intersections with higher core recoveries.

Residual moisture values are typical of un-oxidized coals found within the Gates Formation of the Huguenot properties; that is, usually less than 1%. Volatile matter on a dry mineral matter free (dmmf) basis ranges from 22.74% to 30.87% for the North, Middle and South Blocks. This indicates that all of the coal seams fall within the medium volatile bituminous classification.

Table 6-1: North Block In-Situ Coal Quality Summary (air dried basis)

Seam	RM %	Ash %	VM %	FC %	S %	Dmmf VM %
9	0.65	16.82	26.66	55.86	1.06	30.87
8	0.74	26.94	21.42	50.90	0.37	27.27
6D	1.26	6.78	23.97	67.99	0.71	25.43
$6C_L$	1.76	23.76	20.74	53.74	0.81	25.67
6B	0.50	17.41	22.46	59.63	0.41	25.98
6L	0.65	26.51	19.45	53.38	0.36	24.39
5	0.50	16.31	23.28	59.91	0.31	26.75
4_U	0.54	12.34	22.54	64.58	0.86	24.77
3D	0.52	12.77	26.10	60.61	0.86	29.22
$3B_L$	0.50	20.72	20.73	58.05	0.45	24.48
3B	0.58	28.15	20.32	50.95	0.43	26.00
2A	0.52	26.45	21.41	51.61	0.67	26.96
1	0.58	18.25	21.85	59.31	0.39	25.48

Table 6-2: Middle Block In-Situ Coal Quality Summary (air dried basis)

Seam	RM %	Ash %	VM %	FC %	S %	Dmmf VM %
10	0.86	17.70	24.00	57.44	0.82	28.04
9	0.58	14.51	24.22	60.70	0.82	27.27
8	0.53	24.51	22.10	52.86	0.39	27.39
6D	0.59	28.75	20.93	49.72	0.69	26.93
6B	0.73	17.45	22.49	59.32	0.55	26.03
6L	0.48	25.94	20.13	53.45	0.42	25.09
5	0.49	14.50	22.48	62.54	0.29	25.33
4_U	0.60	7.18	22.50	69.72	0.54	23.77
2A/2AB	0.57	23.43	21.79	54.20	0.49	26.8
1	0.46	10.48	23.27	65.79	0.31	25.34

Table 6-3: South Block In-Situ Coal Quality Summary (air dried basis)

Seam	RM %	Ash %	VM %	FC %	S %	Dmmf VM %
9	0.57	17.65	21.71	60.07	1.98	24.27
8	0.88	27.93	19.82	51.37	0.41	25.32
6D	0.65	32.09	19.85	47.41	0.90	26.36
6B	0.54	28.62	18.86	51.98	0.65	23.92
6L	0.69	25.76	18.80	54.74	0.41	23.25
5	0.62	15.86	21.34	62.18	0.29	24.31
4	0.61	24.16	19.22	56.00	0.45	23.41
2Z/2A	0.62	51.52	14.78	33.08	0.47	24.14
1	0.51	10.10	21.03	68.36	0.35	22.74

The variability exhibited in raw ash contents primarily reflects the thickness and continuity of in-seam rock partings. Although inherent ash (such as mineral matter) produces some variability, its effect is usually minor in comparison to that of the in-seam partings. Except for Seam 9 most of the coal seams are low to very low in sulphur. Values are typically less than 1% although most are less than 0.6%. For Seam 9, values for the North, Middle and South Blocks are 1.06%, 0.82%, and 1.98% respectively.

6.2 CLEAN COAL QUALITY

Clean coal analyses were conducted on 139 samples. Clean coal composites (CCCs) were generated by selecting simulated floats and froths to create a target ash of 8% (adb). These underwent a variety of tests and analyses. Those carried out in each campaign are listed in Section 3.

The clean coal quality of each seam is presented for each block in Tables 6-4 to 6-6, below. In most instances, the clean coal summary data were generated using arithmetic averages derived from two or more drill core intercepts that had higher core recoveries. Several exceptions to this were required due to poor core recoveries which required either the use of data from a single, higher-recovery, coal seam intersection (North Block Seams 9, 2A; Middle Block Seams 8, 6B, 6L, 2A), or data from coal seam intersections with lower core recoveries (Middle Block, Seams 10, 6D, 2EF; with core recoveries ranging from approximately 47% to 55%). Other than for these latter three instances, all data presented in Tables

6-4 to 6-6 were derived from intercepts with core recoveries greater than 72%. Coal quality data and geophysical logs for the coal seam intersections selected were compared to the analytical data and geophysical logs from the same coal seams intersected by other drillholes, for which there were lower core recoveries. This was done to ensure that the selected analytical data were not biased by any core loss in the sampled coal seam.

Official certificates of analyses are included in Appendix V.

Variables that affect the theoretical yields obtained for any one coal seam include geological factors, drill core recoveries and the procedures used in producing the clean coal sample. As the tests targeted production of a specific ash content, yields were not optimized. Thinner coal seams, particularly those that had lower core recoveries, often provided insufficient material to conduct the full set of float tests or any froth tests. Based upon reviews of the geophysical and descriptive logs and of the "washing" criteria of the lower-recovery coal seams presented above, theoretical yields would likely be expected to improve over the values listed for a number of these coal seams, albeit at probably slightly higher ash contents.

For HQ-size core samples, CCCs for each mining section were generated from 9.5mm x 2.5mm floats and associated -2.5mm x 0 froths (although, not in every case for the latter, due to insufficient fines being available). S.G. cut points for floats typically ranged between 1.50 and 1.60 although some CCCs were generated from 1.4 and 1.70 floats. Froth time typically ranged between 30 and 120 seconds.

For 6"-size (large diameter) core samples, froth and froth cut points for CCCs generated for each seam are described in Section 3.5.6.1. The cut point ranges used were:

- 2008: =16M = 1.55 to 1.65; 16M x 60M = 1.75; -60M = froth to completion;
- 2011: +16M = 1.50 to 1.60; 16M to 60M = 1.70; -60M = F1 (using modified tree flotation);
- 2012: +16M = 1.50 to 1.55; 16M x 60M = 1.60; -60M = F1 + F2 (using modified tree flotation).

