#	CASU WP name /sub task /Dec 2007 deliverables	Staff	Prog 07Q1m	Prog Apr-07	Prog May-07	Prog Jun-07	Prog Aug-07	Prog Oct-07	Prog Dec-07	Textual Summary
1	**Management and definition of project responsibilities**									
1.1	report to VISTA, UKIDSS, JAC, ATC, GSC	all	85	91	94	97	99	100	100	
	provide fortnightly meeting minutes, monthly reports on progress + quarterly review reports and planning. Produce draft functionality document for VDMT & VDUC. Have telecons as required with JAC									held minuted CASU meetings. Hosted visit from Luca Rizzi
1.2	interface control document between CASU and JAC	MJI	100	100	100	100	100	100	100	completed
1.3a	interface control document between CASU and WFAU (WFCAM)	MJI	100	100	100	100	100	100	100	completed
1.3b	interface control document between CASU and WFAU (VISTA)	PSB	55	60	65	67	71	71	73	
	liaise with WFAU, camera and telescope team for design of VISTA FITS headers for input to ICD									one know bottleneck to CASU/WFAU network transfers removed
1.4a	define WFCAM data structures and FITS headers	MJI, JRL, PSB	100	100	100	100	100	100	100	completed
1.4b	update proposed VISTA FITS headers as necessary	PSB	65	65	67	67	72	77	78	
	monitor and update proposed VISTA FITS headers. give feedback on test FITS files. test conformance of output FITS files with ICD.									adjustments to "labflats" DPR types
1.5a	define WFCAM observing protocols	STH, DWE	100	100	100	100	100	100	100	completed
	monitor and update MSB guidelines. monitor observing efficiency and report.									
1.5b	define VISTA observing protocols	PSB	40	40	45	45	45	50	55	
	liaise with development team									discussion of detector READ/RESET mode
1.6a	liaise with UKIDSS&JAC on WFCAM obs strategy, surveys planning	STH	90	95	97	97	97	97	99	
	liaise and monitor progress									discussion with AA concerning tagging of WFCAM background fields. Useful feedback from UKIDSS meeting: background subtraction in nebulous regions, deblending, apertures, PSF fitting
1.6b	liaise with Proj. Sci. on VISTA observing strategy & survey planning	PSB	85	85	87	87	87	87	87	
	liaise and monitor progress									no further progress
1.7a	liaise with VDUC on VDFS products for WFCAM	STH, MJI, JRL	95	95	95	95	95	95	95	
	liaise and monitor progress. finalise reports on results from WFCAM 05A SV data. Provide input for UKIDSS papers. Respond to issues raised re: data processing									nothing to report
1.7b	liaise with VDUC on VDFS products for VISTA	MJI, STH	40	40	40	40	40	40	40	
	liaise and monitor progress. assess and prioritise work required for extra UK VDFS products. revisit WPs for V1-5 in lieu of above									subsumed into 1.6b
1.8a	liaise with UKIDSS and JAC on survey progress DB (WFCAM)	JRL	80	85	85	85	85	85	85	
	maintain OMP database mirror to be used with survey progress database, incl. simplified user interface and script to add MSB flags to processed data headers									OMP mirror running smothly
1.8b	liaise with VDUC and ESO on survey progress DB (VISTA)		20	20	20	20	30	30	30	
										no further progress
1.9	system documentation	DWE,EGS,MR	85	91	93	95	95	95	96	
	update and maintain web pages of system docs. Setup and switch over to new plone system									some rationlisation of the plone/web pages
1.10	VST processing preparation	EGS, MJI	60	60	60	60	60	60	60	
	help produce draft Survey Management Plan for ATLAS, VPHAS+									on hold
2	**ESO VISTA software interface deliverables and documentation**									
2.1	DFS impact document	PSB	100	100	100	100	100	100	100	signed and sealed

	assess if further changes needed after tests									
2.2	Calibration Plan document	PSB	97	97	97	97	98	98	98	
	update document in parallel with DRL development. Get c1.2 signed by PS, PI									no further progress
2.3	Data Reduction Library Design document	PSB	97	97	97	97	98	99	99	
	update document in parallel with DRL development									minor revisions for v1.9 (DRL v0.7)
2.4	Data Reduction Library									subsumed into 8.1b
	produce v0.1 of DRL and test in CPL environment									
2.5	ICD ESO/VPO	PSB	35	35	40	40	40	40	45	
	update FITS header doc and DID/DIC and data dictionary files									discussion at ESO re preference for network transfers
2.6	Instrument specification and interface documents	PSB	60	70	70	70	70	70	70	
	develop integration tests in CPL & QFITS environment									no further progress
2.7	Delivery software modules for exposure time calculator	STH, PSB	97	97	97	97	97	97	97	
	setup UK-based demonstration of ETC. Update ETC with better characteristic data. Deliver ETC calculation modules and instrument description data to ESO									still waiting for N118 transmission curve - apparently no digital version available. Hoping for Z curve.
