Sample Depth Prep. Number	**Palynostratigraphic Unit** **Age** [*Index Species*]	**Inferred Lithostratigraphic Unit** (*Log interpreted Unit* (*Morton et al 1995*))	**Inferred Depositional Environment**	**Palynomorph**			**Remarks**
				Preservation	**Yield**	**Diversity**	
	Top Eumeralla Formation ???M						
SWC 95 805.0m P17912	APK52 *"Ruffordiaspora - Cyathidites"* Palynofacies [*P. grandis, P. notensis, P. parvispinosus, C. striatus, F. asymmetricus, F. wonthaggiensis "wonthaggiensis" S. microverrucatus "nevesi"*	upper Eumeralla Formation *(Eumeralla Formation)*	Fluvial ?paralic	Pristine	High	High	Araucanian pollen together with *Cyathidites* & *Osmundacidites* & Bryophyte spores dominant; few leiospheres; isolated spinose acritarchs.
	Top Crayfish Group 1227.5m **Top Laira Formation 1227.5m**						The section between 805m and 1228m is sparsely sampled and all of these sample gave poor palynomorph recoveries; see Species Diversity Plot Enclosure XXX
SWC 90 1228.0m P17907	APK21 possibly Lower APK21 *"Osmundacidites"* Palynofacies [*F. wonthaggiensis "gracilis", Cyclo hughesii, D. speciosus, M. florida, A. spinulosus, C. levidensis, P. linearis, C. "quasilinearis", Januasporites spp.*]	lower Laira Formation *(lower Laira Formation)*	Fluvial ?paralic	Fair thin, some fragmented, over oxidised	High	High	Cryptogam dominated palynoflora. Fern spores prominent; mostly *Osmundacidites* and *Cyathidites*. Lycopodiaceous forms conspicuous; mostly *Retitriletes* and *Leptolepidites*. Conifer pollen prominent; mostly inaperturate pollen and bisaccate pollen. Few leiospheres (including *Sigmopollis*) & spinose acritarchs.
1228.0m	**Base *F. wonthaggiensis "gracilis"***						
SWC 86 1259.0m P17903	APK122 - APK21 *"Osmundacidites - Retitriletes"* Palynofacies [*D. speciosus, Cyclo. hughesii, ?R. purbeckensis, M. florida, C. stylosus*]	Crayfish Group *(lower Laira Formation)*	Fluvial ?paralic	Very poor thin corroded fragmented, slightly stained	Moderate	Moderate	Cryptogam dominated palynoflora. Fern spores prominent mostly *Cyathidites*. Lycopod conspicuous; *Retitriletes* and *Neoraistrickia* notable. Conifer pollen conspicuous but mostly fragmented and corroded remnants often difficult to distinguish from cuticle fragments. Few spinose acritarchs.
SWC 84 1292.5m P17901	Upper APK122 - APK21 possibly Upper APK122 "Conifer- *Osmundacidites*" Palynofacies [*D. speciosus, R. "mega-australiensis", Cyclo. hughesii, A. spinulosus, C. stylosus, C. variabilis, K. douglasi*]	basal Laira Formation or upper Pretty Hill Formation (above "Sawpit Sandstone" member) *(lower Laira Formation)*	Fluvial	Fair - Poor thin, some fragmented, over oxidised	High	High	Palynoflora dominated by Conifer pollen (Inaperturate pollen and bisaccate pollen). Fern spores prominent; mostly *Osmundacidites*; isolated large *Ruffordiaspora*. Lycopod spores conspicuous; *Retitriletes* conspicuous.