Table 6-4: North Block Clean Coal Quality Summary (air dried basis)

Seam	Core Rec %	Theor. Yield %	Ash%	VM (dmmf)	S%	FSI	% Phos in coal	B/A ratio	Fluidity ddpm	Dilatation % SD 2.5	RoMax
9	100.0	62.0	9.3	30.9	0.82	8.5	0.168	0.10	166	65	1.00
8	95.3	67.5	7.5	28.3	0.49	6.5	0.031	0.12	5 - 15	(-10) - 10	1.04
6D	74.3	73.9	4.2	26.5	0.79	7.0	0.055	0.09	2 - 29	(-2) - 0	1.11
6B	77.4	73.3	6.9	26.2	0.46	6.5	0.084	0.08	3 - 42	0 - 31	1.12
6L	89.3	63.4	8.5	24.7	0.42	6.0	0.116	0.07	1 - 4	26	1.15
5	96.4	84.9	7.8	25.5	0.34	7.0	0.035	0.10	2 - 13	6	1.16
4_U	96.3	90.2	5.4	24.5	0.91	7.5	0.037	0.09	4 - 5	(-8) - (-7)	1.19
3D	98.1	76.7	5.0	28.7	1.21	9.0	0.098	0.27	400 - 611	183 - 265	1.16
2A	100.0	60.7	7.9	26.1	1.37	9.0	0.015	0.08	544	186	1.22
1	89.2	89.5	7.9	25.1	0.42	6.5	0.036	0.6	5 - 37	0 - 11	1.17

Table 6-5: Middle Block Clean Coal Quality Summary (air dried basis)

Seam	Core Rec %	Theor. Yield %	Ash%	VM (dmmf)	S%	FSI	% Phos in coal	B/A ratio	Fluidity ddpm	Dilatation % SD 2.5	RoMax
10	46.8	67.9	8.6	29.0	0.93	8.0	0.187	0.13	290	52	1.06
9	91.5	77.2	7.2	27.6	0.84	7.0	0.091	0.10	40 - 274	30 - 66	1.06
8	84.6	68.7	8.8	27.2	0.51	6.0	0.038	0.16	4	0	1.09
6D	54.7	31.5	6.8	26.1	0.95	8.5	0.007	0.06	195	119	1.19
6B	78.8	46.0	6.3	25.0	0.81	8.0	0.085	0.06	185	85	1.14
6L	82.2	59.1	8.9	25.2	0.45	6.5	0.093	0.08	6	(-6)	1.12
5	84.9	83.6	8.3	24.6	0.31	5.5	0.032	0.13	3	0	1.21
4_U	85.0	93.6	4.8	24.3	0.56	7.5	0.148	0.09	4 - 5	(-8) - (-7)	1.24
3B	84.0	54.2	9.1	24.0	0.51	7.5	0.031	0.05	4	-5	1.24
2A	100.0	71.1	8.2	26.6	0.60	9.0	0.019	0.11	130	85	1.22
2EF	52.0	51.3	9.2	24.0	0.41	8.0	0.158	0.06	21	16	1.24
1*	92.8	92.6	7.8	23.4	0.37	6.5	0.023	0.10	5 - 8	(-9) - 0	1.24

** Values are the average of North Block and South Block Seam 1 data*

Table 6-6: South Block Clean Coal Quality Summary (air dried basis)

Seam	Core Rec %	Theor. Yield %	Ash%	VM (dmmf)	S%	FSI	% Phos in coal	B/A ratio	Fluidity ddpm	Dilatation % SD 2.5	RoMax
9	92.8	95.3	4.5	27.2	0.66	8.0	0.042	0.05	468	89	1.10
8	71.9	60.3	7.5	26.1	0.62	6.5	0.043	0.06	42 - 611	8 - 121	1.16
6D	79.8	40.2	6.5	27.6	0.97	8.0	0.060	0.06	670	184	1.15
6B	89.4	41.5	7.0	24.6	0.83	8.5	0.080	0.08	187	86	1.26
6L	82.4	66.6	6.9	24.1	0.54	7.5	0.067	0.09	23 - 49	20 - 32	1.28
5	72.0	73.9	7.8	24.7	0.38	6.5	0.035	0.15	5 - 6	(-15) - (-9)	1.24
4	84.3	86.8	5.6	23.7	0.61	7.5	0.030	0.07	7 - 27	(-3) - 39	1.28
2Z	85.6	44.4	8.6	23.7	0.46	8.0	0.067	0.13	28 - 108	28 - 58	1.31
1	95.3	92.4	7.8	21.7	0.34	6.5	0.011	0.14	8	(-9)	1.32

Volatile matter on a dmmf basis for clean coal ranges from 21.7% to 30.9% across the property, and is consistent with dmmf values calculated from raw coal data. Mean maximum vitrinite reflectance (RoMax) values range from 1.00 to 1.39, confirming these coals as being of medium volatile bituminous rank.

Huguenot coal seams typically clean to a low sulphur product. Overall, CCC sulphur contents range between 0.29% and 1.37%. However, with the exception of HD11-12 Seam 2A (1.37%) and HD12-03 Seam 6D (1.03%), all other CCCs returned a sulphur content less than 1.00%. Concentration of sulphur from raw to washed coal was not evident.

The mineral analysis of ash provides acid and base oxides contained in the ash. For coke making purposes, minimal basic components are desired. The ash basicity can be reported using a ratio of the base oxides over the acid oxides:

$$\mathrm{Base/Acid} = \frac{\mathrm{CaO} + \mathrm{MgO} + \mathrm{Fe_2O_3} + \mathrm{K_2O} + \mathrm{Na_2O}}{\mathrm{SiO_2} + \mathrm{Al_2O_3} + \mathrm{TiO_2}}$$

Overall CCC base/acid ratios range from 0.029 to 0.640, although the majority (90%) returned base/acid ratios of less than 0.163. Todoschuk et. al. (2003) found that, to make a minimum 60% coal strength after reaction (CSR) coke, the ash basicity of the coal needed to be less than or equal to 0.163.

The phosphorus-in-coal contents for all mining section CCCs range from 0.006% to 0.235%. However, for the major seams (8, 6B, 5 and 1in the North Block, and 8, 6L 5 and 1 in the Middle and South Blocks), 77% of the CCCs returned phosphorus contents of less than 0.065. The upper (younger) coal seams tend to be higher in phosphorus than the lower (older) seams.

Rheological characteristics of the Huguenot coal seams are as follows;

- FSI values range from 4.5 to 9, although the majority are equal to, or greater than, 6;

- maximum fluidity values range between 1 and 611 dial divisions per minute (ddpm); and dilatation ranges from minus 19 to 204. Fluidity is extremely sensitive to oxidation, which begins as soon as the drill core is extracted from the ground. The amount and rate of fluidity degradation can vary depending on factors such as coal rank, maceral type, size consist, storage method, and whether the sample has undergone washability testing using water-based or organic liquid separation. Since there were significant delays in getting the drill core to the laboratories for testing, and considering the use of organic liquids during washability testing, it is expected that, coal produced from Huguenot will report higher fluidities than reported here. Deterioration of fluidity over time has been well documented. A study by Galvin and Iveson (2010), for the Australian Coal Association Research Program, found that perchloroethylene has a detrimental effect on the fluidity and coking properties of many coals.

Between 2011 and 2012, at total of 11 simulated seam products (SSPs) were created for small scale carbonization purposes. Most of the SSPs were comprised of samples taken from large (15.2cm) diameter exploration core that had undergone attrition and detailed washability studies using organic liquids. One SSP was formed from a combination of 8.38cm (PQ-size) and 6.35cm (HQ-size) cores. These clean products were carbonized in CanmetENERGY's 12.5kg capacity carbonization SHO as per ASTM D2014-97(2010). CanmetENERGY has found a strong linear relationship between CSR's measured in smaller-scale SHO's and CSR's obtained from their larger-scale (350kg-capacity) ovens, indicating that the CSR of the coke samples produced using both methods are very similar (MacPhee et. al, 2011). Analyses from the samples that underwent SHO testing are presented in Table 6-7.

CSR values range from 56.1 to 70.7 with the exception of 2011 Seam 8 which resulted in a CSR of 41.1 (CanmetENERGY, 2012). The reason for this lower Seam 8 CSR is likely attributed to the greater age of this sample.

