	CASU WP name /sub task / 05Q4m2 deliverables	Staff	Prog	Prog	Prog	Prog	Prog	Prog	Prog	Textual Summary
#			05Q1	05Q2	05Q3	06Q1	06Q2	06Q3	06Q4	
1	**Management and definition of project responsibilities**									
1.1	report to VISTA, UKIDSS, JAC, ATC, GSC	all	17	25	34	52	61	70	79	
	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.
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	0	0	0	0	10	30	50	
	liaise with WFAU, camera and telescope team for design of VISTA FITS headers for input to ICD									discussions conerning UKLight ongoing
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	10	20	30	40	50	55	60	
	monitor and update proposed VISTA FITS headers. give feedback on test FITS files. test conformance of output FITS files with ICD.									Raised standards-compliance issue with ESO and several minor FITS issues with ATC
1.5a	define WFCAM observing protocols	STH, DWE	55	60	70	75	75	90	100	completed
	monitor and update MSB guidelines. monitor observing efficiency and report.									
1.5b	define VISTA observing protocols	PSB	15	20	25	30	30	30	40	
	liaise with development team									discussion ongoing
1.6a	liaise with UKIDSS&JAC on WFCAM obs strategy, surveys planning	STH	40	50	60	70	70	80	90	
	liaise and monitor progress									liaised on newly proposed WFCAM surveys
1.6b	liaise with Proj. Sci. on VISTA observing strategy & survey planning	PSB	17	25	34	52	61	70	79	
	liaise and monitor progress									Reviewed surveys, discussion to extract VDFS requirements from surveys
1.7a	liaise with VDUC on VDFS products for WFCAM	STH, MJI, JRL	50	55	60	70	75	80	90	
	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									final iterations on UKIDSS and DR1 papers
1.7b	liaise with VDUC on VDFS products for VISTA	MJI, STH	17	25	34	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	50	50	55	60	65	65	75	
	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									Discussions continue on improving the OMP database to allow for unambiguous identification of problem datasets.
1.8b	liaise with VDUC and ESO on survey progress DB (VISTA)		0	0	0	0	0	10	20	clone of WFCAM system designed as first Vista DB
1.9	system documentation	DWE,EGS,MR	17	25	34	52	61	70	79	
	update and maintain web pages of system docs. Setup and switch over to new plone system									significant overhaul and testing of the new plone system continues. Internal pages rationalised and reorganised
1.10	VST processing preparation	EGS, MJI	0	10	15	25	25	35	50	
	help produce draft Survey Management Plan for ATLAS, VPHAS+									preparation ongoing
2	**ESO VISTA software interface deliverables and documentation**									
2.1	DFS impact document	PSB	70	80	95	100	100	100	100	signed and sealed
	assess if further changes needed after tests									

2.2	Calibration Plan document	PSB	70	80	95	95	95	96	97	
	update document in parallel with DRL development. Get c1.2 signed by PS, PI									updated in time for UK review
2.3	Data Reduction Library Design document	PSB	70	80	95	95	95	96	97	
	update document in parallel with DRL development									updated in time for UK review
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	0	5	10	15	20	25	25	
	update FITS header doc and DID/DIC and data dictionary files									no progress
2.6	Instrument specification and interface documents	PSB	0	6	6	10	20	40	60	
	develop integration tests in CPL & QFITS environment									latest is V0.4 released to ESO
2.7	Delivery software modules for exposure time calculator	STH, PSB	20	60	90	95	96	96	97	
	setup UK-based demonstration of ETC. Update ETC with better characteristic data. Deliver ETC calculation modules and instrument description data to ESO									Discussed & experimented with ESO prototype "final" ETC and reasons for differing results
2.8	liaise with VISTA IR camera development team	PSB	8	25	35	52	60	65	70	
	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									Attended 5/6 Oct ATC Integration & Comm meeting, submitted written comments on specific items as requested. Tested and fedback number of VIRCAM/VTCS releases.
2.9	Development of DQC measures	PSB	0	5	10	10	15	25	35	
	update QC measures as needed in light of test data									Investigated several issues wrt QC measures.