2.8	liaise with VISTA IR camera development team	PSB	75	75	77	79	85	88	90	
	continue liaising with VISTA IR camera development team. Use data from RAL operation of VIRCAM and TCS simulator to assess VIRCAM system. Test successive simulators, feedback comments									Report on non-linearity near completion
2.9	Development of DQC measures	PSB	40	50	50	50	50	53	53	
	update QC measures as needed in light of test data									no further progress
2.10	Documents for software modules	PSB								subsumed into 8.6b
3	**Pipeline infrastructure and pipeline progress monitoring tools**									
3.1	interactive tools for running pipeline	JRL	100	100	100	100	100	100	100	completed
	update tools in the light of 05A, 05B experience and document									
3.2	high level scripts to interrogate headers	MR, EGS	100	100	100	100	100	100	100	completed
	update header interrogation scripts and test									
3.3	automatic progression of results to web pages	MR	100	100	100	100	100	100	100	completed
	maintain and update web-based pipeline progress web page									
3.4	automatic checks to spot failure of pipeline	JRL	100	100	100	100	100	100	100	completed
	continue developing automated checks for pipeline failures									
3.5a	Tools for fixing problem datasets (WFCAM)	JRL	85	90	90	90	92	95	97	
	continue developing tools to handle problems in WFCAM data									pipeline modified to handle removal of 'parquet flooring' effectf
3.5b	Tools for fixing problem datasets (VISTA)		0	0	0	0	0	0	0	on hold
3.6	group documentation on pipeline infrastructure	STH, JRL	100	100	100	100	100	100	100	completed
	stress test documentation and update as necessary									
3.7a	Oversee reprocessing WFCAM data after bug fixes/improvements	MR	75	85	85	85	90	95	97	reprocessing of selected regions and parquet floors
	reprocess science data from 05A, 05B as necessary									
3.7b	Oversee reprocessing VISTA data after bug fixes/improvements									removed and subsumed in 6.8a
4	**Set up and manage raw science archive**									
4.1	extend UKIRT archive to cope with WFCAM data	JRL, MR	100	100	100	100	100	100	100	completed
	manage WFCAM raw data archive. Manage and monitor WFCAM-ESO raw data transfers									
4.2a	Ingest and verify WFCAM data	MR, MJI	85	90	92	95	95	97	99	

	ingest and verify 07A, 07B data									up to date
4.2b	Ingest and verify VISTA data		0	0	0	0	0	0	0	on hold
5	**Set up and manage data processing system hardware**									
5.1	Investigate alternatives (benchmarking, reliability etc)	MJI, PSB, JMI	100	100	100	100	100	100	100	completed
5.2	buy hardware and install	PSB, JMI, MJI	100	100	100	100	100	100	100	completed
5.3	integrating and testing	PSB, JMI	100	100	100	100	100	100	100	completed
5.4	Manage day-to-day maintenance and upgrades	PSB, JMI	80	85	87	87	90	99	99	
	continue maintenance and upgrade programme. Investigate new external bulk storage devices									ongoing
5.5	Hardware additions for further processing system		30	30	30	30	30	30	30	
	monitor need for extra hardware for further processing	MJI								no new hardware
6	**Run standard pipeline**									
6.1a	Update WFCAM master calibration frames	MJI, JRL	69	75	77	79	83	87	91	
	continue updating and testing calibration frames									ongoing