Table 6-7: CSR Values from Sole Heated Oven Carbonization – North and Middle Blocks

Year	Coal (dry basis)								Coke	
	Seam ID	**RoMax**	**Ash%**	**VM (dmmf)**	**FSI**	**Fluidity (ddpm)**		**B/A Ratio**	**CSR**	**CRI**
2012 North Block	1, 5, 6B, 6L, 8	1.12	8.10	26.05	7.0	15		0.14	58	32
	8	1.01	6.09	28.02	7.0	22		0.17	57	36
	6B	1.10	7.90	26.95	7.5	32		0.09	68	24
	6L	1.13	8.74	24.67	6.5	4		0.13	67	26
	5	1.15	8.35	25.66	7.5	22		0.14	56	36
	1	1.14	9.63	23.99	7.5	15		0.11	64	30
2011 Middle Block	9	1.07	8.55	27.44	7.5	40		0.08	71	20
	8	1.09	8.79	27.20	6.0	4		0.16	41	46
	6L	1.12	8.92	25.22	6.5	6		0.08	63	24
	5	1.21	8.68	24.92	6.0	3		0.15	57	33
	1, 2A	1.21	7.19	25.13	7.5	4		0.12	66	28

In 2008 and 2012, larger SSPs were made for the purposes of pilot scale carbonization. Approximately 400kg of clean coal was charged in CanmetENERGY's moveable wall Carbolite oven that is used to simulate industrial coke ovens. Analyses from the samples that underwent Carbolite oven testing are presented in Table 6-8.

Table 6-8: CSR Values from Carbolite Oven Carbonization – North Block

Year	Coal								Coke	
	Simulated Product	**Seam Blend**	**Ash% (db)**	**VM (dmmf)**	**FSI**	**Fluidity (ddpm)**	**B/A Ratio**	**RoMax**	**CSR**	**CRI**
2008	Huguenot North	8, 6, 5, 1	8.10	24.84	6.5	2.1	0.08	1.14	52.7	32.0
2012	Huguenot North	8,6B, 6L, 5, 1	8.10	26.05	7.0	15.0	0.14	1.12	61.4	28.7

Slightly different seam blends were used each year due to clean coal mass limitations. The 2008 blend was based upon seam thickness and represented all of the material recovered from washing the four coal seams. The 2012 blend was created to more accurately reflect the resource percentages (based upon in situ resource reported in 2012) utilizing five coal seams.

The 2012 Blend Coke achieved a high CSR of 61.4, while the CSR of 52.7 for the 2008 blend coke (CanmetENERGY, 2009 and 2014). The difference is again attributed to the age of the samples tested.

Given the known effects that sample storage, oxidation and organic liquids have on coking properties, it is possible that fluidity and CSR values for Huguenot coal will report higher values if performed on fresh coal samples, and in the absence of organic liquids during the plant scale preparation of the clean coal.

6.3 PROJECTED PREPARATION PLANT YIELD

Yield curves were developed for the major mineable coal seams for the North, Middle and South Blocks. The yield curves graph ROM ash versus yield and were based on the detailed washabilities run on large-diameter cores for the seams of interest. These curves were generated using Limn® software that simulates running the coal through a preparation plant and not strictly from laboratory washability analyses. The input to this software was the laboratory washability data generated from the comprehensive washability program developed for the Huguenot seams. Key information derived from the washability program was post-attrition particle size distribution as well as density distributions in three distinct size ranges; namely, plus 9.5mm, 9.5mm x 1mm, 1mm x 0.25mm.

The estimated raw in-place ash values were from averaged seam ash taken from quality analysis with core loss reconciled against geophysical logs. ROM ash values were estimated using the following formula:

$$\text{ROM Ash}_{\text{ADB}} = \frac{\text{Raw Coal Ash}_{\text{ADB}} \times (\text{TThk Coal} - \text{TThk Coal Loss}) \times \text{Coal SG}_{\text{in-situ}} + (\text{DilutionAsh}_{\text{ADB}} \times \text{TThk Dilution} \times \text{Dilution SG}_{\text{in-situ}})}{(\text{TThk Coal} - \text{TThk Coal Loss}) \times \text{Coal SG}_{\text{in-situ}} + (\text{TThk Dilution} \times \text{Dilution SG}_{\text{in-situ}})}$$

The out-of-seam dilution used for the above calculation was 0.2m for each seam. To account for non-recovered coal during mining, 0.2m was subtracted from the thickness of each seam. In addition, an overall mining recovery factor of 95% was utilized. In-situ coal S.G. used was 1.43 tonnes/m³. The in-situ out-of-seam dilution S.G. used was 2.2 tonnes/m3.

Figures 6-1 through 6-4 visually characterize the potentials for both product ash and yields for the coal seams, where information was available and the data analyzed (i.e., Seams 1, 5, 6L, 6B and 8).

A weight-averaged yield of 70% and 76% was estimated for coal produced in both the surface and underground mine plans, respectively, based on the curves generated, assuming a product ash of 9% (db) for Seams 8, 6L, and 5, 8.6% (db) for Seam 6B, and 8.8% (db) for Seam 1; a practical yield of 50% was assumed for all seams for which data was not available. Yield by seam is summarized in Tables 6-9 and 6-10 for surface and underground mining.

