PROJECT 5216

STRATEGIC AIRLIFT CAPABILITY

TEST AND EVALUATION

MASTER PLAN

(TEMP)

Air Lift System Project Office
Defence Material Organisation
Department of Defence Fyshwick (g)

Department of Defence (Fyshwick (g))
CANBERRA ACT 2609

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Test and Evaluation Master Plan

for

The RAAF C130J-30 Aircraft

This Test and Evaluation Master Plan is issued to define the test and evaluation planning requirements for the C130J-30 System Project Office.

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AMENDMENT CERTIFICATE

1. Proposals for amendment or addition to the contents of this document should be made through normal Service or Departmental channels to Director, C130J Systems Project Office (DC130SPO), BLDG 2, 169 Gladstone St, FYSHWICK ACT 2609.

2. Amendments incorporated in this Test and Evaluation Master Plan shall be recorded on this amendment certificate. By recording the incorporation of an amendment, the person making the entry certifies that the amendment has been correctly incorporated.

Amendment		Amendment Incorporated by		
No	**Issued Date**	**Description**	**Signature**	**Date**
0	21/11/01	Updated Annex D and Appendix C to Annex C - Test Schedules	C130J- CM	February 02
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C. C-130J-30 Role Expansion Master Plan
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E. LM-Aero C-130J-30 Program Schedule dated Jun 01
F. Aircraft Delivery Configurations

REFERENCES

A. C-130J-30 Statement of Operating Intent (SOI) dated 15 Feb 00
B. C-130J-30 Functional Specification –Attachment P to C338250, AL11
C. C-130J-30 Type Certification Plan dated 25 Jun 99
D. DAO 98/20081 - C-130J-30 Watch List
E. Test Plan – OT&E of the Block 5.2 Configuration Aircraft dated Mar 00.

1. BACKGROUND

1.1.1.1. The RAAF C-130E fleet, acquired during 1967/1968, reached planned life-of-type (LOT) between 1997/1999. The aircraft suffered continuing structural deterioration, especially stress corrosion cracking in the outer wing sections. Project AIR 5216 manages the contract with LM-Aero Martin Aeronautical Systems (LM-Aero) to acquire 12 C-130J-30 model aircraft to replace the C-130E.

1.1.1.2. **Definitions.** Annex A defines terms and acronyms used in this TEMP.

2. SYSTEM DESCRIPTION

2.1. Mission Description

2.1.1. Operational Requirement

2.1.1.1. The C-130J-30 aircraft is being purchased to maintain the strategic airlift capability previously provided by the C-130E aircraft. Reference A, the Statement of Operating Intent (SOI) for the C-130J-30, details the manner in which ALG intends to operate the C-130J-30. In addition to the traditional strategic airlift role, the SOI recognises the need for a contingency tactical capability for the C-130J-30.

2.1.1.2. The roles of the C-130J-30, as defined by the SOI, are:

a. Air Logistics Support (ALS),

b. Aeromedical Evacuation (AME),

c. Search and Survivor Assistance (SASA),

d. Airborne operations (AIRLAND and AIRDROP), and

e. Special missions.

2.1.2. Mission(s) to be Accomplished

2.1.2.1. The C-130J-30 will be required to perform all missions associated with the roles listed at paragraph 2.1.1.2. Missions requiring the use of NVIS equipment, external fuel tanks or Air-to-Air Refuelling (AAR) provisions are not intended for operational use at the time of release of this Test and Evaluation Master Plan (TEMP).

2.1.3. Specified Environment

2.1.3.1. The C-130J-30 will operate routinely throughout all areas of Australia. The aircraft will frequently be tasked for operations in the South East Asian and Pacific regions, with occasional tasks worldwide. Operations will be conducted in all weather conditions and occasionally from unsealed runways with associated dust/foreign object hazards. For airborne and special missions the Area of Operations (AO) may be hostile, necessitating ingress utilising low level terrain shielding and manoeuvre tactics and/or the use of EW equipment. Weather in the operational environment ranges from sub-Antarctic, through tropical extremes, to desert. SASA operations will often require prolonged low level flight over the sea.

2.2. System Description

2.2.1. Key Functions

2.2.1.1. The C-130J-30 is equipped with a Head Up Display (HUD) and with avionics systems that will enable the aircraft to be positioned accurately in both space and time. This capability should enhance efficient and safe airborne operations, particularly in the SASA and AIRDROP roles. The HUD and all aircraft lighting is compatible with class B NVIS.

2.2.2. Interfaces To Existing And Planned Systems

2.2.2.1. **Full Flight Simulator (FFS).** A Flight Simulator has been procured under Project Air 5216 Phase 3 (Airlift Simulator Project). The simulator comprises a major part of the total training system, and will need to be maintained in the same configuration as the baseline aircraft (currently defined as aircraft s47E).

2.2.2.2. **Mission Planning System.** The Air Command Support System (ACSS) Project aims to provide a generic Mission Planning System (MPS), at an undefined time in the future. In the interim, C130SPO is investigating the possibility of procuring the USAF Portable Flight Planning System (PFPS) for use in C-130J mission planning. 37SQN currently flight plans using Jeppesen Jet Plan facilities.

2.2.2.3. **CAMM.** The C-130J-30 was provided with a Ground Maintenance System (GMS), which will provide some of the information required by the CAMM system. Until the requirements of the new CAMM2 system are resolved, the interface between GMS and the current CAMM system will be manual. The PO will investigate the feasibility of an automated GMS/CAMM data transfer capability if deemed necessary by ALSPO due to delays in CAMM2 implementation.

2.2.3. Unique Characteristics

2.2.3.1. **Avionics.** In comparison to previous C130 variants, the C-130J-30 was delivered with a greatly changed flight deck, which included dual HUDs and a Communications, Navigation and Identification (CNI) system. The HUD is the primary instrument flying display and is used throughout all operations. All avionics are on a MIL STD 1553B Databus.

2.2.3.2. **HUD.** The Federal Aviation Authority (FAA) has certified the HUD for use as the primary instrument flying display in the 382J. The C-130J-30 HUD has some additional functionality, but is still intended to be used as the primary display during flight. The HUD has been designed to enable the pilots to operate with their eyes out of the cockpit in most situations.

2.2.3.3. **Digital Map Unit (DMU).** The C-130J-30 DMU displays a digital representation of a paper map on the head down displays. Aircraft track and other information can be overlaid on the digital map picture.

2.2.3.4. **E-TCAS.** The C-130J-30 has an Enhanced TCAS system that includes some military specific modes. When used in its normal mode, the E-TCAS conforms to TCAS level 1 requirements.

2.2.3.5. **SKE-2000**. The SKE-2000 system provides Group A capabilities to enable IMC formation flight to be conducted. There are no plans to fit Group B provisions at the time of release of this TEMP.

2.2.3.6. **GCAS.** The LM-Aero Ground Collision Avoidance System (GCAS) provides normal and tactical modes of operation. The normal mode meets FAR Ground Proximity Warning System (GPWS) requirements, while the tactical mode provides protection for low level tactical flight.

2.2.3.7. **Communications, Navigation, Identification (CNI) System.** The C-130J-30 is provided with a CNI, which provides limited Flight Management System (FMS) functionality and controls the communication and navigation systems. In addition, CNI interfaces to the Mission Computer (MC) to provide backup control capability for all critical aircraft systems.

2.2.3.8. **Engine/Propeller combination.** The propulsion system is different from previous C-130 models, with a Dowty six-bladed prop and a Rolls Royce 2100D3 engine. The prop/engine combination has altered flow fields around the aircraft, degrading stall and directional stability characteristics. Rectification of this deficiency has required the incorporation of a sideslip warning system and stick pusher/shaker into the aircraft. The engine has a Full Authority Digital Engine Control (FADEC) and an Automatic Thrust Control System (ATCS), civil versions of which have been certified by the FAA for the 382J.

2.2.3.9. **Ground Maintenance System (GMS).** The GMS is used to store data regarding aircraft servicing and maintenance. GMS information will be transferred to the CAMM/CAMM2 system as described at paragraph 2.2.2.3.

2.2.3.10. **Portable Maintenance Aid (PMA).** The C-130J-30 is provided with a PMA, which is used to load flight critical software, to store maintenance manuals, and to function as a deployed GMS when operating away from base.

2.2.3.11. **Reduction in crew numbers.** With the improved flight deck, the crew required for the C-130J-30 has been reduced from five to three, with the removal of the Flight Engineer and the Navigator. Workload testing has demonstrated that a crew of two Pilots and one Loadmaster is adequate to safely perform strategic operations. The flight deck includes an augmented crew station at the position previously occupied by the navigator. The seat at the augmented crew station can be moved along a rail between the old navigator station and the old flight engineer station.

2.3. Operational Performance Requirements

2.3.1. Operational Performance Characteristic - Operational Effectiveness

2.3.1.1. The operational effectiveness of the C-130J-30 is, in essence, how well the weapon system achieves the roles listed at paragraph 2.1.1.2. when operated in the environment defined at paragraph 2.1.3. including any hostile military threat existing in that environment. In broad terms, the weapon system is expected to perform these roles by day or night, under VFR or IFR flight conditions, without the assistance of a Navigator or Flight Engineer and to at least the same standard as the RAAF C-130H. Details of specific performance parameter requirements can be found at Reference B, the C-130J-30 functional specification. The operational effectiveness of the C-130J-

30 will be assessed through Operational Test and Evaluation (OT&E). The outcomes of OT&E will then lead to aircraft system or procedural modifications to enable the weapon system to meet the effectiveness target.

2.3.1.2. During OT&E, Critical Operating Issues (COIs) related to each intended mission will be identified. For each COI, a number of Measures of Effectiveness (MOEs) will be determined against which the weapon system performance will be assessed. Detailed lists of COIs and MOEs will be provided in the OT&E plans discussed at paragraph 3.1.3.1.1.

2.3.2. **Operational Performance Characteristic - Operational Suitability**

2.3.2.1. Operational suitability is the capacity of the system when operated and maintained by typical operational personnel in expected numbers, at the expected training and experience level to be reliable, maintainable, available, logistically supportable, compatible, interoperable, safe, and ergonomically suitable. The operational suitability of the C-130J-30 will be assessed through OT&E. The outcomes of OT&E will then lead to aircraft system or procedural modifications to enable the weapon system to be suitably supported by the operating system.

2.3.2.2. During OT&E, COIs related to operational suitability will be identified. For each COI, a number of Measures of Suitability (MOSs) will be determined against which the weapon system performance will be assessed. Detailed lists of COIs and MOSs will be provided in the OT&E plans discussed at paragraph 3.1.3.1.1

2.4. **Technical Performance Requirements**

2.4.1. **Certification**

2.4.1.1. The approach to be used by the Commonwealth to certify the C-130J-30 is detailed in Reference C, the Type Certification Plan (TCP) for Project Air 5216. The following information is given as background information only; all detail should be obtained from the TCP.

2.4.1.2. LM-Aero has achieved FAA certification of the 382J, which is the civil variant of the C-130J-30. This certification basis is the cornerstone of the RAAF certification plan. However, as the FAA does not certify military functions, the Commonwealth will be responsible for certifying those elements of the C-130J-30 that are not covered either by the 382J certification basis, or by some other certification basis such as relevant C-130H certification items deemed suitably similar.