6.1b	Update VISTA master calibration frames		0	0	0	0	0	0	0	on hold
6.2a	Monitor detector performance WFCAM	JRL, MR	69	75	77	79	83	87	91	
	monitor with data as processed									ongoing
6.2b	Monitor detector performance VISTA		0	0	0	0	0	0	0	on hold
6.3a	oversee standard processing WFCAM	MR	69	75	77	79	83	87	91	
	process 06B, 07A data									07B processing and reprocessing complete
6.3b	Oversee standard processing VISTA		0	0	0	0	0	0	0	on hold
6.4a	Astrometric calibration WFCAM	MJI	69	75	77	79	83	87	91	
	(re)calibrate 05A and 05B, 06A data and so on									up to date
6.4b	Astrometric calibration VISTA		0	0	0	0	0	0	0	on hold
6.5a	Photometric Calibration WFCAM	STH	69	75	77	79	83	87	91	
	calibrate using 2mass and continue developing secondary standards system, Ces etc									up to date
6.5b	Photometric Calibration VISTA		0	0	0	0	0	0	0	on hold
6.6a	Verify Science products and monitor DQC measures WFCAM	EGS, MJI	69	75	77	79	83	87	91	
	assess 05A, 05B, 06A and 06B data									SV of products ongoing see http://apm15.ast.cam.ac.uk/casudocs/wfcam/science-verification. And SV report at http://www.ast.cam.ac.uk/~wfcam/docs/reports/sv/index.html.
6.6b	Verify Science products and monitor DQC measures VISTA		0	0	0	0	0	0	0	on hold
6.7	Monitor data product transfer to WFAU	MR, MJI	69	75	77	79	83	87	91	
	continue data transfer to WFAU and monitor									transfers ongoing
6.8a	Reprocess WFCAM data	MR	69	75	77	79	83	87	91	

	reprocess if major bug fixes									up to date
6.8b	Reprocess VISTA data		0	0	0	0	0	0	0	on hold
7	**Development work for summit pipeline**									
7.1a	Interface test pipelines in ORAC-DR	JRL	100	100	100	100	100	100	100	completed
7.1b	Interface test pipelines to VISTA summit DR	JRL	65	70	75	80	83	90	90	
										no further progress
7.2a	implement WFCAM pipeline at summit	JRL	100	100	100	100	100	100	100	completed
7.2b	Implement VISTA pipeline at summit	JRL	0	0	0	0	0	0	0	on hold
7.3a	documentation for ORAC-DR interface	JRL	100	100	100	100	100	100	100	completed
	update and deliver documentation as development proceeds									
7.3b	documentation for interface VISTA	JRL	55	60	60	60	60	60	60	
										no further progress
7.4a	upgrade and maintain summit pipeline WFCAM	JRL	100	100	100	100	100	100	100	completed
	update and maintain as required									
7.4b	upgrade and maintain summit pipeline VISTA	JRL	0	0	0	0	0	0	0	on hold
8	**Development and testing of standard 2d processing**									
8.1a	further development of standard pipeline for WFCAM	JRL,DWE	97	97	98	99	99	100	100	WFCAM standard pipeline completed barring fixing and tweaking
	update and maintain as required. Assess persistance characteristics and develop trial version									
8.1b	development of VISTA specific packages	JRL	75	80	85	88	90	94	96	
	continue development of DRL. Continue testing of DRL in CPL environment. Release version 0.1 CPL recipes and modules. Release minor version updates as required prior to 0.5. Liaise with ESO on integrating and commissioning modules into pipeline environment									The recent DRL release (CPL 4.0/fitsio-compatible) passed basic testing at Garching.
8.2a	liaison with WFCAM development team	JRL	100	100	100	100	100	100	100	completed
	continue telecons and discussions.									