	Top Pretty Hill Formation 1380M						

Sample Depth Prep. Number	**Palynostratigraphic Unit** **Age** [*Index Species*]	**Inferred Lithostratigraphic Unit** (*Log interpreted Unit* (*Morton et al 1995*))	**Inferred Depositional Environment**	**Palynomorph**			**Remarks**
				Preservation	**Yield**	**Diversity**	
SWC 80 1511.0m P17897	Upper APK122 - Lower APK21 possibly Upper APK122 *"Osmundacidites - Retitriletes"* Palynofacies [*C. stylosus, R. ludbrookiae 'parallelus", Cyclo. hughesii, Aequitriradites sp, Cooksonites sp*]	basal Laira Formation or upper Pretty Hill Formation (above "Sawpit Sandstone" member) *(upper Pretty Hill Formation)*	Fluvial	Poor corroded, some fragmented, stained	Moderate	Moderate	Palynoflora dominated by Conifer pollen (Inaperturate pollen and bisaccate pollen). Fern spores prominent; mostly *Osmundacidites*; isolated large *Ruffordiaspora*. Lycopod spores conspicuous; *Retitriletes* conspicuous.
SWC 78 1564.0m P17895	Upper APK122 - Lower APK21 possibly Upper APK122 *"Osmundacidites - Retitriletes"* Palynofacies [*C. stylosus, Cyclo hughesii, A. spinulosus, Murospora florida, D. speciosus, C. tabulatus,*]	basal Laira Formation or upper Pretty Hill Formation (above "Sawpit Sandstone" member) *(upper Pretty Hill Formation)*	Fluvial ?paralic	Poor corroded, some fragmented, stained	Moderate	Moderate	Fern spores dominant; mostly *Osmundacidites*; *C. stylosus* notable. Conifer pollen prominent (Inaperturate pollen and bisaccate pollen). Lycopod spores conspicuous; *Retitriletes* diverse. Isolated spinose acritarchs and microforaminifera. Price 1992, recorded *Dictyotosporites filosus*; the specimen could not be relocated; it is probable that *D. "cloisonne"* is represented as the concept of the morphologically similar *D. "cloisonne"* was not established at the time of the initial examination
SWC 76 1612.0m P17893	Middle APK122 - Lower APK21 possibly Upper APK122 "Conifer- *Osmundacidites*" Palynofacies [*D. speciosus, Cyclo. hughesii, C. stylosus, F. dailyi, M. florida, S. "killanoolensis"*]	basal Laira Formation or upper Pretty Hill Formation (above "Sawpit Sandstone" member) *(upper Pretty Hill Formation)*	Fluvial ?paralic	Poor thin corroded, fragmented, stained	High	High	Palynoflora dominated by Conifer pollen (bisaccate pollen and inaperturate pollen) remnants. Cryptogam spore associations prominent. Fern spores conspicuous; mostly *Osmundacidites*. Lycopod spores conspicuous; mostly *Retitriletes*. Bryophyte spores scarce. Aquatic forms scarce; Isolated spinose acritarchs.
SWC 72 1743.0m P17889	Upper APK122 - Lower APK21 probably Upper APK122 "Conifer- *Osmundacidites*" Palynofacies [*D. speciosus, Cyclo. hughesii, C. stylosus, Januasporites spp, Couperisporites spp, P, extremus, M. evansii*]	basal Laira Formation or upper Pretty Hill Formation (above "Sawpit Sandstone" member) *(upper Pretty Hill Formation)*	Fluvial ?paralic	Fair most entire, stained	High	High	Conifer pollen (bisaccate pollen and inaperturate pollen) remnants subdominant. Cryptogam spores prominent and diverse. Fern spores conspicuous; mostly *Osmundacidites*. Lycopodiaceous forms conspicuous. Bryophyte spores scarce but modestly diverse. Few aquatic forms; few M. evansii; isolated spinose acritarchs.
1743.0m	**Base consistent & modestly diverse liverworts**						
1751.5	probably Middle APP122						Diverse association but not re examined

Sample Depth Prep. Number	**Palynostratigraphic Unit** **Age** [*Index Species*]	**Inferred Lithostratigraphic Unit** (*Log interpreted Unit* (*Morton et al 1995*))	**Inferred Depositional Environment**	**Palynomorph**			**Remarks**
				Preservation	**Yield**	**Diversity**	
SWC 62 1831.0m P17879	Middle APK122- Upper APK122 probably Middle APK122 *"Osmundacidites - Retitriletes"* Palynofacies [*R. ludbrookiae "parallelus", Cyclo. hughesii, C. stylosus, S. "killanoolensis"*]	lower Pretty Hill Formation (including "Sawpit Sandstone" Member) *(Upper Pretty Hill Formation)*	Fluvial ?paralic	Poor thin corroded fragmented stained	High	Mod.	Cryptogam spores prominent. Fern spores conspicuous and moderately diverse; mostly *Osmundacidites* and *Cyathidites*; isolated large *Ruffordiaspora*. lycopodiaceous forms conspicuous; mostly *Retitriletes*. Conifer pollen prominent but mostly unidentifiable remnants. *Corollina* common. Few spinose acritarchs.