Figure 6-1: Seam 1 Group Product Yield as a Function of HMC Cutpoint

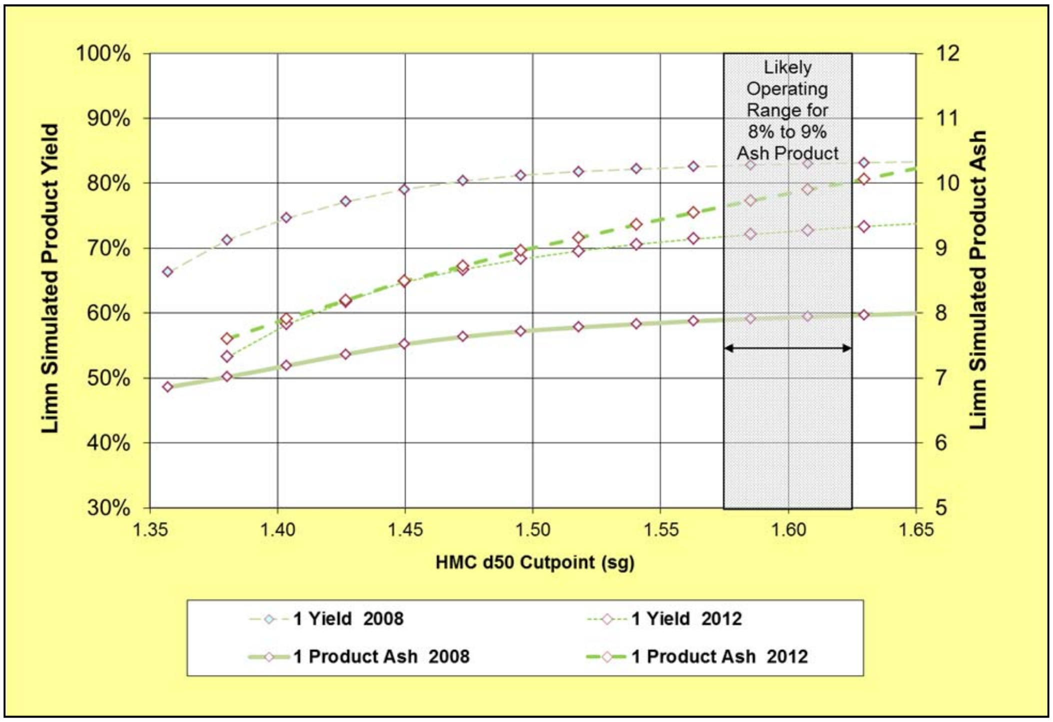


Figure 6-2: Seam 5 Group Product Yield as a Function of HMC Cutpoint

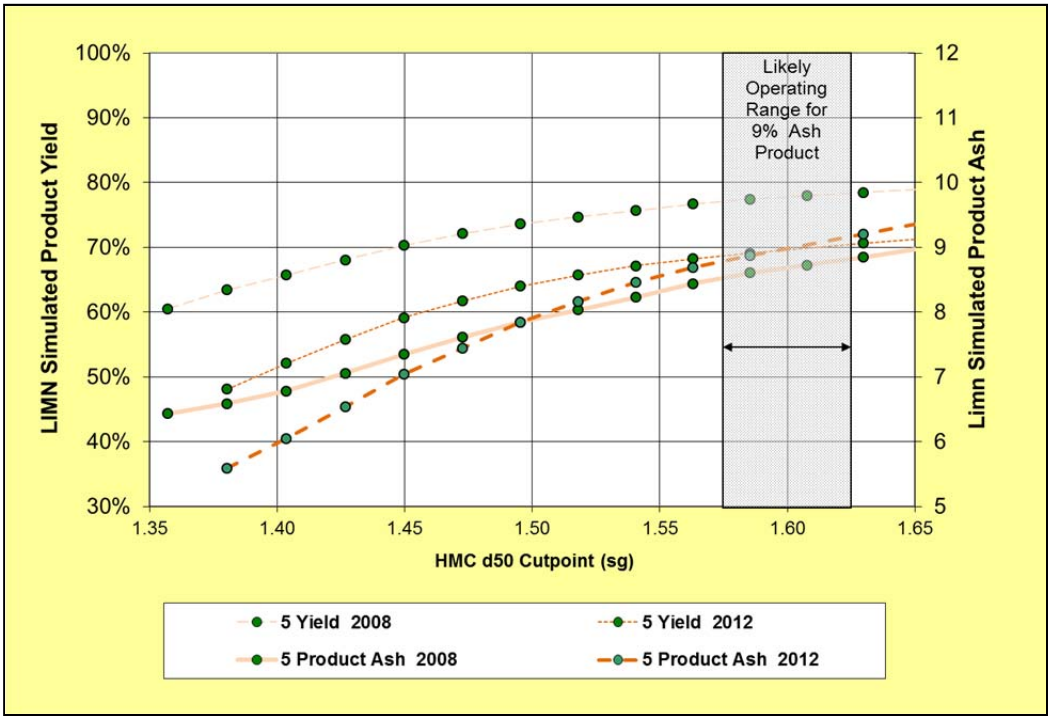


Figure 6-3: Seam 6 Group Product Yield as a Function of HMC Cutpoint

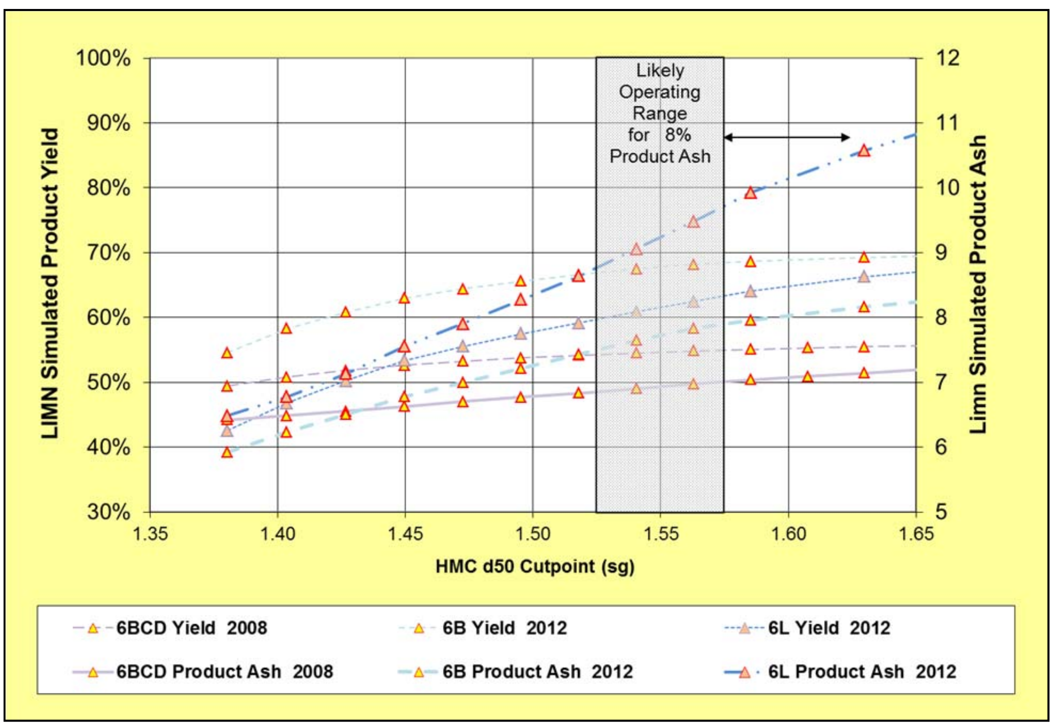


Figure 6-4: Seam 8 Group Product Yield as a Function of HMC Cutpoint

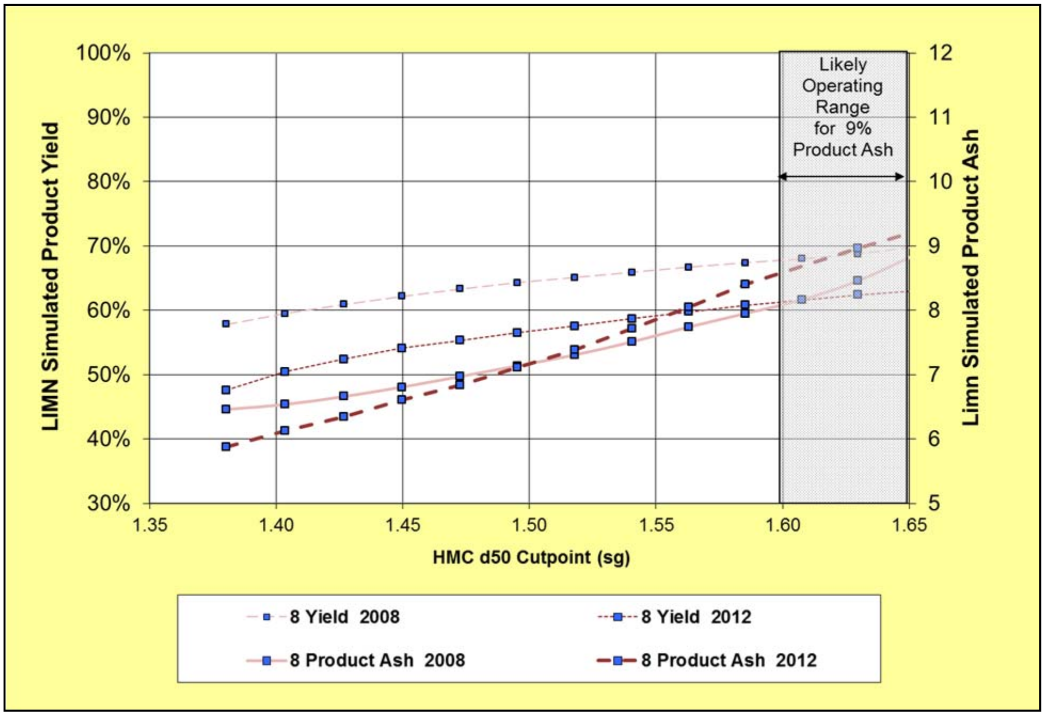


Table 6-9: Average Proposed Yields (by Seam): Surface Mining

Seam	Average Yield (%)
Seam 1	81.2
Seam 2	50.0
Seam 3B	50.0
Seam 4_U	50.0
Seam 5	80.7
Seam 6B	58.2
Seam 6D	50.0
Seam 6L	53.9
Seam 8	60.2
Seam 9	50.0

Table 6-10: Average Proposed Yields (by Seam): Underground Mining

Seam	Average Yield (%)
Seam 8	64.2%
Seam 6B	70.0%
Seam 5	82.5%
Seam 1	87.1%

6.4 POTENTIAL LIFE-OF-MINE COAL PRODUCT

The potential life-of-mine (LOM) product coal quality from the Huguenot Project is presented in Table 6-11. In addition to the role of each seam within the resource distribution, the product quality takes into consideration the anticipated mining plan, and the resultant coal recovery. Variations in product quality due to the foregoing parameters are anticipated to fall within the ranges specified in Table 6-11.

Table 6-11: Life-of-Mine Potential Product

Moist% (arb)	Vol% (db)	Ash% (db)	S% (db)	P% (db)	FSI	RoMax%	Fluidity (ddpm)	B/A Ratio	CSR
9	22.5 - 23.5	8.5 - 9	0.40	0.044	6.5 - 7	1.15 - 1.20	100	0.08 - 0.010	60 - 65

Further observations on potential product quality, together with a comparison of Huguenot 'product' quality to coking coals produced and exported from mines in western Canada are presented in the PEA report that forms Appendix I.

SECTION 7 RESOURCE ESTIMATES

7.1 INTRODUCTION

Coal resource estimations for the North, Middle and South Blocks of the Huguenot property were carried out by Norwest. Within each of these structurally defined blocks, coal resources were categorized as mineable using either surface or underground mining methods.

Geological models were completed by Norwest using the geological interpretation of the coal geology developed by Colonial's geologists. Norwest personnel constructed a 3D resource model, and completed resource estimation and resource classification. The 3D resource model was compiled using MineSight™ software.

Norwest also provided a senior coal geologist to undertake site visits, supervise data validation, review and assist in Colonial's geological interpretation and formatting of data to support model development, and to be the independent QP in the preparation of the PEA report.

Resource estimates were completed in accordance with the procedures and guidelines of GSC Paper 88-21 as recommended by NI 43-101(CP).

- Total in-situ ***surface*** mineable resource estimates using a 0.60m thickness cut-off are: 132.0Mt of Measured and Indicated (Measured = 96.2Mt; Indicated = 35.8Mt), plus 0.5Mt of Inferred.

- Total in-situ ***underground*** resources using a 1.5m minimum thickness are: 145.7Mt Measured and Indicated (Measured =18.9Mt; Indicated = 126.9Mt), plus 118.7Mt of Inferred.

The accuracy of resource and reserve estimates is, 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 or reserves will be recoverable. There are no known issues related to environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that would have material effect on resource estimates.

7.2 METHODOLOGY AND GENERAL CRITERIA

Factors affecting estimation of resources within the Huguenot Property are summarized below.

7.2.1 Model Extent & Geometry