2.4.1.3. The majority of systems certified under FARs for the 382J are changed by the addition of military components to produce the C-130J-30, thereby invalidating the FAR certification. Additionally, some military specific systems have no comparable civil equivalent. Key systems that will not have a complete basis for certification at the time that the Commonwealth initially accepts the aircraft are:

a. The Aerial Delivery System (ADS);

b. Group A provisions for Electronic Warfare Self Protection (EWSP);

c. Group A provisions for Air-to-Air Refuelling (AAR);

d. Suitability of the weapon system for military operations with respect to crew workload considerations;

e. Compatibility with Night Vision Imaging Systems (NVIS);

f. External fuel tank carriage;

g. Embedded GPS INU (EGI);

h. Military functions of the CNI and MC such as Computed Air Release Point (CARP), Search and Rescue (SAR), Rendezvous (RV), Landing Zone (LZ), Military Takeoff and Landing Data (TOLD), etc.;

i. E-TCAS and GCAS;

j. Low Power Colour Radar (LPCR);

k. Portable Maintenance Aid (PMA);

l. Ground Maintenance System (GMS);

m. Dual Slotted-Data Transfer System (DS-DTS); and

n. Digital Map Unit (DMU).

2.4.1.4. Certification of the items raised at paragraph 2.4.1.3.will be achieved through the RAAF Airworthiness Board (AB). This TEMP addresses the testing required to support RAAF certification of the items at sub-paragraphs a, b and d of paragraph 2.4.1.3. Evidence to support certification of the items at sub-paragraphs g. to n. of paragraph 2.4.1.3. will be provided through data obtained during the TAT&E process. There is presently no plan to certify the items at sub-paragraphs c, e and f (see paras 2.1.2.1 and 2.4.1.5).

2.4.1.5. Clearance for carriage of external fuel tanks has been conducted by LM-Aero in support of other customers' requirements. External fuel tank carriage is outside the scope of Project AIR 5216, however certification data to support RAAF use of external tanks may be sourced from the OEM for presentation to the AB if their use is deemed necessary. Certification for NVIS operations is outside the scope of Project AIR 5216 and will be addressed if necessary during in-service testing.

2.4.1.6. The ADF Airworthiness Authority may endorse a new or expanded role, based on presentation of evidence gathered during DT&E, AT&E and/or RE T&E. Prior to Airworthiness Board endorsement of a new or expanded role, all RE development, test and evaluation associated with that role must be complete.

2.5. Critical T&E Issues

2.5.1. Phased Acceptance Process

2.5.1.1. The RAAF adopted a phased acceptance process for the C-130J-30, to bring the aircraft into limited service as soon as possible. The phased approach has been linked to the manufacturer's C-130J-30 system software upgrade process involving three software configuration "Blocks" and can be described as follows:

a. **Block 5.1**. The Block 5.1 configuration was the baseline military configuration. The first seven aircraft were accepted by the RAAF in this configuration and were capable of only Airlift Logistic Support (ALS) operations.

b. **Block 5.2**. The primary functionality change with Block 5.2 was the incorporation of a 'constant altitude mode' for the cabin pressurisation control system to support the AME capability. Other changes, including CNI upgrade and trim motor modification, were also introduced. A summary of the changes incorporated into the aircraft as part of the Block 5.2 Upgrade is provided at Reference B.

c. **Block 5.3**. Block 5.3 will deliver the remaining military specific functions such as CARP. A RAAF specific Block 5.3.1 will deliver additional fuel management capability and, for the purpose of T&E, will be dealt with as an integral part of Block 5.3. While the weapon system functionality will be in its mature state at the end of Block 5.3 incorporation, a significant amount of testing will still be required by the RAAF to enable Full Service Release (FSR) for all intended roles.

2.5.1.2. **Contractor T&E at Marietta Facility**. The manufacturer, LM-Aero, is contractually bound to prove compliance with Reference B, the C-130J-30 Requirements Specification. The majority of T&E activities required to meet this obligation will be conducted at LM-Aero facilities using an integrated test team comprising LM-Aero and RAAF personnel. These T&E activities include;

a. All DT&E required to support FAR certification and compliance with Reference B,

b. TAT&E on the first aircraft presented in each Block configuration (including customer demonstration flights supporting TAT&E),

c. PAT&E on all aircraft offered to the RAAF for acceptance at the Marietta facility after each Block upgrade, and

d. Aircrew workload testing, including initial workload evaluations in the LADASSIL and aircraft as outlined in paragraph 3.1.2.1.4.

2.5.1.3. **Contractor T&E in Australia**. LM-Aero is also contractually bound to conduct the following testing in Australia using an integrated test team comprising LM-Aero and RAAF personnel;

a. PAT&E on all aircraft offered to the RAAF after each Block upgrade conducted in Australia, and

b. Australian based aircrew workload testing in the aircraft as outlined in paragraph 3.1.2.1.4.

2.5.1.4. **RAAF T&E.** The RAAF is responsible for test activities beyond the scope of contractor T&E. In order to achieve FSR for all intended roles, the following T&E activities must be conducted 'in-house' by the RAAF:

a. OT&E of the weapon system after each Block upgrade;

b. Role Expansion (RE) activities to develop operating procedures and tactics; and

c. DT&E associated with role expansion, including Unsealed Airfield clearances, Airdrop and Paratroop clearances and Electromagnetic Interference/Compatibility (EMI/EMC) testing.

3. PROGRAM SUMMARY

3.1. Management Aspects

3.1.1. General

3.1.1.1. C130PM is responsible for the overall management of T&E activities leading to Full Service Release (FSR). The advice and assistance of specialist agencies including 37SQN, DGTA, ARDU, AMRL, DSTO, AMTDU, Army Parachute Training School (PTS) and LM-Aero will be sought, where necessary, as outlined in this document. Once FSR is achieved, and the entire weapon system is handed over to the 'running system', management of T&E activities will be in accordance with the C-130J-30 in-service Test and Evaluation Plan (TEP). The TEP will replace this document on closure of Project 5216. Annex B shows the inter-relation of the documents mentioned in the following paragraphs.

3.1.2. Contractor T&E

3.1.2.1. The day-to-day management and coordination of contractor testing activities at LM-Aero's Marietta site will be delegated to the on-site RAAF Test Pilot who will act in consultation with other RAAF personnel and report to C130PM. The division of general responsibilities between the RAAF and LM-Aero during contractor testing are given in the following paragraphs.

3.1.2.1.1. **DT&E**. Those tests necessary to support the design effort will be the responsibility of LM-Aero. LM-Aero will invite the RAAF to participate in DT&E activities. The RAAF will provide a qualified Test Pilot and, where possible, a Flight Test Engineer, to participate in the DT&E program.

3.1.2.1.2. **TAT&E.** TAT&E will be conducted in accordance with Acceptance Test Plans (ATPs), Acceptance Test Schedules (ATSs) and Acceptance Test Procedures (ATProcs) which will be prepared, provided and maintained by LM-Aero. ATPs, ATSs, ATProcs and the resulting Acceptance Test Reports (ATRs), will be approved by the Project Office. An LM-Aero Test Pilot will be in command of the aircraft during TAT&E and the RAAF will provide a qualified Test Pilot as copilot and a Flight Test Engineer as the third crew member.

3.1.2.1.3. **PAT&E.** LM-Aero will prepare, provide and maintain Production Acceptance Test Procedures (PATProcs) for all PAT&E conducted on the production aircraft. PATProcs will be approved by the Project Office. An LM-Aero Test Pilot will be in command of the aircraft during PAT&E and the RAAF will provide a C-130J-30 qualified pilot as copilot, and, where possible, a suitably qualified third crew member.

3.1.2.1.4. **Crew Workload Testing DT&E and USA Based Demonstration Flights.** The intent to operate the C-130J-30 with a 'two-pilot' crew (ie. without a Flight Engineer or Navigator) raises the potential for unacceptably high flight crew workload, particularly during tactical operations. To adequately assess the acceptability of the weapon system for 'two pilot' operations, LM-Aero will conduct workload testing in accordance with Reference B. Initial workload test activities will be conducted using the LADASSIL simulator. DT&E flights will be conducted from the Marietta facility, or other suitable USA location, to allow correction of workload deficiencies prior to workload TAT&E demonstration flights to be held in USA and Australia. LM-Aero is responsible for planning DT&E workload activities. DT&E flights and USA based demonstration flights will be flown by a combined LM-Aero/RAAF flight crew under the command of an LM-Aero captain. LM-Aero will also provide an in-flight test director, and data gathering observers. The RAAF will provide C-130J-30 aircrew who have recent C-130E/H tactical operations experience as to complete the flight crew, a qualified test pilot as a safety pilot, and an AMRL workload specialist as an observer.

3.1.2.1.5. **Australia Based Crew Workload Demonstration Flights.** LM-Aero will plan TAT&E Demonstration flights in conjunction with the RAAF. The RAAF will provide advice on RAAF tactical operations and ALG procedures, and AMRL will provide specialist advice (as required) on workload testing, with the aim of achieving realistic mission scenarios. Australia based demonstration flights will be flown by an RAAF flight crew under the command of an RAAF captain. ALG tactical protocols and procedures will be followed unless safety dictates otherwise. LM-Aero will provide an in-flight test director and data gathering observers. RAAF will provide a qualified test pilot and an AMRL workload specialist as observers.

3.1.3. **RAAF T&E**

3.1.3.1. Upon transition of responsibility from the Project Office, HQALG will retain responsibility for the overall coordination of RAAF T&E activities. The diverse nature of these activities will require the assistance of a number of specialist agencies that will be tasked to conduct and assist individual components of the T&E program. T&E involving flight outside the current certification basis of the aircraft shall be conducted by CDR ARDU.

3.1.3.1.1. **OT&E.** OT&E for Blocks 5.1 and 5.2 was conducted by Raytheon, under C130SPO contract C338365. Raytheon planned, conducted and reported on Block 5.1 and 5.2 OT&E activities. C130SPO reviewed and approved the test plans and reports associated with this OT&E. The Block 5.3 OT&E Plan will be drafted by the C130SPO for endorsement by CDR ALG, ARDU and DGTA. Block 5.3 OT&E will be planned by C130SPO, managed and reported by the ALG T&E cell, conducted by 37SQN and supported by ARDU.

3.1.3.1.2. **Role Expansion.** Unlike the majority of weapon systems procured by the RAAF, the C-130J-30 system does not have established military operating procedures or tactics such as that provided by NATOPS manuals. As such, the RAAF must develop operating procedures and tactics through in-house and Joint User Group (JUG) activities. Role expansion activities include the development of checklists and procedures for AME, SASA, Airdrop, Tactical Airland and Special Missions. Some role expansion capabilities require DT&E support as discussed at paragraph 3.1.3.1.3. All non-DT&E role expansion activities will be planned and reported by

ALG T&E Cell and conducted by 37SQN in accordance with Annex C, the C-130J-30 Role Expansion Master Plan (REMP).

3.1.3.1.3. **Role Expansion DT&E.** The DT&E activities associated with role expansion are EMI/EMC, Airdrop, Paratroop, EW stores and marginal field clearances for unsealed airfield operations. These clearances involve flight activity outside the bounds of the developmental testing conducted by LM-Aero, and must be carried out by appropriately qualified developmental test agencies such as ARDU and AMTDU. Specific responsibilities for Role Expansion DT&E activities are given at Annex C.

3.1.3.2. Endorsement and approval of this TEMP also constitutes endorsement and approval of the C130J REMP at Annex C. Individual endorsements and approvals for plans subservient to the REMP will be sought as outlined at Annex C.

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3.1.4.3. **JUG Coordination**. Information to and from the JUG members will be coordinated by the C130SPO. Requests for information from other interested ADF parties should be made through the C130PM position at the Project Office.