SWC 60 1860.0m P17877	Middle APK122 - Upper APK122 probably Middle APK122 *"Osmundacidites - Retitriletes"* Palynofacies [*D. speciosus, Cyclo. hughesii, C. equalis "rotundus", C. "quasilinearis" M. florida, S. "killanoolensis", C. stylosus,*]	lower Pretty Hill Formation (including "Sawpit Sandstone" Member) *(Upper Pretty Hill Formation)*	Fluvial ?paralic	Fair some thin corroded	High	High	Cryptogam spores diverse and dominant. Fern spores prominent; mostly *Osmundacidites* and *Cyathidites* . Conifer pollen prominent but mostly unidentifiable remnants. Lycopod spores conspicuous; *Retitriletes* modestly diverse. Bryophyte spores scarce. Aquatic forms scarce; few spinose acritarchs.
	Top "Sawpit Sandstone" member 1875m						
SWC 53 1990.0m P17870	APK122 possibly Middle APK122 *"Osmundacidites - Retitriletes"* Palynofacies [*C. stylosus, Cyclo hughesii, D. speciosus, M. florida, C. equalis "rotundus"*]	lower Pretty Hill Formation (including "Sawpit Sandstone" Member) *(Pretty Hill Formation; "Sawpit Sandstone "member)*	Fluvial ?paralic	Poor most thin corroded, stained	High	High	Cryptogam spores diverse and subdominant. Fern spores prominent; mostly *Osmundacidites*. Conifer pollen subdominant but mostly unidentifiable remnants. Lycopod spores conspicuous; *Retitriletes* modestly diverse. Bryophyte spores scarce. Aquatic forms scarce; few spinose acritarchs.
	Top "Sawpit basal Shale" member (subunit C) 1875m						
SWC 50 2028.0m P17867	Middle APK122 - Upper APK122 probably Middle APK122 "Conifer - *Osmundacidites"* Palynofacies [*C. stylosus, Cyclo. hughesii, D. speciosus, A. verrucatus, C. equalis "rotundus", C. "quasilinearis", S. "killanoolensis", M. florida, R. ludbrookiae "parallelus"*]	lower Pretty Hill Formation (including "Sawpit Sandstone" Member) *(lower Pretty Hill Formation; "basal shale "member (subunit C))*	Fluvial ?paralic	Poor thin, corroded, some fragmented	High	Mod.	Conifer pollen dominant but with a high proportion of unidentifiable remnants. Spores moderately diverse. Fern spores prominent; mostly *Cyathidites* & *Osmundacidites*. Lycopod spores notable. Bryophyte spores scarce and restricted in diversity. Aquatic forms scarce; few spinose acritarchs.

Sample Depth Prep. Number	**Palynostratigraphic Unit** **Age** [*Index Species*]	**Inferred Lithostratigraphic Unit** (*Log interpreted Unit* (*Morton et al 1995*))	**Inferred Depositional Environment**	**Palynomorph**			**Remarks**
				Preservation	**Yield**	**Diversity**	
SWC 48 2071.0m P17865	APK122 possibly Middle APK122 "Conifer - *Osmundacidites"* Palynofacies [*C. stylosus, Cyclo. hughesii, D. speciosus, C. equalis "tenuispinosus"*]	lower Pretty Hill Formation (including "Sawpit Sandstone" Member) *(lower Pretty Hill Formation; "basal shale "member (subunit C))*	Fluvial ?paralic	Poor - very poor thin, corroded, fragmented	Mod.	Low	Pollen remnants dominant. High proportion of unidentifiable remnants. Spores restricted; *Osmundacidites* conspicuous. Few spinose acritarchs.