Two 3D block models were compiled with each delineating either surface mineable coal resources or underground mineable coal resources. All block models were oriented along strike of the northeasterly-dipping Gates Formation at an azimuth of 20°. Table 7-1 outlines the model extent and block dimensions for each of the two model types.

Table 7-1: Geologic Model Dimensions

Dimensions (m)	Surface Model	Underground Model
Along Strike length	12,400	12,400
Dip direction length	5,900	5,900
Maximum elevation	2,000	2,000
Minimum elevation	800	200
Block size along strike	25.0	25.0
Block size dip direction	10	10
Block size vertical	5	5

7.2.2 Topography & Overburden (Till) Surface

Digital LIDAR topography was provided by Colonial. This topography was used to generate a digital elevation model (DEM). The drillhole data were 'draped' to the digital data and the drillhole collar elevations were adjusted to fit the topography.

The base of the weathered surface defines the extent of glacial-fluvial cover over bedrock. No coal seams are modelled above the base of the weathered surface. The weathered surface was created by using an inverse distance algorithm to estimate the thickness of the weathered surface from each drillhole into the model. This value was then subtracted from the topography surface to create the base surface of the weathered horizon.

7.2.3 Oxide Horizon

The base of oxidation surface represents an estimate of the horizon where in-situ coal has been sufficiently exposed to oxidizing elements to alter its metallurgical characteristics. Oxidized coal is defined as coal within 5m of the base of the overburden surface. This estimate was made from experience with other mining projects in the region.

7.2.4 Geological Data & Geological Interpretation

All drillhole, surface mapping and trench data available for this property were used to develop the geological models. Data from a single, off-property, drillhole (BD7801) was also used for control purposes. Coal seam correlation was determined by Colonial using down-hole geophysical logs and surface mapping. The geologic structural interpretation was developed by Colonial by integrating the seam correlations with bedding to core angles logged in drill core as well as bedding dips observed at surface.

To complete the geologic model, Colonial provided Norwest the following basic data: LIDAR surface data, drillhole and trench database, and surface mapping. For the North Block, area structure contour maps for seams 1, 5, 6B, 8, and the Holtslander North Thrust (the block-bounding fault) were also provided. For the Middle and South Blocks, across-strike cross-sections were provided for structural control. These data were sufficient to correlate coal seams, fault strike and displacement between cross sections, and drillhole intercepts. Seam roof and floor surfaces were digitized by Norwest from these cross-sections and used to create solid objects. These seams solids were then used to code a 3D block model with percentage coal on a per seam basis.

Coal seam thicknesses from exploration drillholes are measured along the length of the hole; because the angle of intersection between the hole and the seam is often less than perpendicular, these intersections represent an 'apparent' rather than 'true' thickness of the seam. Adjustments from apparent to true seam thickness were made in the modelling of in-situ coal resources. The resource model is based on true seam thickness, as defined mathematically through the relationship between drillhole geometry and interpreted bedding geometry.

While the resource estimates are based primarily on drillhole data supported by selected trench data, the assignment of resource categories takes all of the geological data into account.