3.2. Integrated Schedule

3.2.1. General

3.2.1.1. A significant number of T&E programs need to be completed to bring the C-130J-30 weapon system into full service. Many of these programs rely on the output of previous activities to support their conduct. Close coordination between the various agencies involved will be necessary to ensure that FSR is achieved in a timely manner. Although the responsibility for overall coordination lies with C130PM, it behoves all agencies involved to pro-actively seek the information they need to begin their respective programs. Annex D provides a master schedule showing the inter-relationship of each T&E program. The following paragraphs list the expected timeframes for each T&E activity.

3.2.2. Concurrent Role Expansion

3.2.2.1. Although the ultimate C-130J-30 capability cannot be enabled before integration of Block 5.3.1 software, much of the role development testing can be completed concurrently with LM-Aero Block 5.3 development. For example, it is possible to

conduct airdrop load clearance DT&E before the final CARP software solution is implemented since the aircraft is physically capable of releasing loads in earlier configurations. Such trials can occur before acceptance of Block 5.3 software as long as adequate risk mitigation and crew resource aspects are addressed. Development of CNI procedures would, however, rely on having the final software version. Appendix B to Annex C lists the pre-requisites for each event on which concurrent role expansion is based. The use of concurrent role expansion will minimise the calendar period required to make the C-130J-30 weapon system fully operational.

3.2.3. **Contractor Testing Timeframes**

3.2.3.1. **DT&E**. At the time of release of this version of the TEMP, LM-Aero had completed DT&E on Blocks 5.1 and 5.2. The LM-Aero scheduled completion date for Block 5.3 DT&E is given as Oct 01 at Annex E and reflected at Annex D.

3.2.3.2. **TAT&E**. At the time of release of this version of the TEMP, TAT&E for the first aircraft in Blocks 5.1 and 5.2 configurations had been completed. TAT&E for the first aircraft in Block 5.3 configuration is planned for the end of Sept 01. On the successful completion of TAT&E, the C-130J-30 Block 5.3.1 configuration will be accepted by the RAAF.

3.2.3.3. **PAT&E**. PAT&E will be conducted on delivery of the second and subsequent aircraft offered to the Commonwealth in each configuration Block. At the time of release of this version of the TEMP, PAT&E for all aircraft in Blocks 5.1 and 5.2 configurations had been completed. The PAT&E schedule for Block 5.3/5.3.1 will depend on the number of aircraft available for concurrent upgrade as shown at Annex E.

3.2.3.4. **Workload Testing.** At the time of release of this TEMP, Workload DT&E was scheduled for May 01 with USA demonstrations planned for Sep 01 and Australian based demonstrations planned for Nov 01.

3.2.3.5. **Individual Aircraft Acceptance Configurations**. Due to the phased acceptance process, aircraft will be initially accepted and operated in each of the Block 5.1, 5.2 and 5.3 configurations. Annex F lists the configuration for each aircraft tail number at initial acceptance by the Commonwealth. Aircraft delivered in a configuration earlier than Block 5.3.1 will undergo incremental Block upgrades and associated PAT&E in Australia. At the time of release of this version of the TEMP, all aircraft had been accepted and updated to Block 5.2 configuration; Aircraft s47E was bailed back to LM-Aero to be utilised in the Block 5.3/5.3.1 DT&E program.

3.2.4. **RAAF Testing Timeframes**

3.2.4.1. **OT&E**. At the time of release of this version of the TEMP, OT&E for Blocks 5.1 and 5.2 was completed. The pre-requisite for Block 5.3 OT&E is a mature weapon system including ILS, training and engineering support systems. As such, this testing cannot occur until sufficient Block 5.3.1 airframes are available. Based on having five such aircraft accepted by the Commonwealth prior to Block 5.3 OT&E, this testing is planned for early 02.

3.2.4.2. **Role Expansion**. RE activities involve phased development of checklists, procedures and tactics to support each role. In many instances, it will be more

efficient to commence development of role procedures, alongside associated DT&E activities. Appendix B to Annex C gives the pre-requisites and schedules for each phase of RE.

3.2.4.3. **Role Expansion DT&E**. RE DT&E activities will be conducted concurrently with the initial phases of procedural development for those roles requiring DT&E support. Appendix C to Annex C shows expected timeframes for each RE DT&E activity.

3.3. T&E Funding

3.3.1.1. Project Air 5216 is funded to provide a weapon system that can perform the roles that were allocated to the C-130E in 1993. To fulfil this obligation, C130SPO will provide appropriate funding for Block 5.3 TAT&E, PAT&E and OT&E activities, RAAF and AMRL participation in Block 5.3 workload testing, and for Role Expansion DT&E activities. In general, T&S for participating personnel should be met by the participating agencies unless otherwise agreed by Project Air 5216. Funding for other Role Expansion testing should be coordinated between C130SPO and ALG.

4. DT&E OUTLINE

4.1. Contractor DT&E

4.1.1. Critical DT&E Issues.

4.1.1.1. The remaining critical issues for contractor DT&E are;

a. satisfaction of Block 5.3 and 5.3.1. functional specification requirements at Reference B, including CNI military-specific functions and workload testing,

b. resolution of ACAWS deficiencies,

c. resolution of HF radio and SELCAL deficiencies, and

d. resolution of other miscellaneous deficiencies as described in SG-1 and IPR documents and listed at Reference D, the C-130J-30 Watch List.

4.1.2. DT&E to Date.

4.1.2.1. LM-Aero has concluded DT&E activities associated with Blocks 5.1 and 5.2 with the exception of some residual issues being tracked at Reference D. These outstanding issues will be tested in conjunction with Block 5.3 DT&E which is currently underway.

4.1.3. Future DT&E

4.1.3.1. **DT&E Objectives.** The objectives of LM-Aero Block 5.3 DT&E are to satisfy the requirements of the critical issues shown at paragraph 4.1.1.

4.1.3.2. **DT&E Events/Scope of Testing.** The scope of remaining LM-Aero Block 5.3 DT&E primarily involves final development of the CNI software to enable military specific functions, modification of other aircraft systems as required to rectify

outstanding Integration Problem Reports (IPRs), and demonstrating that workload during tactical missions is acceptable for a two pilot crew.

4.1.3.3. **System Maturity Status.** The Block 5.2 configuration of the C-130J-30 was accepted in Dec 99, providing a basis for use of the aircraft in the ALS and AME roles in a non-hostile environment.

4.2. RAAF DT&E

4.2.1. Critical DT&E Issues.

4.2.1.1. Critical DT&E issues to be resolved by the RAAF in support of RE are;

a. AME role equipment EMI/EMC clearance,

b. SASA clearance,

c. marginal field clearance for aircraft use on unsealed airfields,

d. paratroop clearance, and

e. airdrop loads clearance.

4.2.2. DT&E to Date

4.2.2.1. RE DT&E for SASA and non-marginal unsealed airfield operations is complete; no other RE DT&E has been conducted at the time of release of this TEMP.

4.2.3. Future DT&E

4.2.3.1. **DT&E Objective.** The objectives of RAAF role expansion DT&E are to achieve the flight clearances listed in paragraph 4.2.1.1.

4.2.3.2. **DT&E Events/Scope of Testing**. Annex C defines the events and responsibilities applicable to DT&E activities in support of role expansion.

4.2.3.3. **System Maturity Status.** The C-130J-30 in Block 5.2 configuration will not support the CNI functions required for the airdrop and paratroop roles. Although this means that the navigational and automated CARP functions will not be available until Block 5.3 acceptance, the aircraft is still capable of physically releasing loads in the earlier software configurations. Furthermore, LM-Aero has provided C-130J-30 flow field data to support initial airdrop load clearance. Thus the aircraft system is sufficiently mature to begin airdrop and paratroop load clearance.

4.2.3.4. **Critical DT&E Resources.** The availability of suitably qualified personnel from ARDU, AMTDU, and PTS is likely to be the critical resource path

5. AT&E OUTLINE

5.1. Contractor AT&E

5.1.1. Critical AT&E Issues

5.1.1.1. The remaining critical issues for contractor AT&E involve proof of resolution of the issues raised at paragraph 4.1.1.1

5.1.2. AT&E to Date

5.1.2.1. TAT&E and PAT&E activities associated with Blocks 5.1 and 5.2 are complete, with the exception of some residual issues being tracked by RAAF Issue Papers, SG-1 documents and IPRs. These outstanding issues will be tested in conjunction with Block 5.3 TAT&E.

5.1.3. Future AT&E

5.1.3.1. **AT&E Objectives.** The remaining contractor AT&E objectives are to achieve;

a. Blocks 5.3 and 5.3.1 Type Acceptance on Aircraft s47E, including military workload demonstration in Australia; and

b. PAT&E on aircraft undergoing Block 5.3/5.3.1 upgrades in Australia.

5.1.3.2. **AT&E Events/Scope of Testing.** Block 5.3 TAT&E will involve a combination of RAAF Flight Test crew participation in LM-Aero Customer Demonstration flights and a specific RAAF Block 5.3 TAT&E test program. The scope of the RAAF Block 5.3 TAT&E test program will be dependent on the degree to which compliance with the Block 5.3 functional specification is proven through Demonstration Flight participation. Acceptable workload for a two pilot crew, flying a low level tactical mission, will be demonstrated by LM-Aero in Australia after completion of the remainder of Block 5.3/5.3.1 TAT&E in Marietta. Block 5.3 requirements are broken down into military baseline and RAAF unique requirements. RAAF unique demonstrations and TAT&E activities will be conducted using Aircraft s47E.

5.1.3.3. **System Maturity Status.** Block 5.3 PAT&E and TAT&E ATProcs will be raised in the third quarter of 2001

5.2. RAAF AT&E Involvement

5.2.1.1. A RAAF test pilot will participate in Customer Demonstration flights and TAT&E flights, and a RAAF flight test engineer will participate in TAT&E flights. The RAAF will provide a 37SQN C-130J-30 qualified pilot, with C-130 tactical experience, to participate in the Marietta-based workload testing; a 37SQN C-130J-30 crew will fly Australia-based Workload Demonstration flights. A 37SQN C-130J-30 qualified pilot will participate in PAT&E flights conducted in Australia. Where possible, RAAF will also provide an engineering observer on Customer Demonstration flights, and a test pilot observer on workload DT&E and Demonstration flights. AMRL will provide a workload specialist observer to participate in workload DT&E and Demonstration flights.

6. ROLE EXPANSION OUTLINE

6.1.1. Critical Role Expansion Issues

6.1.1.1. The critical issues for role expansion are;

a. attaining the marginal unsealed airfield , EMI/EMC, airdrop and paratroop clearances outlined at paragraph 4.2.1;

b. development of procedures and checklists to support the intended Military specific role activities; and

c. coordinating the competing priorities and objectives of the test and operational agencies to achieve timely completion of RE and resolution of associated issues.

6.1.2. Role Expansion to Date

6.1.2.1. Role expansion to date has been limited to development of training profiles, SASA clearance and procedures, and procedures for operation into non-marginal unsealed airfields, due to C-130J-30 weapon system immaturity and the lack of airdrop and stores clearances. The aircraft was approved for SASA operations. Testing has been completed for operations into non-marginal unsealed airfields; the Service Release will be amended to approve operations into non-marginal unsealed airfields once clearance has been received from DGTA. A Marginal Airfield is defined in ALG Standing Instructions.