SWC 44 2181.0m P17861	Middle APK122 - UpperAPK122 probably Middle APK122 *"Osmundacidites - Retitriletes"* Palynofacies [*C. stylosus, Cyclo. hughesii, R. "mega-australiensis", C. stylosus, P. linearis, C. "quasilinearis", F. undatus, S. "killanoolensis"*]	lower Pretty Hill Formation (including "Sawpit Sandstone" Member) *(lower Pretty Hill Formation; "basal shale "member (subunit C))*	Fluvial	Poor thin, corroded some fragmented	Mod.	Mod.	Cryptogam spores subdominant and moderately diverse. Fern spores prominent; mostly *Osmundacidites*. Conifer pollen prominent but mostly unidentifiable remnants. Lycopodiaceous forms conspicuous. Bryophyte spores scarce and restricted in diversify. Few aquatic forms
2181m	**Base *P. linearis, C. "quasilinearis", R. "mega-australiensis", S. "killanoolensis"***						
SWC 43 2203.0m P17860	APK122 probably Lower APK122 "Conifer" Palynofacies [*C. stylosus, Cyclo. hughesii, C. stylosus, C. equalis "rotundus", P. "extremus", M. evansii*]	basal Pretty Hill Formation ("basal shale" Member) *(lower Pretty Hill Formation; "basal shale "member (subunit C))*	Fluvial ?paralic	Poor - Fair thin, most entire	Mod.	Mod.	Conifer pollen remnants dominant. Spores conspicuous moderately diverse. Fern spores conspicuous; mostly *Osmundacidites* and *Cyathidites*. Lycopodiaceous forms conspicuous and moderately diverse. Few spinose acritarchs; isolated *Microfasta evansii*.
2203.0m	**Base *P. "extremus"***						
SWC 41 2257.0m P17858	APK122 probably Lower APK122 "*Osmundacidites - Retitriletes"* Palynofacies [*C. stylosus, Cyclo. hughesii, C. equalis "rotundus", D. speciosus, M. florida*]	basal Pretty Hill Formation ("basal shale" Member) *(lower Pretty Hill Formation; "basal shale "member (subunit C))*	Fluvial ?paralic	Poor thin, corroded, stained. many fragmented	High	Mod.	Spore dominated association. Conifer pollen prominent but few identifiable. Spores moderately diverse. Fern spores conspicuous; mostly *Osmundacidites* and *Cyathidites*. Lycopodiaceous forms conspicuous; mostly *Retitriletes*. High proportion of unidentifiable remnants. Few spinose acritarchs.

Sample Depth Prep. Number	**Palynostratigraphic Unit** **Age** [*Index Species*]	**Inferred Lithostratigraphic Unit** (*Log interpreted Unit* (*Morton et al 1995*))	**Inferred Depositional Environment**	**Palynomorph**			**Remarks**
				Preservation	**Yield**	**Diversity**	
SWC 38 2313.5m P17855	APK122 probably Lower APK122 "Conifer - *Osmundacidites"* Palynofacies [*C. stylosus, Cyclo. hughesii, C. stylosus, D. speciosus, C. equalis "rotundus"*]	basal Pretty Hill Formation ("basal shale" Member) *(lower Pretty Hill Formation; "basal shale "member (subunit C))*	Fluvial ?paralic	Poor - very poor thin stained corroded many fragmented	High	Mod.	Mostly unidentifiable remnants. Conifer pollen dominated association; few identifiable. Spores moderately diverse. Fern spores conspicuous; mostly *Osmundacidites* and *Cyathidites.* Lycopodiaceous forms conspicuous but somewhat restricted in diversity; mostly *Retitriletes.* High proportion of unidentifiable remnants. Few spinose acritarchs.