7.2.5 Mineable Thickness

On the basis of the current interpretation, the North and Middle Blocks of the Huguenot deposit are classified as a moderate, potentially surface and underground mineable deposit. The South Block is considered a complex, potentially surface and underground mineable deposit. Resource assumptions for mineable thicknesses conform to GSC Paper 88-21 guidelines at 0.6 m for surface deposits and 1.5m for underground deposits. Rock partings greater than 0.3m true thickness were omitted from in-situ resource estimations.

It should be noted that the mineability of a given seam is not simply tied to its individual seam thickness, but also to its quality, and the number and thickness of seams and partings immediately adjacent to it. Furthermore, mineability is greatly determined by mining methodology and equipment selection.

7.2.6 Specific Gravity

Specific gravities used in modelling seam densities and resource estimation were based on the analyzed coal ash percent and the semi-quantitative extrapolated ash percent. To arrive at seam densities the following formula devised by Quintette was utilized:

$$\mathrm{S.G.} = \frac{211.4306}{172.0854 - \%\ \text{air dried ash}}$$

The formula takes into account that coal seams in the Gates have an in-seam porosity of approximately 4%. The ash values utilized in the formula were based on actual coal quality analysis. Where core recoveries were less than 100% the mineable seam sections, for which there was coal quality data, were compared (utilizing visible core and geophysical logs) to seam sections for which quality was not available. Ash values were then assigned to the lost core based on the comparison of geophysical log signatures to geophysical log signatures of known recovered core and its corresponding analysis.

7.2.7 Modelling Seam Extents

Seam roof and floor surfaces were digitized from control points that included: drillhole intercepts, surface trenches, surface mapping and across-strike cross sections interpreted by Colonial. The roof and floor surfaces were then used to construct solids for each seam where the true seam thickness was interpreted to be greater than 0.6m for surface mineable resources and greater than 1.5m for underground mineable resources. The seam solids did not extend into the zone of oxidation. These seam solids were then used to code a 3D block model with percent coal for each model block to a maximum depth of 900m below surface.

To define the zone of surface mineable resources, a pit shell was created within coal-bearing zones within the license boundaries. A Lerchs-Grossman algorithm was used determine the shape of the pit shell targeting a maximum incremental stripping ratio of 20:1 bcm/tonne for extracting coal seams at greater than 0.6m true thickness. An overall stripping ratio of 12:1 bcm/tonne was calculated for the final pit shell and this stripping ratio was deemed acceptable by Norwest after benchmarking the results with current surface mining costs. The overall pit slope used in the pit shell calculations is 47° based on Norwest experience of pit slope stabilities in neighbouring active surface mines. The surface mineable resources defined here have not been proven to economically extractable.

7.3 SURFACE MINEABLE RESOURCE

Current surface mineable resource estimates for the North, Middle and South Blocks of the Huguenot coal property for the 0.6m minimum mineable seam thickness model are summarized in Table 7-2. Each model constrains the coal within a pit with 47° slopes and a strip ratio of less than 20:1 bcm/tonne (a pit delineated resource with an incremental strip ratio of 20 bank cubic meters (bcm) of waste to one tonne of in place coal). The overall cumulative strip ratio is 12:1bcm/tonne.

Table 7-2: Summary of In-Situ Minable Coal Resources

Resource Category	Total (Mt)
Measured	96.20
Indicated	35.75
Total (Meas. + Ind.)	131.95
Inferred	0.53

Tables 7-3 to 7-5 summarize surface mineable resources by seam/coal zone.

Table 7-3: Summary of Total Measured Surface Minable Resources by Seam/Coal Zone

Measured - Surface											
North Block			Middle Block			South Block			Totals		
Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total
10			10	0.63	1.7	10			10	**0.63**	**0.65**
9	0.24	0.4	9	0.90	2.4	9			9	**1.14**	**1.18**
8	7.93	13.6	8	1.94	5.1	8			8	**9.87**	**10.26**
6D	1.46	2.5	6D	0.57	1.5	6D			6D	**2.03**	**2.11**
6B	6.01	10.3	6B	1.36	3.6	6B			6B	**7.37**	**7.66**
6L	6.89	11.8	6L	6.18	16.3	6L			6L	**13.07**	**13.58**
5	18.51	31.7	5	12.21	32.2	5			5	**30.72**	**31.94**
4_U	1.66	2.9	4_U	1.54	4.1	4_U			4_U	**3.20**	**3.34**
4			4			4			4		
3D	0.40	0.7	3D			3D			3D	**0.40**	**0.42**
3B	2.51	4.3	3B	0.89	2.3	3B			3B	**3.40**	**3.53**
2HI			2HI	0.08	0.2	2HI			2HI	**0.08**	**0.09**
2EF			2EF	0.22	0.6	2EF			2EF	**0.22**	**0.23**
2D			2D	0.02	0.1	2D			2D	**0.02**	**0.02**
2A	2.02	3.5	2A	1.38	3.6	2A			2A	**3.40**	**3.53**
2Z			2Z			2Z			2Z		
1	10.69	18.3	1	9.96	26.3	1			1	20.65	21.46
Total	**58.32**			**37.88**						**96.20**	

Table 7-4: Summary of Total Indicated Surface Minable Resources by Seam/Coal Zone

Indicated - Surface											
North Block			Middle Block			South Block			Totals		
Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total
10			10	0.13	1.5	10			10	**0.13**	**0.37**
9	0.10	1.3	9	0.09	1.0	9	0.10	0.5	9	**0.29**	**0.82**
8	1.73	21.8	8	1.39	15.4	8	0.44	2.3	8	**3.56**	**9.95**
6D	0.11	1.4	6D	0.01	0.1	6D	0.09	0.5	6D	**0.21**	**0.57**
6B	0.84	10.6	6B	0.57	6.3	6B	0.36	1.9	6B	**1.77**	**4.94**
6L	1.50	19.0	6L	1.38	15.2	6L	3.15	16.7	6L	**6.03**	**16.85**
5	2.76	34.9	5	2.73	30.3	5	5.78	30.7	5	**11.27**	**31.53**
4_U	0.20	2.5	4_U	0.34	3.8	4_U			4_U	**0.54**	**1.50**
4			4			4	2.11	11.2	4	**2.11**	**5.91**
3D			3D			3D			3D		
3B	0.13	1.7	3B	0.18	1.9	3B			3B	**0.31**	**0.86**
2HI			2HI			2HI			2HI		
2EF			2EF	0.13	1.5	2EF			2EF	**0.13**	**0.37**
2D			2D			2D			2D		
2A	0.08	1.0	2A	0.25	2.8	2A			2A	**0.33**	**0.93**
2Z			2Z			2Z	4.50	23.9	2Z	**4.50**	**12.59**
1	0.46	5.9	1	1.82	20.2	1	2.29	12.2	1	**4.57**	**12.82**
Total	**7..91**			**9.02**			**18.82**			**35.75**	