6.1.3. Future Role Expansion

6.1.3.1. **Role Expansion Objectives.** The objectives of role expansion flight activities are to develop operating procedures, techniques and checklists for the military specific roles as specified in Annex C, the C-130J-30 Role Expansion Master Plan. An important objective in role expansion is to clear the aircraft for each role.

6.1.3.2. **Role Expansion Events/Scope of Testing.** Annex C provides the scope of testing and details test events for these activities.

6.1.3.3. **System Maturity Status.** C-130J-30 operating procedures, checklists and tactics to support the ALS, SASA and training roles have been developed.

6.1.3.4. **Critical Role Expansion Resources.** The critical resource for role expansion activities will be availability of airframes in the correct upgrade state, crew and specialist agency availability.

6.1.3.5. **Coordination of Test and Operational Agencies.** Responsibilities for test activities are allocated at Annex C. The designated lead has carriage for each activity. Participating organisations are encouraged to negotiate with the lead organisation if they feel that changes are required. A teaming approach is preferred, however, in event of unresolved issues, appeals should be filed to the appropriate authority through C130SPO. It is recognised that, given the conflicting interests, goals and priorities of the participating organisations, everyone may not be happy with some outcomes, but decisions will still have to be taken to prevent the RE program stalling. Clearly, ALG has authority to override the designated lead where resource

conflicts threaten to impact operations, but any decision of this nature should be flagged to the lead through C130SPO.

7. OT&E OUTLINE

7.1.1. Critical OT&E Issues

7.1.1.1. The remaining critical OT&E issues are;

a. operational validation of AME role equipment employment in the aircraft,

b. validation of the ILS, training and engineering support systems, and

c. operational validation of C-130J-30 capabilities in the Airdrop, Combat Airland and Paratroop roles.

7.1.2. OT&E to Date

7.1.2.1. Block 5.1 and 5.2 OT&E have been completed.

7.1.3. Future OT&E

7.1.3.1. **OT&E Objectives.** The objectives of the Block 5.3 OT&E program are to:

a. Assess the operational effectiveness and suitability of AME role equipment in the C-130J-30, and

b. Assess the effectiveness and suitability of the C-130J-30 weapon system in the Block 5.3 configuration for the Airdrop, Combat Airland and Paratroop roles.

7.1.3.2. **OT&E Events/Scope of Testing.** Block 5.3 OT&E is yet to be fully scoped; details will be provided in the Block 5.3 OT&E Test Plan to be raised by C130SPO in the third quarter of 2001. Since AME role equipment had not completed EMI/EMC testing prior to conduct of Block 5.2 OT&E, the Block 5.3 OT&E program will validate the use of this equipment under representative operational conditions.

7.1.3.3. **System Maturity Status.** The ILS, training and engineering support systems are immature at the time of release of this document. There are remaining issues involving the transition of Engineering Authority and the fidelity of the ILS system that must be resolved prior to Block 5.3 OT&E.

7.1.3.4. **Critical OT&E Resources.** The provision of suitably qualified personnel to plan, conduct and report on Block 5.3 OT&E is the critical resource issue.

8. IN SERVICE TESTING OUTLINE

8.1. Critical In-Service Testing Issues

8.1.1.1. The critical in-service testing issues are;

a. EW stores clearance,

b. Proof of RAIM equivalence,

c. Use of a NVIS, and

d. Proof of Global Air Traffic Management (GATM) compatibility, including Reduced Vertical Separation Minima (RVSM).

8.2. In-Service Testing to Date

8.2.1.1. There has been no in-service testing to date.

8.3. Future In-Service Testing

8.3.1.1. In-service testing will be dealt with by the C-130J-30 in-service Test and Evaluation Plan (TEP) that will replace this TEMP once the mature aircraft system is transferred to the running system. FSR for the aircraft type in the Block 5.3.1. configuration will represent this milestone. ALG will define the requirement, scope and schedule for in-service testing, which will be managed by ALG T&E Cell. The TEP is the authoritative document for in-service testing.

8.4. In-Service Testing Objectives

8.4.1. The initial objectives of in-service testing will be to achieve the aims listed at paragraph 8.1.1.1. These objectives may be modified by ALG, via amendment to the TEP, as dictated by operational imperatives.

8.4.2. In Service Testing Events/Scope of Testing

8.4.2.1. **EW Stores Clearance**. ARDU has significant experience in EW stores clearance from the C-130H and other types. ARDU is to be tasked to ascertain the scope and resources required to achieve EW stores clearance, should this clearance be required by ALG in the future.

8.4.2.2. **RAIM Capabilities**. As the EGI has been removed from the LM-Aero certification basis, there will be no qualification of the GPS that will lead to a RAIM equivalence or compliance. As a result, the aircraft will be incapable of conducting GPS Non-Precision Approaches (NPA) until sufficient information can be presented to the Airworthiness Board to prove equivalence. C130SPO has tasked ARDU to conduct a desktop study to determine which GATM components are currently met by the C-130J-30, and to scope the effort required to meet others. The outcome of this study should lead to specific TEP activities.

8.4.2.3. **NVIS Clearance.** The C-130J-30 has been procured with an NVIS Class B compatible cockpit and cabin. This does not in itself clear the aircraft for flight using NVIS, due to human factors and procedural development issues. ARDU has significant experience in NVIS clearance on a number of aircraft types, and ALG has significant experience in the operational use of NVIS on the C-130H. ARDU and ALG shall form a joint team to clear NVIS when required.

8.4.2.4. **GATM Compatibility**. The Global Air Traffic Management concept uses recent developments in technology to enable higher air traffic density via initiatives such as Reduced Vertical Separation Minima (RVSM) and Required Navigational

Performance (RNP) for higher lateral navigation accuracy. Although a civil initiative, GATM will affect military transport operations in that use of air routes will be progressively restricted for aircraft that do not comply with GATM requirements. RVSM requirements are already in effect on routes in the North Atlantic used by RAAF aircraft and will become effective in Australian airspace in 2001. Project AIR 5216 has provided data to allow operation to RNP-10 level. In-service testing will be required to achieve further GATM compliance, should more accurate navigation than RNP-10 be required. A JUG initiative is currently underway to address RVSM certification through cost sharing arrangements with the USAF who have proposed a contract with LM-Aero to provide and RVSM certification package. This package will be presented to the Airworthiness Board if and when it becomes available.

8.4.3. **System Maturity Status**

8.4.3.1. At the conclusion of testing outlined in this TEMP, the C-130J-30 weapon system will be sufficiently mature to conduct all roles detailed in Reference A.

8.4.4. **Critical In-Service Testing Resources**

8.4.4.1. Critical In-Service test resources will be defined in the TEP.

9. SPECIAL RESOURCE SUMMARY

9.1.1. **Special Support Requirements**

9.1.1.1. Completion of all T&E activities leading to FSR will require the support of a number of specialist personnel and services. Special support requirements not included under contract with LM-Aero may include provision of:

a. Specialist personnel from 37SQN, AMTDU, ARDU, AMRL, DSTO and PTS;

b. airdrop loads and associated rigging services from AMTDU;

c. paratroops from PTS;

d. instrumented paratroop dummies from Land Engineering Agency,

e. flight test chase aircraft and photographers by ARDU and 92WG Photography section respectively;

f. flight test instrumentation by ARDU/AMTDU; and

g. specialist human factors advice by AMRL.

9.1.2. **Test Resource Schedules**

9.1.2.1. Annex D shows the Integrated Test and Evaluation Schedule, which defines test and evaluation activities performed by LM-Aero and the RAAF.

GLOSSARY OF DEFINITIONS AND ABBREVIATIONS

Definitions

For the purposes of this TEMP the following definitions shall apply.

Airborne Operations. An operation involving the movement of combat forces and their logistic support into an objective area by air for execution of a tactical or strategic mission, when the forces involved may be required to engage in combat immediately on leaving the aircraft.

Air Logistics Support. Those air operations conducted to deploy or recover troops, equipment and supplies, not normally involving the carriage of troops ready for immediate combat

Aeromedical Evacuation. The movement of patients to and between medical treatment facilities by air transportation.

Abbreviations

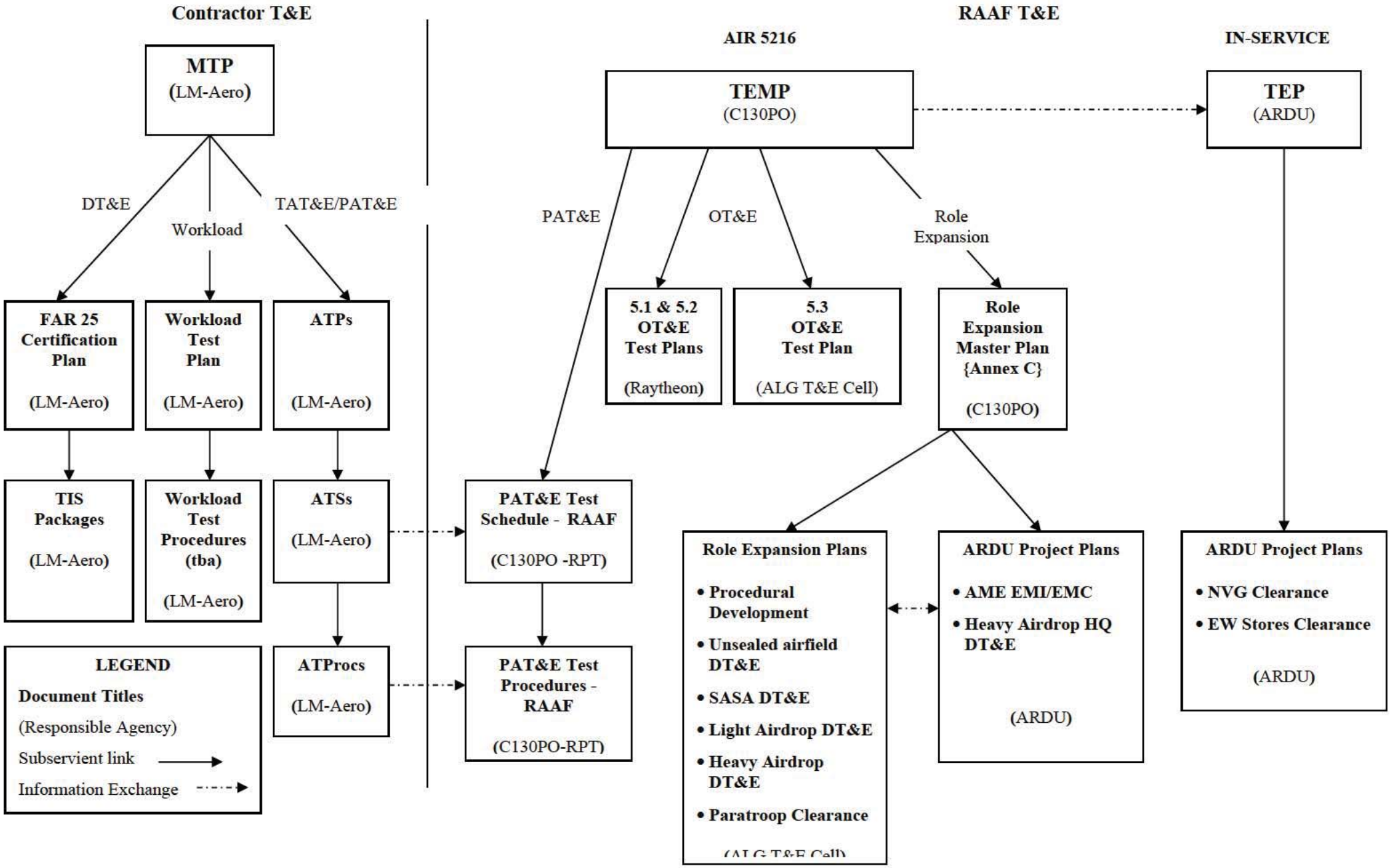
For the purposes of this TEMP the following abbreviations shall apply.