	Top "Sawpit basal Shale" member (subunit B) 1315m						
SWC 37 2320.5m P17854	APK122 probably Lower APK122 "Conifer - *Osmundacidites"* Palynofacies [*C. stylosus, C. berberioides, Cyclo. hughesii, C. stylosus, M. florida, D. speciosus C. equalis "rotundus"*]	basal Pretty Hill Formation ("basal shale" Member) *(lower Pretty Hill Formation; "basal shale "member (subunit B))*	Fluvial	Poor thin, some fragmented	Mod.	Mod.	Mostly unidentifiable remnants. Conifer pollen dominated association; few identifiable. Spores moderately diverse. Fern spores conspicuous; mostly *Osmundacidites* and *Cyathidites.* Lycopodiaceous forms conspicuous but somewhat restricted in diversity; mostly *Retitriletes.* High proportion of unidentifiable remnants. Few aquatic forms.
2320.5m	**Base *C. equalis "rotundus"; D. speciosus "speciosus" & consistent D. speciosus "strigosus"***						An isolated specimen of *D. speciosus "strigosus"* recovered at 2498m
SWC 32 2385.0m P17849	APK1 possibly APK121 "Conifer - *Osmundacidites"* Palynofacies [*C, equalis "tenuispinosus", K. douglasii* 1372, *C. "quasihughesii", C. berberioides, Cry. "burgeri", M. evansii*]	basal Pretty Hill Formation (lower "basal shale" Member) or upper Casterton Formation *(lower Pretty Hill Formation; "basal shale "member (subunit B))*	Fluvial ?paralic	Poor thin, some fragmented	High	Mod.	Mostly unidentifiable remnants. Conifer pollen dominated association; few identifiable. Spores moderately diverse. Fern spores conspicuous; mostly *Cyathidites.* Lycopodiaceous forms notable but somewhat restricted in diversity; mostly *Retitriletes.* High proportion of unidentifiable remnants. Few spinose acritarchs.
2385	Deepest *M. evansii*						A doubtful fragment of *M. evansii* recovered at 2455m
	Below 2385.0m palynomorph recoveries and preservation generally limit reliable palynostratigraphic resolution to 1st and 2nd order units						
SWC 31 2391.0m P17848	APK1 possibly APK121 "Conifer" Palynofacies [*Cyclo hughesii*]	basal Pretty Hill Formation (lower "basal shale" Member) or upper Casterton Formation *(lower Pretty Hill Formation; "basal shale "member (subunit B))*	Fluvial ?paralic	Poor thin, corroded, some fragmented	Low	Low	Conifer pollen dominated association; mostly saccate pollen remnants. Cryptogam spores restricted. Lycopodiaceous forms conspicuous. High proportion of unidentifiable remnants. Few spinose acritarchs.

Sample Depth Prep. Number	**Palynostratigraphic Unit** **Age** [*Index Species*]	**Inferred Lithostratigraphic Unit** (*Log interpreted Unit* (*Morton et al 1995*))	**Inferred Depositional Environment**	**Palynomorph**			**Remarks**
				Preservation	**Yield**	**Diversity**	
SWC 28 2413.0m P17845	APK1 tentatively APK121 *"Osmundacidites - Retitriletes"* Palynofacies [*Cyclo "quasihughesii", C. equalis, D. "robusta"*]	basal Pretty Hill Formation (lower "basal shale" Member) or upper Casterton Formation *(lower Pretty Hill Formation;* *"basal shale "member (subunit B))*	Fluvial Lacustrine ?paralic	Poor - very poor thin, corroded, fragmented, stained	Moderate	Low	Mostly unidentifiable remnants. Cryptogam spores dominant and moderately diverse; Fern spores prominent; mostly *Osmundacidites* and *Cyathidites*. Lycopodiaceous forms conspicuous. Bryophyte forms scarce. Aquatic forms notable; few spinose acritarchs.