Table 7-5: Summary of Total Inferred Surface Minable Resources by Seam/Coal Zone

Inferred - Surface											
North Block			Middle Block			South Block			Totals		
Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total
10			10	0.01	2.0	10			**10**	**0.01**	**2.05**
9			9			9			**9**		
8			8	0.15	28.2	8			**8**	**0.15**	**28.16**
6D			6D			6D			**6D**		
6B			6B			6B			**6B**		
6L			6L			6L			**6L**		
5			5			5			**5**		
4_U			4_U			4_U			**4_U**		
4			4			4			**4**		
3D			3D			3D			**3D**		
3B			3B	0.02	4.1	3B			**3B**	**0.02**	**4.13**
2HI			2HI			2HI			**2HI**		
2EF			2EF	0.35	65.7	2EF			**2EF**	**0.35**	**65.66**
2D			2D			2D			**2D**		
2A			2A			2A			**2A**		
2Z			2Z			2Z			**2Z**		
1			1			1			**1**		
Total				**0.53**						**0.53**	

The total measured, indicated and inferred tonnes depicted in this report are 1.7% higher for the potentially surface mine coal compared to the previous report prepared by Norwest (Evenson, 2012). The percentage of measured, indicated and inferred resource in this report (72.6%, 27.0%, 0.4% respectively) compared to the previous report (61.5%, 9.2%, 29.3% respectively) have changed due to the latest exploration activities increasing the number of data points thereby improving the overall assurance categories.

7.4 UNDERGROUND MINEABLE RESOURCE

The underground mineable resource estimates for the North, Middle and South Blocks of the Huguenot coal property, for 1.5m minimum mineable seam thickness models are summarized in Table 7-6. The resources are limited to those coal seams below the surface mining pit and are exclusive of the surface mineable coal resources. The underground mineable coal resources are considered to be of 'immediate interest'.

Table 7-6: Summary of In-Situ Underground Minable Coal Resources

Resource Category	Total (Mt)
Measured	18.85
Indicated	126.88
Total (Meas. + Ind.)	145.73
Inferred	118.66

Tables 7-7 to 7-9 summarize underground mineable resources by seam/coal zone.

Table 7-7: Summary of Total Measured Underground Minable Resources by Seam/Coal Zone

Measured - Underground											
North Block			Middle Block			South Block			Totals		
Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total
10			10			10			**10**		
9			9			9			**9**		
8	1.62	22.5	8	2.76	23.7	8			**8**	**4.38**	**23.24**
6D			6D			6D			**6D**		
6B	0.71	9.9	6B	0.01	0.1	6B			**6B**	**0.72**	**3.80**
6L	0.68	9.5	6L	3.30	28.3	6L			**6L**	**3.98**	**21.11**
5	2.27	31.6	5	3.64	31.2	5			**5**	**5.91**	**31.33**
4_U			4_U			4_U			**4_U**		
4			4			4			**4**		
3D			3D			3D			**3D**		
3B			3B			3B			**3B**		
2HI			2HI			2HI			**2HI**		
2EF			2EF			2EF			**2EF**		
2D			2D			2D			**2D**		
2A			2A			2A			**2A**		
2Z			2Z			2Z			**2Z**		
1	1.90	26.5	1	1.96	16.8	1			**1**	**3.86**	**20.52**
Total	**7.18**			**11.67**						**18.85**	

Table 7-8: Summary of Total Indicated Underground Minable Resources by Seam/Coal Zone

Indicated - Underground											
North Block			Middle Block			South Block			Totals		
Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total
10			10			10			**10**		
9			9			9			**9**		
8	6.58	21.6	8	2.94	15.1	8	2.16	2.8	**8**	**11.68**	**9.20**
6D			6D			6D			**6D**		
6B	3.72	12.2	6B	0.31	1.6	6B			**6B**	**4.03**	**3.18**
6L	4.54	14.9	6L	3.33	17.1	6L	13.45	17.5	**6L**	**21.32**	**16.81**
5	9.58	31.5	5	5.93	30.4	5	20.27	26.3	**5**	**35.78**	**28.19**
4u			4_U			4_U			**4_U**		
4			4			4	7.26	9.4	**4**	**7.26**	**5.72**
3D			3D			3D			**3D**		
3B			3B			3B			**3B**		
2HI			2HI			2HI			**2HI**		
2EF			2EF			2EF			**2EF**		
2D			2D			2D			**2D**		
2A			2A			2A			**2A**		
2Z			2Z			2Z	23.67	30.8	**2Z**	**23.67**	**18.66**
1	5.99	19.7	1	6.99	35.8	1	10.16	13.2	**1**	**23.14**	**18.24**
Total	**30.41**			**19.50**			**76.97**			**126.88**	

Table 7-9: Summary of Total Inferred Underground Minable Resources by Seam/Coal Zone

Inferred - Underground											
North Block			Middle Block			South Block			Totals		
Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total	Seam	Total Coal Mt	% Total
10			10			10			**10**		
9			9			9			**9**		
8	17.87	20.6	8	0.06	4.0	8	4.36	14.4	**8**	**22.29**	**18.78**
6D			6D			6D			**6D**		
6B	11.30	13.0	6B	0.01	0.4	6B			**6B**	**11.31**	**9.53**
6L	11.99	13.8	6L	0.56	35.5	6L	9.96	32.9	**6L**	**22.51**	**18.97**
5	29.44	33.9	5	0.83	52.8	5	3.40	11.3	**5**	**33.67**	**28.38**
4_U			4_U			4_U			**4_U**		
4			4			4	3.11	10.3	**4**	**3.11**	**2.62**
3D			3D			3D			**3D**		
3B			3B			3B			**3B**		
2HI			2HI			2HI			**2HI**		
2EF			2EF			2EF			**2EF**		
2D			2D			2D			2D		

2A			2A			2A			**2A**		
2Z			2Z			2Z	6.78	22.4	**2Z**	**6.78**	**5.71**
1	16.24	18.7	1	0.12	7.3	1	2.63	8.7	**1**	**18.99**	**16.00**
Total	**86.84**			**1.58**			**30.24**			**118.`66**	

7.5 ASSURANCE OF EXISTING CLASSIFICATION

Model block distances from valid seam intercepts in the drillhole and trench records were used to assign resource classification codes. The Geology Type for the North and Middle Blocks is considered to be Moderate and, as such, valid seam intercepts (data points) within a maximum search radius of 450m were used to define measured resources, 900m for indicated resources and 2,400m for inferred resources as prescribed in GSC Paper 88-21.

Moderate Geology Type is described in GSC Paper 88-21 as:

> *"Moderate geology type refers to deposits characterized by homoclines or broad open folds with bedding inclinations of generally less than 30°. Faults may be present, but are relatively uncommon."*

Although the bedding in the North and Middle blocks often exceeds 30^0 the dips are consistent or change gradually along strike, coal seams can be correlated both down dip and along strike with confidence and the encountered faults have minor offsets and are not traceable over distance. Therefore the geology type can be considered moderate.

The Geology Type for the South Block is considered Complex in accordance with GSC Paper 88-21 guidelines. For Complex Geology Type the resources a minimum of three data points are required within regularly spaced cross-sections defined by fence line drilling across-strike of the coal beds. As prescribed in GSC Paper 88-21 the assurance of existence criteria for Complex Geology Type is outlined in Table 7-10.