8.2b	liaison with Project Scientist & VISTA development team	PSB	85	85	85	87	90	95	96	
	assess any new detector engineering test data									continued discussions
8.3a	partake in planning WFCAM commissioning observations	STH	100	100	100	100	100	100	100	WFCAM commissioning completed
	continue planning									
8.3b	partake in planning VISTA commissioning observations	STH	30	30	30	30	30	30	30	
	liaise and discuss with camera PS and VISTA PS, find out about current commissioning									nothing to report
8.4a	Participate directly in commissioning WFCAM	STH	100	100	100	100	100	100	100	completed
	complete observations									
8.4b	Participate directly in commissioning VISTA	STH	0	0	0	0	0	0	0	on hold
8.5a	Tuning pipeline during commissioning and after WFCAM	MJI, STH, EGS	90	90	90	90	95	95	97	
	keep on tuning as newer data comes in. further assessment of the quality and stability of master calibration data. assess quality of science output									modifications made to the pipeline to handle the parquet flooring effect
8.5b	Tuning pipeline during commissioning and after VISTA	MJI, JRL, EGS	0	0	0	0	0	0	0	on hold
8.6a	documentation for 2D processing software WFCAM	JRL, MJI	95	95	95	95	95	95	97	

	update docs as necessary. Write data processing technical description paper									docus updated as pipeline changes implemented
8.6b	documentation for additional 2D processing software VISTA	JRL	90	90	90	90	90	90	90	
	document within recipe and module C code in doxygen compatible format									no further work
8.7	Comparison between automated and manual data products	STH	85	85	85	85	85	85	85	
	assess CASU processed WFCAM SV data in conjunction with CSV and Survey Heads									no further progress
9	**Development and testing of standard catalogue products**									
9.1	add in new measures requested	MJI	100	100	100	100	100	100	100	completed
	monitor and tune if needed									
9.2a	refine astrometric calibration model	MJI	95	95	95	95	100	100	100	completed
	refine astrometric model									
9.2b	refine astrometric calibration model - VISTA specific	MJI	0	0	0	0	0	0	0	on hold
9.3	generate model simulations of expected data	STH	100	100	100	100	100	100	100	completed
9.4	assess catalogue parameter reliability	MJI	100	100	100	100	100	100	100	completed - assessment finished in conjunction with SV and CASU internal tests
	refine parameter error estimates and check for systematics in new params, finish in conjunction with 9.1									
9.5	intercomparison of catalogue products with other packages	MJI	100	100	100	100	100	100	100	completed
9.6	Completeness	MJI, EGS	40	40	40	40	40	40	40	
	design and report on completeness model, check completeness [9.6] and error estimates and parameter reliability [9.4]									no further progress
9.7	documentation of catalogue software and products	MJI	85	85	85	85	85	85	85	
	update catalogue products documentation									no further progress
10	**Setup trial and run further processing pipeline**									
10.1	Manage and run further processing stages		0	0		0	0	0	0	awaiting PSF v3 development completion
10.2	development and assessment of PSF options 1,2	DWE	95	96	96	96	96	96	96	
	run prototype code for PSF levels 1,2 on 05A data									no further progress
10.3	develop 1D/2D PSF-deconvolved Sersic profile fits	MJI	0	0	0	0	0	0	0	
	prototype methods for Sersic profile fitting									paused, awaiting implementation of PSF fitting
10.4	Develop LSBG/nebulosity detection/parameterisation	MJI	0	0	0	0	0	0	0	
	investigate feasibility of nebulosity detection									paused, awaiting compelling scientific need and firmer requirements
10.5	Full iterative profile fitting for stellar images		0	0	0	0	0	0	0	
										paused, awaiting time
10.6	Develop and optimize Bayesian image classification	MJI	40	40	40	40	40	40	40	
	trial Bayesian classification schemes									no further progress
10.7	Modeling and simulations of further processing steps		100	100	100	100	100	100	100	completed
	modelling and simulations of further processing steps. Simulate WFCAM data and use									
11	**Photometric standards and calibration**									
11.1	Agree on primary standards (WFCAM + VISTA)	STH	100	100	100	100	100	100	100	completed
11.2	Choose secondary standards (WFCAM + VISTA)	STH	100	100	100	100	100	100	100	completed: Cal Plan updated
	add in last few proposed standards and update doc									