	Top Casterton Formation *sl* (includes Sawpit "basal shale" subunit A) 2450m						
SWC 23 2455.0m P17840	APK1 possibly APK121 "Conifer - *Osmundacidites"* Palynofacies [*C. stylosus, D. "cloisonne", C. equalis, F. dailyi, M. evansii*]	basal Pretty Hill Formation (lower "basal shale" Member) or upper Casterton Formation *(upper Casterton Formation;* *(includes "basal shale "member (subunit A))*	Fluvial Lacustrine	Poor diffuse corroded, stained	Low	Mod.	Mostly corroded, thin remnants. Conifer pollen dominated association; mostly saccate and inaperturate pollen remnants. Cryptogam spores somewhat restricted in diversity but prominent. Fern spores conspicuous; mostly *Osmundacidites*. and *Cyathidites*. Lycopodiaceous forms notable but restricted in diversity. Aquatic forms notable; mostly leiospheres; isolated *Microfasta evansii.*
SWC 21 2461.5m P17838	APK121 - lower APK122 probably APK121 Conifer Palynofacies [*Cyclo hughesii, C. equalis, M. florida*]	basal Pretty Hill Formation (lower "basal shale" Member) or upper Casterton Formation *(upper Casterton Formation;* *(includes "basal shale "member (subunit A))*	Fluvial Lacustrine ?paralic	Very Poor thin, strongly corroded, fragmented, stained	Mod.	Low	Conifer pollen remnants dominant; few identifiable. Cryptogam spores conspicuous but restricted in diversity. High proportion of unidentifiable remnants. Aquatic forms conspicuous; mostly leiospheres; few spinose acritarchs.
2461.5m	**Base *Cyclosporites hughesii***						
	Top Casterton Formation of Morton *et al* 1995 (≡ lower unit of present usage) 2466m						The low species diversity of the " Casterton aquatic" palynofacies reflects a specialised flora; reliable palynostratigraphic resolution limited to primary palynostratigraphic units
SWC 18 2482.2m P17835	APK11 - lower APK122 possibly APK11 Casterton aquatic Palynofacies [*C. equalis "tenuispinosus", C. "quasihughesii"*]	Casterton Formation *(Casterton Formation)*	Lacustrine	Poor (Unoxidised Res) very thin, diffuse & corroded but many entire; over oxidised.	High	Low	Residue over oxidised; sieved unoxidised residue mostly entire but thin diffuse corroded Conifer pollen (saccate and inaperturate pollen) and aquatic forms (leiospheres and *Granodiscus*). Cryptogam spores sparse and restricted in diversity; *Osmundacidites, Cyathidites* and *C. equalis* notable.

Sample Depth Prep. Number	**Palynostratigraphic Unit** **Age** [*Index Species*]	**Inferred Lithostratigraphic Unit** (*Log interpreted Unit* (*Morton et al 1995*))	**Inferred Depositional Environment**	**Palynomorph**			**Remarks**
				Preservation	**Yield**	**Diversity**	
SWC 16 2498.0m P17833	APK11 - lower APK122 probably APK11 Casterton aquatic Palynofacies [*C. equalis "tenuispinosus", ?D. speciosus "strigosus", Aequitriradites sp, F. dailyi, R. watherooensis*]	Casterton Formation *(Casterton Formation)*	Lacustrine	Poor (Unoxidised Res) very thin, diffuse & corroded but many entire; over oxidised.	Low	Mod.	Residue over oxidised; sieved unoxidised residue mostly entire but thin aquatic forms (leiospheres and *Granodiscus*). Diffuse corroded Conifer pollen prominent; mostly inaperturate pollen; saccate pollen conspicuous. Cryptogam spores sparse and somewhat restricted in diversity. Fern spores notable; mostly *Osmundacidites*. Lycopod spores scarce but modestly diverse; *C. equalis* notable. Few Bryophytes forms. A somewhat doubtful fragment of *D. speciosus "strigosus"* present
2498.0m	**Base *C. equalis "tenuispinosus"***						
SWC 14 2505.0m P17831	APJ622 - lower APK122 possibly APK11 Casterton aquatic Palynofacies [*C. equalis, F. dailyi, D. "robustus", R. watherooensis*]	Casterton Formation *(Casterton Formation)*	Lacustrine	Very Poor fragmented strongly corroded, stained	Low	Low	Dominance of very small leiospheres (*Granodiscus "minuta"*) in unsieved unoxidised residue. Oxidised and sieved unoxidised residue mostly unidentifiable remnants, mostly robust spore fragments; *Osmundacidites* conspicuous. Possible leiosphere and /or inaperturate pollen remnants prominent.