Table 7-10: Complex Geology Type Classification Criteria

Criteria	**Assurance of Existence Category**		
	Measured	**Indicated**	**Inferred**
Cross section spacing (m)	150	300	600
Minimum number of data points per section	3	3	3
Mean data point spacing along section (m)	100	200	300
Maximum data point spacing along section (m)	200	400	800

Complex Geology Type is described in GSC Paper 88-21 as:

> *"Complex geology type refers to deposits characterized by tight folds, some with steeply inclined or overturned limbs, may be present, and offsets by faults are common."*

SECTION 8 INTERPRETATION AND CONCLUSIONS

8.1 INTERPRETATION

The North, Middle and South Blocks of the Huguenot property cover coal measures belonging to the Gething and Gates Formations. The presence of potentially economic coal seams within the Gates Formation is demonstrated by substantial amounts of drilling, trenching, geological mapping, and coal sampling testing from both historical and recent (2008, 2011 and 2012) exploration programs. Potentially important coal seams within the Gething Formation have also been demonstrated, although these coal seams have seen significantly less work than those belonging to the Gates Formation.

8.2 CONCLUSIONS

The primary purpose of the 2012 exploration program on the Huguenot property was to provide in-fill drill data across the South Block, to demonstrate coal seam and structural continuity either side of the Pika Fault, and to acquire additional coal for confirmation of coal quality parameters.

Based upon the available information, it is concluded that:

- The Huguenot property is located within a region where coal mining is being conducted and other coal mines are being developed.
- Delineation of coal reserves for future development is also taking place on adjoining projects.
- The property has seen substantial historical and recent work programs involving the expenditure of significant exploration budgets.
- Work undertaken by the previous operator (Denison) provides a reliable compilation of geology, resource potential and coal quality for the property as indicated by the results obtained from the most recent (2008, 2011 and 2012) phases of exploration.
- Exploration carried out within the North Block during 2008, 2011 and 2012 and the Middle and South Blocks during 2011 and 2012 met expected objectives by sufficiently defining deposit geology to allow quantification of resources and coal quality according to NI 43-101 classification standards. Only coal resources contained within the Gates Formation have been evaluated.
- Based upon GSC guidelines, the Geology Type for the North and Middle Blocks are classified as Moderate. The Geology Type for the South Block is considered Complex. The data density supports the resource tonnages estimated to date and the coal quality assigned to them. The results of the exploration and their interpretation have been consistent over time, lending confidence to the conclusions that have been reached. The North, Middle and South Block deposits remain open to infill drilling, with the potential for up-grading the level-of-assurance of the coal resources.
- The North, Middle and South Block resource estimates are in accordance with the guidelines of GSC Paper 88-21 as required by NI 43-101. Overall in-situ resource estimates are:
    - Surface: using a 0.60m thickness cut-off: 132.0Mt of Measured and Indicated surface resources plus 0.5Mt of Inferred.

- Underground: using a 1.5m thickness cut-off: 145.7Mt of Measured and Indicated, plus 118.7Mt of Inferred.

- These resources are considered to be of immediate interest.

- Drilling, trenching and detailed mapping have outlined areas within the property where coal resources present an opportunity for low to moderate strip ratio surface mining. Underground mining potential exists below and alongside potentially surface mineable resources. Other than roads and access trails, there are no major infrastructure elements within or proximate to the project area that can be used in mine development without further work.

- Using ASTM criteria and reflectance values, Gates Formation coals on the Huguenot property are classified as medium volatile bituminous overall. The coals are of metallurgical quality and would form a suitable coking coal product after beneficiation in a wash plant.

- Analysis of washed, simulated products reported (on a dry basis): ash = 8.10%, volatile content = 23.43% - 24.53%, fixed carbon = 67.37% - 68.47%, FSI = 6.5 – 7, and phosphorus = 0.047% - 0.051%. These simulated product coals have base: acid ratios ranging from 0.078 to 0.140, as determined from the mineral composition of ash.

- Initial carbonization tests indicate that Huguenot coals can be expected to form a coking coal with favourable coking indices, low to very low sulphur, and low phosphorus contents. It remains for future work to supply fresh samples for rheological tests and carbonization in order to assess the coal's maximum coking potential.

Further work is recommended in order to increase the confidence level of the resources for the area targeted in the PEA for underground mining. This work would be intended to:

- Refine the geometry of the major structural geology.

- Infill coal quality within the proposed open pit mining areas.

- Conduct additional bulk sampling to include all seams that could potentially be mined and provide "fresh" coal for rheological and carbonization tests.

The programs conducted should also include bulk sampling and testing, plus additional carbonization tests on a simulated "product," to characterize the coking potential of the coal across the property as a whole.

SECTION 9 EXPENDITURES

The expenditures for the 2012 Huguenot field program are summarized in the Table 9-1 below. This table does not include any costs associated with geological data compilation and reporting, geological consulting, geological modelling, mine engineering, coal washing studies, coal marketing studies, environmental and archaeology report preparation, and associated support activities.

Table 9-1: Costs Summary for the 2012 Huguenot Field Program

FIELD		
Trails & Mechanized Trenching	$	521,050
Drilling - Air Rotary	$	63,400
Drilling - L.D. Coring	$	259,600
Drilling - HQ Coring	$	227,900
Camp (Room & Board)	$	274,950
Personnel (Colonial)	$	259,150
First Aid	$	54,050
Geophysical Logging	$	134,050
Truck Rental	$	30,050
Helicopter Pad Construction	$	76,000
Helicopter	$	308,600
Equipment Rental	$	3,350
Supplies	$	13,100
Surveying	$	5,150
Freight	$	6,950
Travel & Accommodation	$	21,950
Fuel	$	66,250
Communications	$	5,650
Environmental & Wildlife	$	380,250
Miscellaneous	$	500
Sub-Total:	**$**	**2,711,950**
LABORATORY		
Coal Quality	$	218,150
Coal Carbonization	$	14,600
Water Quality	$	28,450
ARD	$	55,350
Sub-Total:	**$**	**316,550**
Total:	**$**	**3,028,500**

SECTION 10 REFERENCES

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SECTION 11 STATEMENT OF QUALIFICATIONS: JOHN H. PERRY, P.GEO.

I, John H. Perry, P.Geo., do hereby certify that:

- I am Chief Operating Officer for Colonial Coal International Corp., with offices at 200-595 Howe Street, Vancouver, B.C., V6C 2T5

- I hold the following academic qualifications:
  - B. Sc. (Hons) Geology, University of Exeter, UK – 1972
  - Post-Graduate studies in Geology, University of Calgary, Alberta – 1972-1976

- I am a registered Professional Geoscientist with the Association of Professional Engineers and Geoscientists of British Columbia, (Member #19598) and I am a fellow of the Geological Society, London, UK.

- I have practiced my profession for over 39 years on coal, metallic and industrial mineral and gemstone projects within Canada and internationally. My experience with coal projects is extensive; it ranges from early exploration through resource/reserve delineation and includes multiple feasibility-level studies and work conducted within a producing coal mine. Coal projects have been undertaken throughout western Canada and internationally; this includes many projects located in northeast B.C.

- I have overseen the preparation of this Coal Assessment Report entitled: “Huguenot Coal Project: 2012 Exploration Program (covering the period July 2012 to June 2014)”. Dated September, 2014.

Dated: September 18, 2014

(signed) “John H. Perry”

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JOHN H. PERRY, P.Geo.