11.3a	take part in commissioning observations WFCAM	STH	100	100	100	100	100	100	100	phase II on-sky characterisation - completed
11.3b	take part in commissioning observations VISTA	STH	0	0	0	0	0	0	0	on hold
11.4a	Reduce data, compute zero points and colour equations WFCAM	STH	95	95	95	95	97	99	99	

	compute WFCAM photometric zeropoints from commissioning data. update colour terms relative to 2MASS and UKIRT FS. Write paper									paper draft circulated, all WFCAM data recalibrated
11.4b	Reduce data, compute zero points and colour equations VISTA	STH	0	0	0	0	0	0	0	on hold
11.5	Update, maintain and extend secondary standards system	STH	100	100	100	100	100	100	100	complete
	begin building secondary standard fields system									
11.6	Investigate photometric calibration field systematics WFCAM+VISTA	STH	60	65	70	70	90	95	95	
	stack 2MASS residuals and assess									systematics quantified and described in paper. Resulting look up tables computed and ready for release
11.7	assess extinction monitoring methods and develop measures	STH	100	100	100	100	100	100	100	complete
	use 2MASS comparison to get first order estimate and assess expected accuracy in light of results from UKIRT FS									
12	**Further development of DQC measures at summit and Cambr**									
12.1	develop extra systematic noise measures	MJI	80	85	85	86	86	86	86	
	finished for WFCAM; awaiting VISTA test files									paused awaiting requirement
12.2	Refine current measures for WFCAM/VISTA data	JRL, MJI	80	85	85	86	86	90	90	
	continue monitoring the DQC assessment by visually checking random sub-sample									continuing as new data arrive
12.3	implement 2mass for throughput measurement	JRL	100	100	100	100	100	100	100	implemented local access version at summit - completed
12.4	master calibration frames for detector monitoring	JRL, MR	80	80	80	80	90	95	95	
	continue monitoring using 05A and 05B WFCAM data									no further progress
13	**Co-located list driven photometry**									
13.1	test methods for master catalogue generation	MJI	100	100	100	100	100	100	100	completed
13.2	develop basic WCS-based list driven photometer	MJI	100	100	100	100	100	100	100	completed
	test 80 parameter set (subsumes 13.3)									
13.3	externally driven WCS photometry and define parameter set	MJI	100	100	100	100	100	100	100	completed
	extend to full 80 parameter set									
14	**Stacking and mosaicing**									
14.1	develop benchmark simple stacking/mosaicing framework	MJI	100	100	100	100	100	100	100	completed
14.2	NN algorithm with simple rejection	MJI	100	100	100	100	100	100	100	completed
14.3	More sophisticated rejection dealing with pixilation	MJI	100	100	100	100	100	100	100	completed
14.4	Stacking with optimum weighting and defect rejection	MJI	35	35	35	35	35	35	35	
	refine using WFCAM deep survey data and optical data. Trial different interpolation options for WFCAM deeps surveys									no further progress
14.5	Advanced stacking/image restoration for variable PSF	MJI	15	15	15	15	15	15	15	
	investigate alternatives as part of UK design review									no further progress
15	**Continuum subtraction and basic difference imaging**									
15.1	Simple WCS-based subtraction techniques	MJI	100	100	100	100	100	100	100	completed
15.2	investigate and apply different interpolation methods	MJI	100	100	100	100	100	100	100	completed
15.3	develop adaptive kernel matching option	MJI	90	90	90	90	90	90	90	
	continue debugging and enhancements to adaptive kernel package									no further progress
15.4	time series photometry	STH	80	85	87	90	90	90	90	
	test with WFCAM photometry									no further progress
16	**Interpolation techniques and PSF modeling**									
16.1	investigate alternative interpolation/PSF schemes	DWE	100	100	100	100	100	100	100	completed
16.2	implications for different stacking methods	DWE	100	100	100	100	100	100	100	completed - further dev in 14.4
	trial different stacking options for WFCAM deep surveys									
16.3	implications for deriving catalogues and parameters	DWE	95	95	95	95	95	95	95	
	finish testing of astrometric refinement code									no further progress
16.4	oversampled PSF generation per detector	DWE	100	100	100	100	100	100	100	completed

16.5	develop oversampled spatially varying PSF model	DWE	50	50	50	50	50	50	50	
	asess if spatially varying PSF model required, test on 05B data									no further progress