AAR	Air-to-Air refuelling
AB	Airworthiness Board
AGL	Above Ground Level
ALG	Air Lift Group
ALSPO	Air Lift Logistics Management Squadron
AME	Aeromedical Evacuation
AMTDU	Air Movements Training and Development Unit
ARDU	Aircraft Research and Development Unit
ASIMP	Aircraft Structural Integrity Management Plan
AT&E	Acceptance Test and Evaluation
ATMP	Acceptance Test Management Plan
ATP	Acceptance Test Plan
ATProc	Acceptance Test Procedures
ATR	Acceptance Test Reports
ATS	Acceptance Test Schedules
BIU	Bus Interface Unit
CofA	Certificate of Airworthiness
CCB	Configuration Control Board
CCP	Contract Change Proposal
CDR	Critical Design Review
CDRL	Contract Deliverable Requirements List
CEPMAN1	Capital Equipment Procurement Manual
CLSA	Controller Logistics Systems Agency
CMDS	Countermeasures Dispensing System
CMDU	Colour Multifunction Display Unit
CMP	Configuration Management Plan

COTS	Commercial off the Shelf
DA	Design Authority
DAA	Design Approval Authority
DC130SPO	Director(ate of) C130 Systems Project Office
DID	Data Item Descriptions
DT&E	Developmental Test and Evaluation
EAS	Equipment Acquisition Strategy
ECP	Engineering Change Proposal
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
EMP	Engineering Management Plan
EWSP	Electronic Warfare Self Protection
FADEC	Full Authority Digital Electronic Control
FCA	Functional Configuration Audit
FDR	Flight Data Recorder
FTE	Flight Test Engineer
FQT	Formal Qualification Test
ILS	Integrated Logistics Support
IDD	Interface Design Document
IPR	Integration Problem Report
IRS	Interface Requirements Specification
LM-Aero	Lockheed Martin Aeronautical Systems Company
LOT	Life of Type
MCS	Major Capability Submission
MRI	Master Record Index
MTP	Master Test Plan
NPA	Non Precision Approach
NVG	Night Vision Goggles
NVIS	Night Vision Imaging System
OEM	Original Equipment Manufacturer
OFP	Operational Flight Program
OMTP	Operational Testing and Evaluation Master Test Plan
OPEVAL	Operational Evaluation
OPWG	Operational Testing and Evaluation Planning Working Group
OT&E	Operational Test and Evaluation
OTP	Operational Test and Evaluation Test Plan
OTProc	Operational Test and Evaluation Test Procedures
OTR	Operational Test and Evaluation Test Schedules
PAT&E	Production Acceptance Test and Evaluation
PATProc	Production Acceptance Test and Evaluation Procedures
PCA	Physical Configuration Audit
PDP	Procedural Development Plan
PM	Project Manager
PMAP	Project Management and Acquisition Plan
QTP	Qualified Test Pilot
RAIM	Receiver Autonomous Integrity Monitoring
RE	Role Expansion
REMP	Role Expansion Master Plan
RVSM	Reduced Vertical Separation Minima
SASA	Search and Survivor Assistance
SDA	Service Design Authority
SOI	Statement of Operating Intent

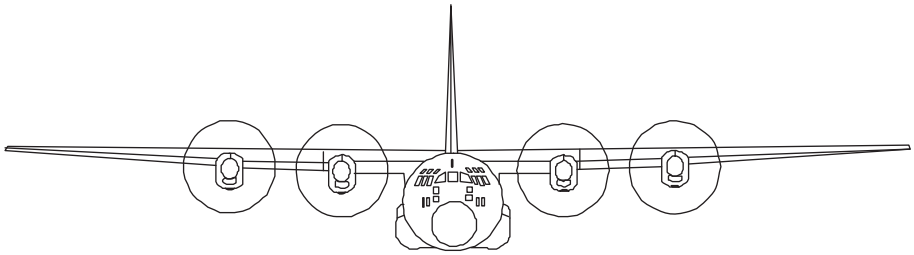
SOR	Statement of Requirement
SOW	Statement of Work
TAT&E	Type Acceptance Test and Evaluation
TEMP	Test and Evaluation Master Plan
TEP	Test and Evaluation Plan
TMP	Technical Maintenance Plan

PROJECT AIR 5216 - TEST AND EVALUATION PLAN HIERARCHY



ANNEX C TO
PROJECT AIR 5216
TEST AND EVALUATION
MASTER PLAN
Dated: 21 Nov 2001

PROJECT AIR 5216



ROLE EXPANSION MASTER PLAN FOR C-130J-30 AIRCRAFT

REFERENCES

A. LM-AERO Interdepartmental Communication E42-122-99 dated 12/9/99
B. ALG Procedural Development Plan dated Mar 00.

APPENDICES

A. Role Expansion DT&E Responsibility Matrix
B. Role Expansion Event Pre-Requisite Matrix
C. Role Expansion Schedule

1. INTRODUCTION

1.1. Background

1.1.1.1. Unlike the majority of weapon systems procured by the RAAF, the C-130J-30 system does not have established military operating procedures or tactics such as that provided for other types through NATOPS or similar publications. As such, the RAAF must conduct in-house activities to enable the capabilities necessary for Full Service Release (FSR). This Role Expansion Master Plan, presented as Annex C to the Project AIR 5216 Test and Evaluation Master Plan (TEMP), outlines the responsibilities and general requirements associated with Role Expansion (RE) activities.

1.1.1.2. Where clearances involve flight activity outside the bounds of the developmental testing conducted by LM-Aero, testing must be carried out by appropriately qualified developmental test agencies, such as ARDU and AMTDU. In general, the developmental agency will plan and conduct testing to clear the aircraft for a particular role; the operational agency will then develop procedures and checklists to perform the role. Non-DT&E testing should be planned by ALG T&E Cell, and conducted by 37SQN.

1.2. Objectives

1.2.1.1. The objectives of the Role Expansion Program are;

a. to successfully conduct the DT&E activities required to enable military role capability for which LM-Aero is not contractually responsible, and

b. to develop operating procedures and checklists to support the specific military roles of the C-130J-30 weapon system.

2. SCOPE

2.1. Role Expansion DT&E

2.1.1.1. The role expansion DT&E activities within the scope of Project AIR 5216 are:

a. Unsealed marginal airfield clearances;

b. EMI/EMC clearances for:

(1) Aeromedical Evacuation (AME) role equipment,

(2) laptop computers used to host the PMA and MPS systems, and

(3) test equipment used in clearing the C-130J-30 in accordance with this REMP.

c. Airdrop loads clearances for:

(1) light weight airdrop loads (Compacts), and

(2) heavy airdrop loads including CDS and Platform loads.

d. Clearance for Paratroop operations including:

(1) HUPRA,

(2) Dummy drops,

(3) static line drops from the ramp and paradoors,

(4) normal freefall drops from the ramp and paradoors,

(5) HAPO freefall drops from the ramp and paradoors, and

(6) Para-wedge.

2.2. Role Expansion Procedural Development

2.2.1.1. To enable FSR, procedures, techniques and checklists must be developed for the following roles;

a. Airborne instruction sequences,

b. AME,

c. SASA,

d. Airdrop operations (including VMC/IMC formation procedures),

e. Paratroop operations,

f. Combat Airland operations (including combat offload), and

g. PNG operations.

3. CONDUCT

3.1. Role Expansion DT&E

3.1.1.1. The DT&E activities necessary to enable FSR involve a combination of Tactical Operations, Airdrop, EMI/EMC, Handling Qualities and Performance specialist capabilities. Successful completion of role expansion DT&E will require test teams consisting of specialists from 37SQN, AMTDU, PTS, and ARDU. Management of each DT&E activity has been assigned to the most appropriate agency according to the critical factors involved in the required tests.

3.1.2. EMI/EMC Clearance

3.1.2.1. EMI/EMC clearance for AME role equipment will be the responsibility of ALSPO and ARDU in three phases;

a. determination of the EM radiation spectrum of each piece of equipment (ARDU),

b. desktop analysis comparing equipment spectra to C-130J-30 spectra (ALSPO), and

c. source/victim ground and flight testing (ARDU).

3.1.2.2. The testing outlined at sub-paragraph 3.1.2.1.a. requires specialist test services and facilities that can be provided by a number of Australian contractors. ARDU will collate a list of equipment to be tested through consultation with 3HOSP, AMTDU and 37SQN. At the Transition Working Group (TWG) held in Richmond on 10Feb00, CO ALSPO agreed to fund a contract for the testing required at sub-paragraph 3.1.2.1.a.

3.1.2.3. ARDU will be responsible for EMI/EMC clearance of the PMA/MPS Laptop computer and any flight test instrumentation to be used during role expansion DT&E. It is

envisaged that only carry on instrumentation will be required for role expansion DT&E. Installed cameras were/will be used on paratroop trials in addition to carry on equipment.

3.1.3. **Clearance for Unsealed Airfield Operations**

3.1.3.1. DT&E is required to clear the aircraft for operation into marginal unsealed airfields in the Combat AIRLAND role.

3.1.3.2. ARDU will manage a test program to clear the aircraft for operations into marginal fields. A marginal field is defined in ALG Standing Instructions.

3.1.3.3. ALG T&E Cell completed a test program to develop suitable operating and maintenance procedures for unsealed runway operations into non-marginal fields. This program included investigation of engine, propeller and airframe damage accrual when operating into unprepared airfields. Approval was granted for operations into unprepared non-marginal fields in Apr 2001.

3.1.4. **Airdrop Loads Clearance**

3.1.4.1. In general, airdrop Loads clearances involve four phases;

a. determination of the flow field characteristics of the aircraft,

b. assessment of the likely affect of the flow field on dispatch of all load types as a basis to support safe flight testing,

c. flight testing of light weight loads to confirm acceptable dispatch characteristics and provide initial data for CARP confirmation, and

d. flight testing of heavy weight loads to confirm acceptable dispatch characteristics and aircraft Handling Qualities (HQs) for the heaviest useable load.

3.1.4.2. Since LM-Aero has provided flow field information at Reference A, the RAAF need only address the requirement of sub-paragraphs 3.1.4.1.b. to 3.1.4.1.d.

3.1.4.3. **Flow Field Analysis**. AMTDU will conduct a desktop analysis of the flow field data provided by LM-Aero to identify any potential hazards prior to flight testing of each load type.

3.1.4.4. **SASA.** The ALG T&E Cell, using AMTDU, 37 SQN and ARDU assistance as outlined in Table C-1 at Appendix A, has completed airdrop trials of SASA airdrop loads (Helibox, Maxibox, Storepedo ASRK and CRS), without significant HQ considerations. The C-130J-30 was approved to conduct SASA operations in Apr 2001.

3.1.4.5. **Light Weight Airdrop Loads.** AMTDU will manage airdrop trials of light weight airdrop loads (Compacts). AMTDU will task ARDU to manage the experimental flight test aspects of this testing.