2.10	Documents for software modules	PSB	0	0	0	25				subsumed into 8.6b
3	**Pipeline infrastructure and pipeline progress monitoring tools**									
3.1	interactive tools for running pipeline	JRL	60	75	75	75	75	85	100	completed
	update tools in the light of 05A, 05B experience and document									
3.2	high level scripts to interrogate headers	MR, EGS	50	60	80	80	80	80	100	
	update header interrogation scripts and test									scripts now updated to handle new photometric keywords. Completed
3.3	automatic progression of results to web pages	MR	50	55	65	65	65	75	90	
	maintain and update web-based pipeline progress web page									web pages driven automatically from database
3.4	automatic checks to spot failure of pipeline	JRL	0	20	35	35	70	85	100	completed
	continue developing automated checks for pipeline failures									
3.5a	Tools for fixing problem datasets (WFCAM)	JRL	20	25	25	35	60	70	80	
	continue developing tools to handle problems in WFCAM data									Modifications implemented to deal with very difficult 06B semester
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	60	60	65	65	65	80	100	completed
	stress test documentation and update as necessary									
3.7a	Oversee reprocessing WFCAM data after bug fixes/improvements	MR	0	30	45	55	65	70	75	
	reprocess science data from 05A, 05B as necessary									ongoing
3.7b	Oversee reprocessing VISTA data after bug fixes/improvements		0	0	0	0				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	50	65	70	80	85	85	100	completed
	manage WFCAM raw data archive. Manage and monitor WFCAM-ESO raw data transfers									
4.2a	Ingest and verify WFCAM data	MR, MJI	10	25	30	45	55	65	75	
	ingest and verify 06A									started ingesting some 06B data
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	50	100	100	100	100	100	100	completed
5.3	integrating and testing	PSB, JMI	50	100	100	100	100	100	100	completed

5.4	Manage day-to-day maintenance and upgrades	PSB, JMI	17	25	34	52	61	70	70	
	continue maintenance and upgrade programme. Investigate new external bulk storage devices									nothing to report
5.5	Hardware additions for further processing system		0	0	0	5	10	15	20	
	monitor need for extra hardware for further processing	MJI								Preliminary investigation of canditate systems for VISTA UK Pipeline, overview plans incorporated into C.R.A.P document for UK Review.
6	**Run standard pipeline**									
6.1a	Update WFCAM master calibration frames	MJI, JRL	0	9	18	36	45	54	63	
	continue updating and testing calibration frames									New master flats and confidence maps created as required
6.1b	Update VISTA master calibration frames		0	0	0	0	0	0	0	on hold
6.2a	Monitor detector performance WFCAM	JRL, MR	0	9	18	36	45	54	63	
	monitor with 05A and 05B data									monitored as part of QA checks
6.2b	Monitor detector performance VISTA		0	0	0	0	0	0	0	on hold
6.3a	oversee standard processing WFCAM	MR	0	9	18	36	45	54	63	
	process 05B data									05B data processed - now processing 06A
6.3b	Oversee standard processing VISTA		0	0	0	0	0	0	0	on hold
6.4a	Astrometric calibration WFCAM	MJI	0	9	18	36	45	54	63	
	(re)calibrate 05A and 05B data									ongoing
6.4b	Astrometric calibration VISTA		0	0	0	0	0	0	0	on hold
6.5a	Photometric Calibration WFCAM	STH	0	9	18	36	45	54	63	
	calibrate using 2mass and continue developing secondary standards system, Ces etc									implemented extinction correction and revised colour terms
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	0	9	18	36	45	54	63	
	assess 05A and 05B 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	0	9	18	36	45	54	63	
	continue data transfer to WFAU and monitor									Interacted with ATC, Cambridge CS & UKLight regarding networking and with ATC over high-performance networking over JANET. Ordered connection requisites for Cambridge end.
6.8a	Reprocess WFCAM data	MR	0	9	18	36	45	54	63	
	reprocess if major bug fixes									reprocessed 05A, reprocessed selected 05B
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	0	0	0	10	20	40	60	version 0.4 released and being tested by ESO
7.2a	implement WFCAM pipeline at summit	JRL	75	80	90	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	60	60	60	100	100	100	100	completed
	update and deliver documentation as development proceeds									
7.3b	documentation for interface VISTA	JRL	0	0	0	0	10	30	50	
										Documentation being written as modules and recipes are developed
7.4a	upgrade and maintain summit pipeline WFCAM	JRL	17	25	40	55	55	75	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	80	80	85	90	95	96	97	
	update and maintain as required. Assess persistance characteristics and develop trial version									Work being done to characterise crosstalk better
8.1b	development of VISTA specific packages	JRL	0	0	30	45	55	60	70	
	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									Version 0.4.1 of DRL released along with v1.6 of DRLD. Bug fixing and enhancement requests being dealt with.
8.2a	liaison with WFCAM development team	JRL	8	25	34	52	61	80	100	completed
	continue telecons and discussions.									
8.2b	liaison with Project Scientist & VISTA development team	PSB	8	25	34	52	61	70	79	
	assess any new detector engineering test data									ongoing
8.3a	partake in planning WFCAM commissioning observations	STH	80	100	100	100	100	100	100	WFCAM commissioning completed
	continue planning									
8.3b	partake in planning VISTA commissioning observations	STH	0	0	0	10	10	20	20	
	liaise and discuss with camera PS and VISTA PS, find out about current commissioning									no progress
8.4a	Participate directly in commissioning WFCAM	STH	50	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	20	40	40	70	80	85	90	
	keep on tuning as newer data comes in. further assessment of the quality and stability of master calibration data. assess quality of science output									Tests completed on more stable cross-talk removal
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	50	50	50	70	80	85	95	
	update docs as necessary. Write data processing technical description paper									documentation updates match additional development. 1st draft of technical paper written and circulated for UK review.