3.1.4.6. **Heavy Airdrop Loads**. There are two critical factors to consider when determining responsibilities for conduct of heavy airdrop load DT&E trials. Firstly, the rigging, despatch and post-despatch characteristics of the load, which are the field of expertise of AMTDU, and secondly, the aircraft HQs associated with load dispatch, which are the field of expertise of ARDU. Assessment of HQs will also require the use of specialist flight test instrumentation. The following approach will be used to ensure that the appropriate specialist capabilities are utilised in the most efficient manner:

a. ARDU will manage the overall clearance program with the assistance of AMTDU. These management responsibilities will include consolidation of airdrop and HQ plans and reports, flight test direction and scheduling;

b. Based on the experienced gained during previous C-130J-30 airdrop load trials, AMTDU will plan trials to clear single and multiple CDS and Platform loads using an incremental buildup in load weight and complexity. AMTDU will provide this plan to ARDU to approve;

c. ARDU will review the AMDTU plan to determine the associated HQ flight test data and safety requirements and raise a Flight Test Plan to enable the HQs assessment to be made concurrently with the airdrop trials as planned by AMTDU. ARDU will provide this plan to AMTDU for review;

d. Since the HQ component of this testing will require installation of flight test instrumentation as a Non Standard Modification (NSM), Operational Control of the test aircraft will be transferred to ARDU during the flight test component of the program;

e. Test flights will be authorised by CDR ARDU and flown by a combined ARDU/ALG crew consisting of an ARDU qualified experimental test pilot as aircraft captain, an AMTDU flight test director, remaining flight crew from 37SQN and AMTDU airdrop personnel.

3.1.5. Clearance for Paratrooping

3.1.5.1. Paratroop clearance will be conducted following SASA, to gain some level of experience with C-130J-30 flow field affects prior to this testing. Additionally, paratroop trials using instrumented dummies must be successfully completed before using live paratroop personnel in testing. Paratroop clearance will also include simultaneous drops from both paradoors, evaluation of HUPRA and dispatch of paratroop role equipment. ARDU will manage paratroop trials with the assistance of AMTDU. The following paratroop events will be investigated;

a. static line drops from the ramp and paradoors,

b. normal freefall drops from the ramp and paradoors,

c. HAPO freefall drops from the ramp and paradoors, and

d. Para-wedge.

3.1.6. Responsibilities Matrix

3.1.6.1. Table C-1, at Appendix A, defines the responsibilities of each specialist agency during the role expansion DT&E activities. The term “Conduct” assigns control of and responsibility for the test events to the relevant unit.

3.2. Role Expansion Procedural Development

3.2.1.1. Role expansion procedural development will be the responsibility of 37SQN. 37SQN are encouraged to seek the advice and assistance of other specialist agencies where desirable. The ALG Procedural Development Plan (PDP), Reference B, outlines the conduct of procedural development activities.

3.3. Operational Control

3.3.1.1. ALG will retain Operational Control of the test aircraft for the majority of role expansion activities. Operational Control will be assigned to ARDU for all Role Expansion flight test activities that involve flight outside the current aircraft certification basis, namely;

a. in-aircraft EMI/EMC tests,

b. marginal field clearance into unsealed airfields, and

c. airdrop and paratroop clearances listed in paras 3.1.4 and 3.1.5.

3.4. Airworthiness Management

3.4.1.1. Airworthiness status for Role Expansion activities, other than those involving use of ARDU NSMs, will be provided via Special Flight Permit (SFP) or Limited Service Release (LSR) once the LSR supersedes the SFP. Airworthiness status for Role Expansion activities outside the current aircraft certification basis will be managed by ARDU via approved Flight Test Plans and ARDU AACC.

3.5. Maintenance Control

3.5.1.1. 37 SQN will retain maintenance control of the aircraft for the flight test activities or attach personnel to ARDU as required. NSM installation will be conducted by ARDU. ALSPO ECPs were used for installed cameras during phase 1 of the paratroop trials (in lieu of ARDU NSMs).

3.6. Location

3.6.1.1. All role expansion activities will be based from Richmond, with deployments made as required in accordance with the Test Plans.

3.7. Schedule

3.7.1. Test Event Pre-Requisites

3.7.1.1. Many role expansion activities depend on the results of other activities. The schedule has been produced with this in mind. A list of pre-requisite events for each role expansion activity is provided at Appendix B.

3.7.2. Planned Schedule

3.7.2.1. Appendix C to this document outlines the schedule for role expansion testing, it should be read in conjunction with the overall T&E schedule given at Annex D to the TEMP.

4. RESOURCE REQUIREMENTS

4.1.1. Role Expansion DT&E

4.1.1.1. **37SQN.** 37 SQN will provide at least one C-130J-30 airframe and flight crew for the majority of role expansion activities. Up to three airframes and crew will be required for formation flight procedural development as discussed in Reference B. For the DT&E activities discussed at sub-paragraphs 3.1.3.2 and 3.1.4.6, 37SQN need only provide one pilot with the flight crew.

4.1.1.2. **AMTDU.** AMTDU are to provide the necessary specialist personnel to analyse the C-130J-30 flow field and enable airdrop load development. Airdrop loads are to be provided as described in the relevant role expansion plans.

4.1.1.3. **ARDU.** ARDU will provide sufficient personnel to plan, manage, conduct and report on Role Expansion activities in accordance with this REMP.

4.1.1.4. **PTS.** PTS will provide specialist advice to AMTDU regarding paratroop specific airdrop issues on request. PTS will also provide suitably qualified paratroops during paratroop dropping trials.

4.1.1.5. **Crewing.** ALG will provide all flight crew for the majority of role expansion activities. All crews taking part in Role Expansion activities outside the current aircraft certification basis will be attached to ARDU. Crewing requirements for each task will be detailed in an approved Flight Test Plan.

4.1.2. **Role Expansion Procedural Development**

4.1.2.1. ALG will resource procedural development activities as outlined in Reference B.

5. REPORTING

5.1.1.1. Each agency assigned management responsibility for the various role expansion events is to report the results of their test programs, in writing, to C130PM within four weeks of test completion.

Table C-1. Role Expansion DT&E Responsibility Matrix

DT&E Activity	C130SPO	ALG T&E Cell	AMTDU	ARDU	37SQN	ALSPO	PTS	3HOSP
EMI/EMC	• Provide oversight	• Assist ARDU with source/victim testing	• Provide list of any instrumentation which may be required onboard the aircraft during aerial delivery testing to ARDU	• Collate list of instrumentation, role equipment and AME equipment to be tested & conduct EMI/EMC testing to clear instrumentation and equipment (including PMA & MPS laptops) • Conduct testing to determine EM radiation spectrum of equipment listed • Conduct source/victim testing of equipment listed	• Provide details of any known role equipment to be tested to ARDU • Provide test aircraft and crew	• Conduct desktop analysis comparing equipment spectra to aircraft spectra for equipment listed	• nil	• Provide list of AME equipment to be tested to ARDU
Unsealed Airfield Clearance – Marginal Field	• Provide oversight	• Provide assistance on request	• Provide assistance on request	• Plan, Conduct and Report • Provide test pilot	• Provide test aircraft, partial flight crew and maintenance crew.	• Provide engineering expertise on request	• nil	• nil
SASA Airdrop Loads	• Provide oversight	• Plan, conduct and report	• Provide flow field analysis • Provide airdrop loads • Conduct load clearance tests	• Provide peer review • Provide photographic/ safety chase	• Provide test aircraft and crew	• nil	• nil	• nil

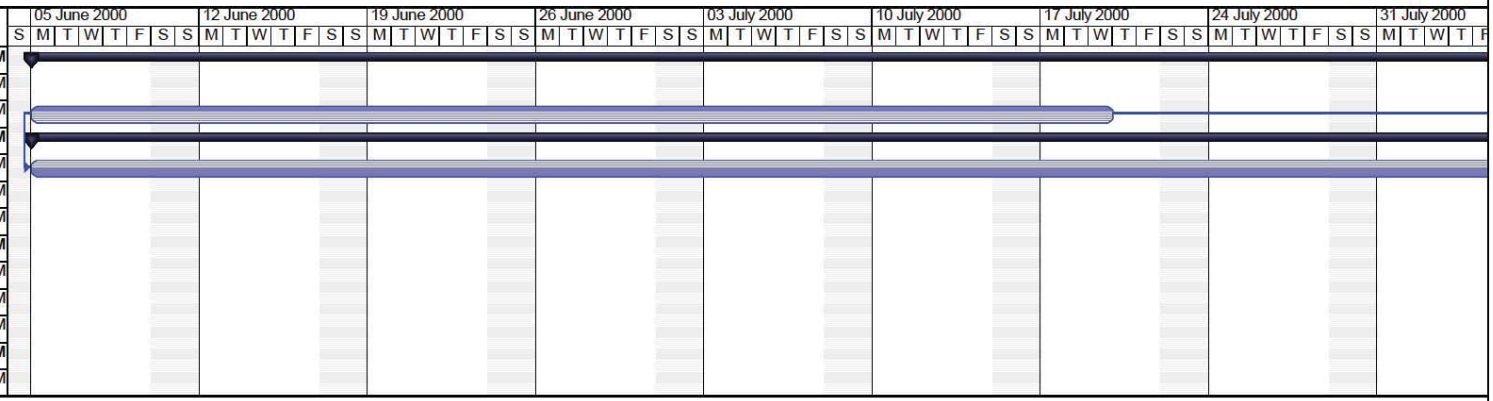
Light Weight Airdrop Loads	• Provide oversight	• Provide assistance on request	• Provide airdrop loads • Conduct load clearance tests	• Plan, Conduct and Report • Provide photographic/ safety chase	• Provide test aircraft and crew	• nil	• nil	• nil
CDS and Platform Loads	• Provide oversight	• Provide assistance on request	• Plan, Conduct and report loads clearance tests • Provide airdrop loads	• Plan, Conduct and Report	• Provide test aircraft and partial flight crew	• nil	• nil	• nil
Paratroop Dropping	• Provide oversight	• Provide assistance on request	• Plan, Conduct and report • Provide airdrop loads • Conduct load clearance tests	• Plan, Conduct and Report • Provide photographic/ safety chase	• Provide test aircraft and crew	• nil	• Provide specialist advice • Provide dummies & paratroops	• nil

Table C-2. Role Expansion Event Pre-Requisite Matrix

Role Expansion Activity	Pre-Requisites	Is a Pre-Requisite For	Comments
EMI/EMC DT&E	• nil	• Airdrop and Paratroop Trials • Block 5.3 OT&E	• EMI/EMC testing will clear instrumentation required for airdrop tests. • AME role equipment OT&E could not be completed in Block 5.2 OT&E due lack of EMI/EMC clearance.
Unsealed airfield clearance – non-marginal fields	• See comments	• Unsealed airfield clearance –marginal fields	• The ASI analysis of composite flap BVID will need to be resolved prior to conduct of these tests. • **TEST COMPLETE**
Unsealed airfield clearance – marginal fields	• Unsealed airfield clearance – non-marginal fields	• Combat AIRLAND Procedural Development	
SASA Airdrop Load Release DT&E	• AMTDU analysis of LM-Aero flow field report. • SASA Procedural Development	• All other airdrop load trials. • Block 5.3 OT&E	• **TEST COMPLETE**
Light Weight Airdrop Loads DT&E	• AMTDU analysis of LM-Aero flow field report. • Airdrop Procedural Development	• Paratroop DT&E • CDS and Platform Load DT&E. • Block 5.3 OT&E	
CDS and Platform Loads DT&E	• SASA and light airdrop loads.	• Block 5.3 OT&E	
Paratroop Dropping DT&E	• SASA.	• Block 5.3 OT&E	• Instrumented dummies must be used prior to live personnel drops.
Airborne Instruction Procedural Development	• nil	• Block 5.3 OT&E	• Although instructional procedures can be developed prior to Block 5.3 Upgrade, 37SQN should be cognisant of the effects of Block 5.3 changes to CNI functionality and subsequently to CNI instructional material.
AME Procedural Development	• Block 5.2 Upgrade	• Block 5.3 OT&E	• Pre-requisite applies only to constant altitude AME operations. • **TEST COMPLETE**
SASA Procedural Development		• Block 5.3 OT&E	• **TEST COMPLETE**
Airdrop Procedural Development	• See comments	• Block 5.3 OT&E	• Although procedures can be developed prior to Block 5.3 Upgrade, 37SQN should be cognisant that CNI airdrop functionality will not be useable until that upgrade.
Combat AIRLAND Procedural Development	• Unsealed airfield clearance – marginal field	• Block 5.3 OT&E	
Paratroop operations Procedural Development	• See comments	• Block 5.3 OT&E	• Although procedures can be developed prior to Block 5.3 Upgrade, 37SQN should be cognisant that CNI airdrop functionality will not be useable until that upgrade.
PNG Procedural Development	• nil	• nil	
Formation Procedural Development	• nil	• nil	