8.6b	documentation for additional 2D processing software VISTA	JRL	0	0	30	40	50	70	85	
	document within recipe and module C code in doxygen compatible format									documentation added as code is written
8.7	Comparison between automated and manual data products	STH	50	50	55	70	75	80	85	
	assess CASU processed WFCAM SV data in conjunction with CSV and Survey Heads									DWE liaising with Phil Lucas on GPS field comparison
9	**Development and testing of standard catalogue products**									
9.1	add in new measures requested	MJI	60	60	100	100	100	100	100	completed
	monitor and tune if needed									
9.2a	refine astrometric calibration model	MJI	85	85	85	90	90	90	95	
	refine astrometric model									refined to include band specific distortion terms
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	70	70	80	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	0	10	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	55	55	60	70	75	80	85	
	update catalogue products documentation									draft of technical description written and Plone website updated to include more technical information.
10	**Setup trial and run further processing pipeline**									
10.1	Manage and run further processing stages		0	0	0	0	0	0	0	still awaiting PSF v1,2 development completion
10.2	development and assessment of PSF options 1,2	DWE	60	65	75	85	85	90	95	
	run prototype code for PSF levels 1,2 on 05A data									Started crowded field tests in conjunction with Phil Lucas who will be using DAOPHOT or similar.
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 results from 10.2
10.6	Develop and optimize Bayesian image classification	MJI	0	10	30	40	40	40	40	
	trial Bayesian classification schemes									no further progress
10.7	Modeling and simulations of further processing steps		0	0	0	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	90	100	100	100	100	100	100	completed
11.2	Choose secondary standards (WFCAM + VISTA)	STH	80	80	80	80	85	85	100	completed: Cal Plan updated
	add in last few proposed standards and update doc									
11.3a	take part in commissioning observations WFCAM	STH	10	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	15	25	60	80	85	90	95	
	compute WFCAM photometric zeropoints from commissioning data. update colour terms relative to 2MASS and UKIRT FS. Write paper									slight revision to calibration using restricted colour range in 2MASS currently being tested + implemented. Paper outline drafted. Testing and implementing Galactic extinction correction for Z- and Y-band data
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	0	0	0	0	0	50	100	complete
	begin building secondary standard fields system									2MASS calibrators meet the requirements
11.6	Investigate photometric calibration field systematics WFCAM+VISTA	STH	0	0	30	60	60	60	60	
	stack 2MASS residuals and assess									no further progress
11.7	assess extinction monitoring methods and develop measures	STH	50	50	60	70	90	90	100	complete
	use 2MASS comparison to get first order estimate and assess expected accuracy in light of results from UKIRT FS									per-night and per-frame measures of the photometric calibration accuracy now included in the FITS headers for each passband
12	**Further development of DQC measures at summit and Cambr**									

12.1	develop extra systematic noise measures	MJI	50	75	80	80	80	80	80	
	finished for WFCAM; awaiting VISTA test files									no progress
12.2	Refine current measures for WFCAM/VISTA data	JRL, MJI	20	25	40	65	70	75	75	
	continue monitoring the DQC assessment by visually checking random sub-sample									continuing as new data arrive
12.3	implement 2mass for throughput measurement	JRL	75	100	100	100	100	100	100	implemented local access version at summit - completed
12.4	master calibration frames for detector monitoring	JRL, MR	35	40	60	80	80	80	80	
	continue monitoring using 05A and 05B WFCAM data									no further work
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	90	90	95	97	100	100	100	completed
	test 80 parameter set (subsumes 13.3)									development completed, to be implemented in pipeline
13.3	externally driven WCS photometry and define parameter set	MJI	75	75	95	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	25	25	25	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	0	0	0	10	15	15	15	
	investigate alternatives as part of UK design review									investigated Magain et al. methodology
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	80	80	80	85	85	85	90	
	continue debugging and enhancements to adaptive kernel package									development complete for the time being
15.4	time series photometry	STH	20	20	50	70	70	75	80	
	test with WFCAM photometry									time series tested for DXS and transit surveys: reported at Heidelberg meeting
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	20	25	30	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	70	75	80	85	90	95	95	
	finish testing of astrometric refinement code									pending next iteration of tests on crowded regions
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	20	25	30	30	30	30	50	
	asess if spatially varying PSF model required, test on 05B data									Implemented deblending parameters from standard catalogues. PSF fitting programme now working on variably sized cutouts.