ROLE EXPANSION SCHEDULE

ID	Task Name	Duration	Start
1	**Role Expansion DT&E**	**585 days**	**5/06/00 8:00 AM**
2	EMI/EMC Clearances	164 days	5/01/02 8:00 AM
3	Unsealed Airfield Clearance	33 days	5/06/00 8:00 AM
5	**Airdrop Loads Clearances**	**824 days**	**5/06/00 8:00 AM**
6	SASA	61 days	5/06/00 8:00 AM
7	Light Airdrop Loads	235 days	23/11/01 8:00 AM
8	Paratrooping	235 days	23/11/01 8:00 AM
10	**Heavy Airdrop Loads**	**143 days**	**4/01/03 8:00 AM**
11	Planning	15 days	4/01/03 8:00 AM
12	Flight Testing	12 days	1/04/03 8:00 AM
13	Reporting	76 days	7/04/03 8:00 AM
15	**Role Expansion Procedural Development**	**134 days**	**0/03/03 8:00 AM**
16	Development	134 days	0/03/03 8:00 AM



Project:
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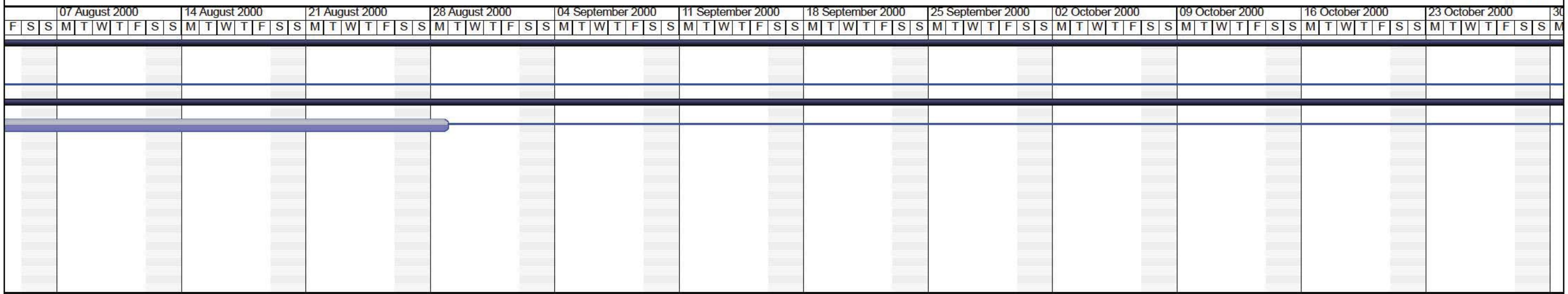
Date: 27/08/19 2:00 PM

Task | Progress | Summary | Rolled Up Split | Rolled Up Progress | Project Summary
Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks

ROLE EXPANSION SCHEDULE



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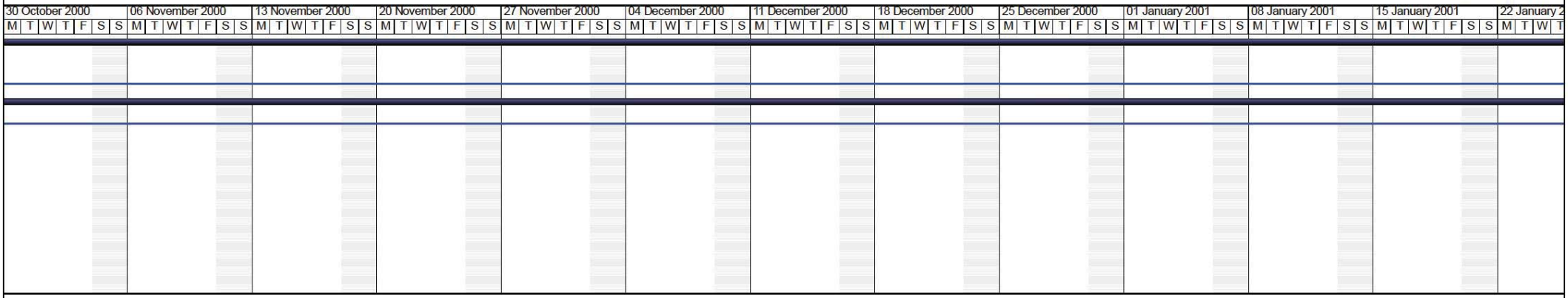

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Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks

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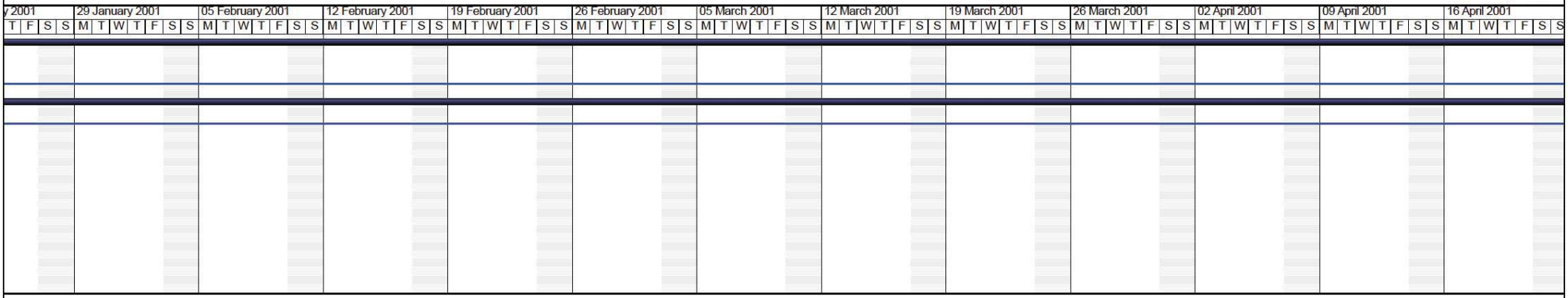

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Task | Progress | Summary | Rolled Up Split | Rolled Up Progress | Project Summary

Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks

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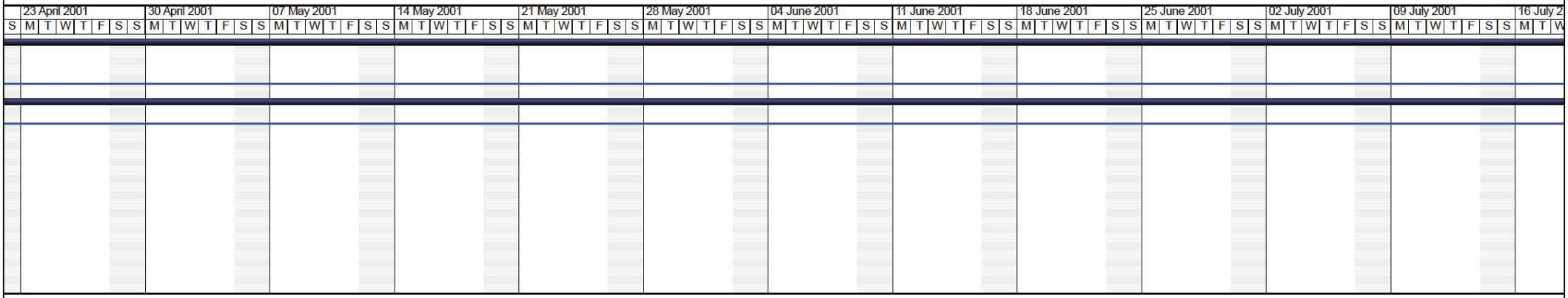

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Task | Progress | Summary | Rolled Up Split | Rolled Up Progress | Project Summary

Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks

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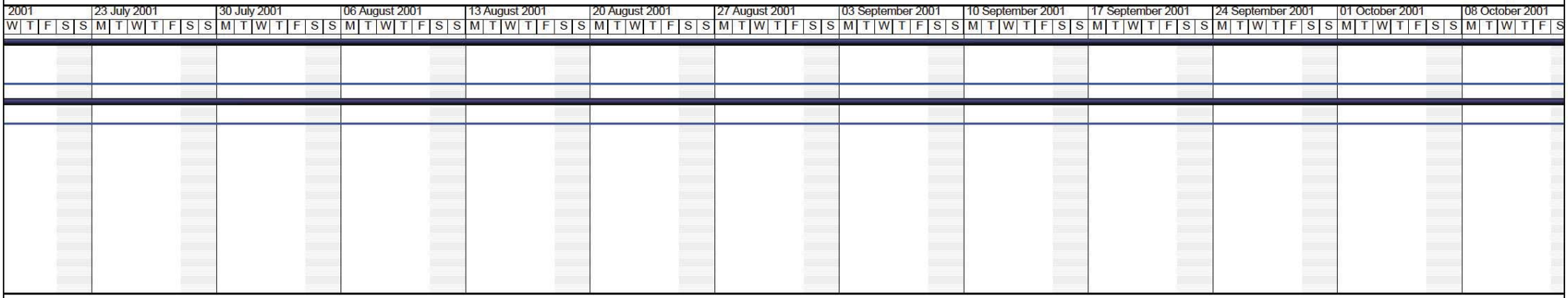

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Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks

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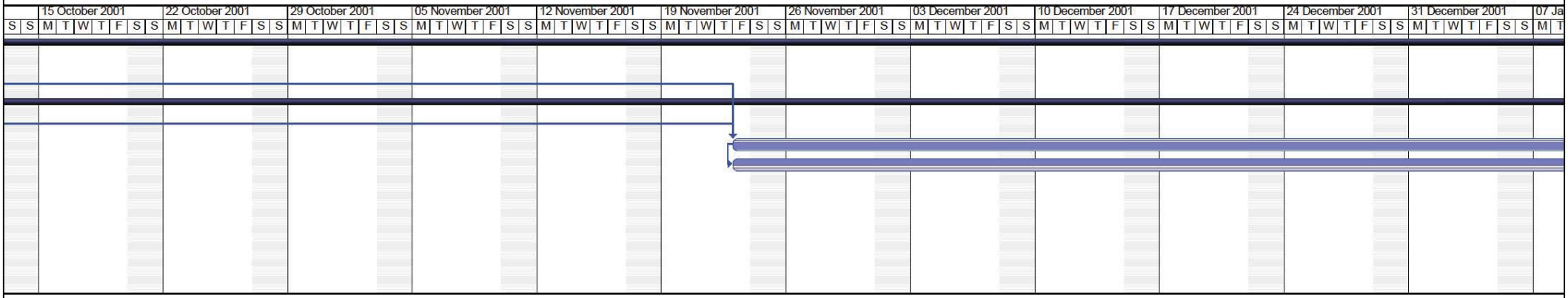

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Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks

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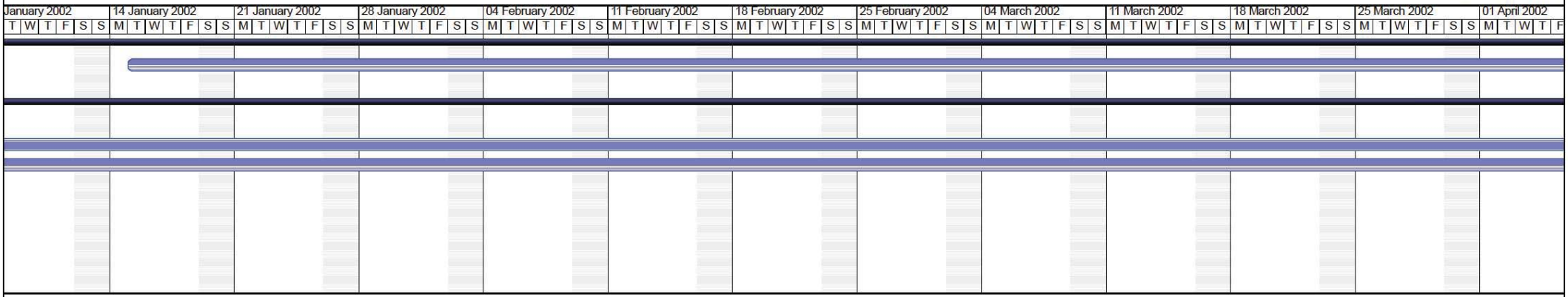

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Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks

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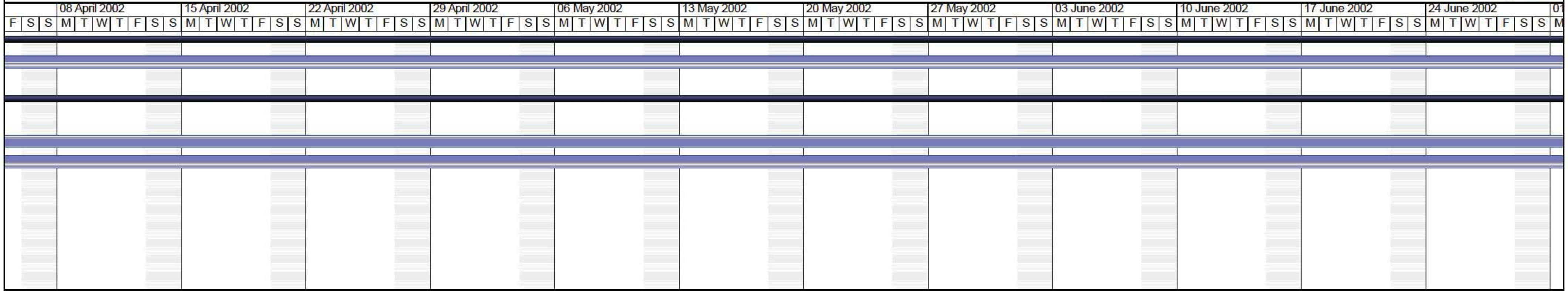

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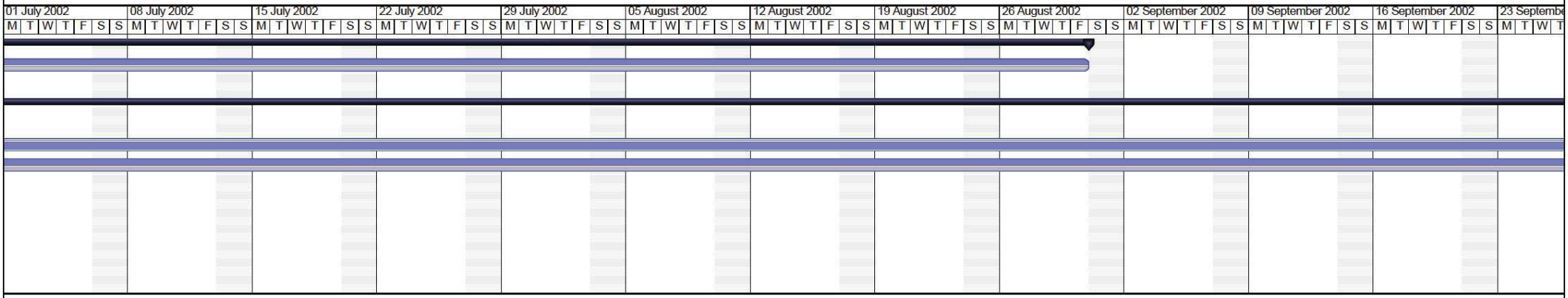
	Split	Milestone	Rolled Up Task	Rolled Up Milestone	External Tasks

Project Summary

ROLE EXPANSION SCHEDULE



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Task | Progress | Summary | Rolled Up Split | Rolled Up Progress | Project Summary
Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks

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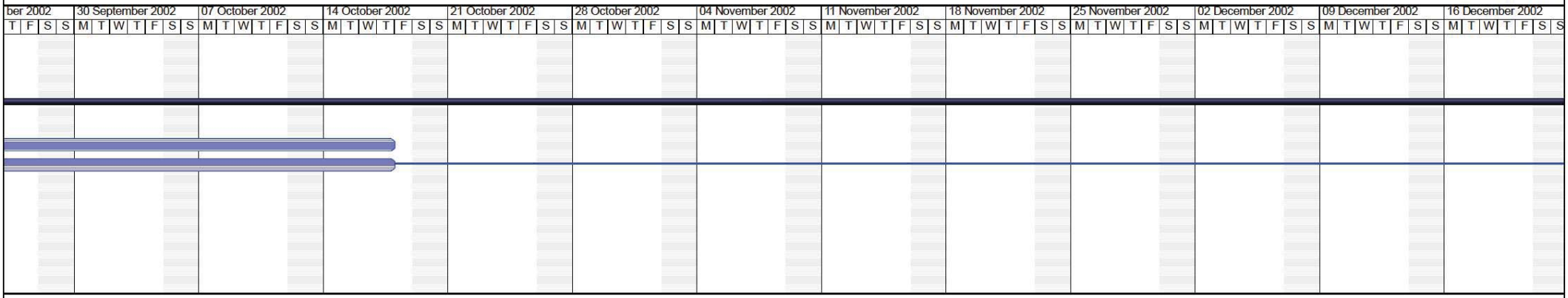

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Task | Progress | Summary | Rolled Up Split | Rolled Up Progress | Project Summary

Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks

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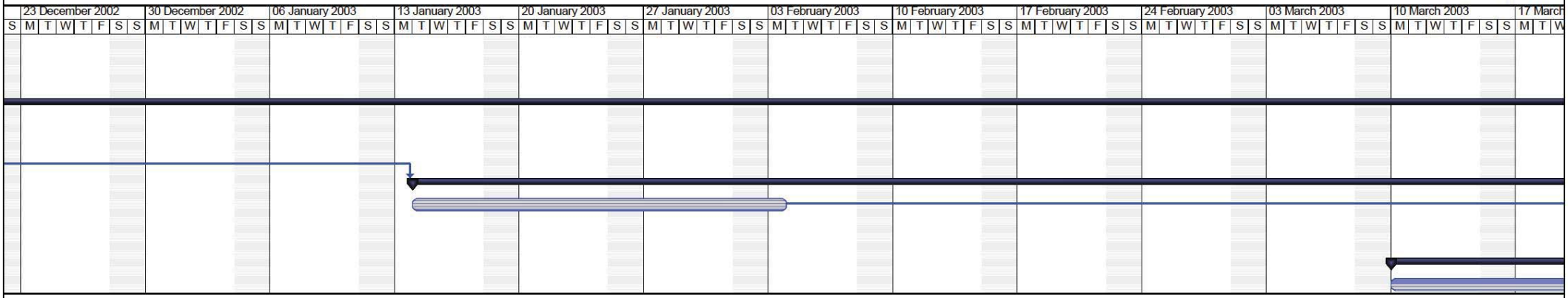

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Task | Progress | Summary | Rolled Up Split | Rolled Up Progress | Project Summary
Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks

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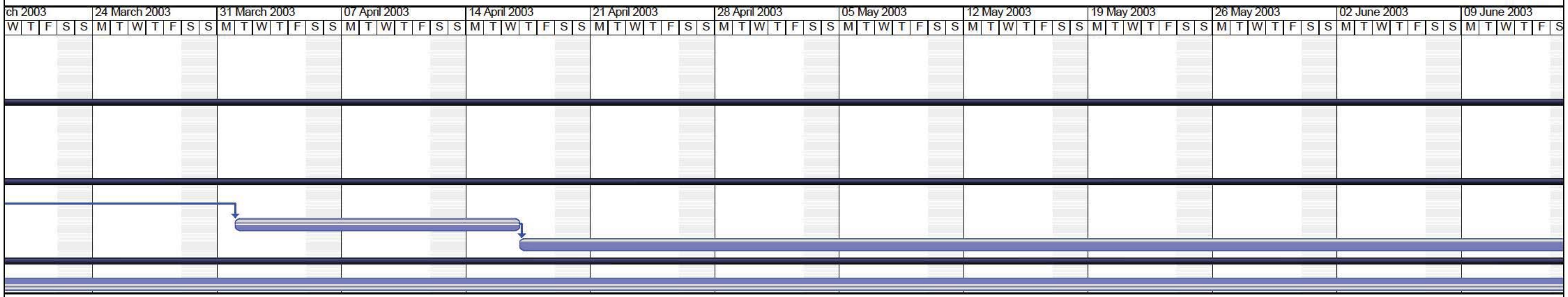

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	Split		Milestone		Rolled Up Task		Rolled Up Milestone		External Tasks			

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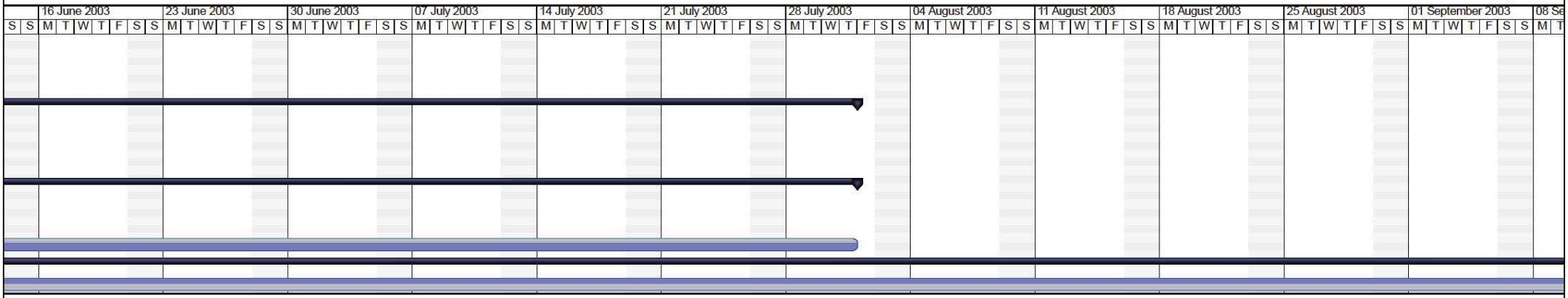

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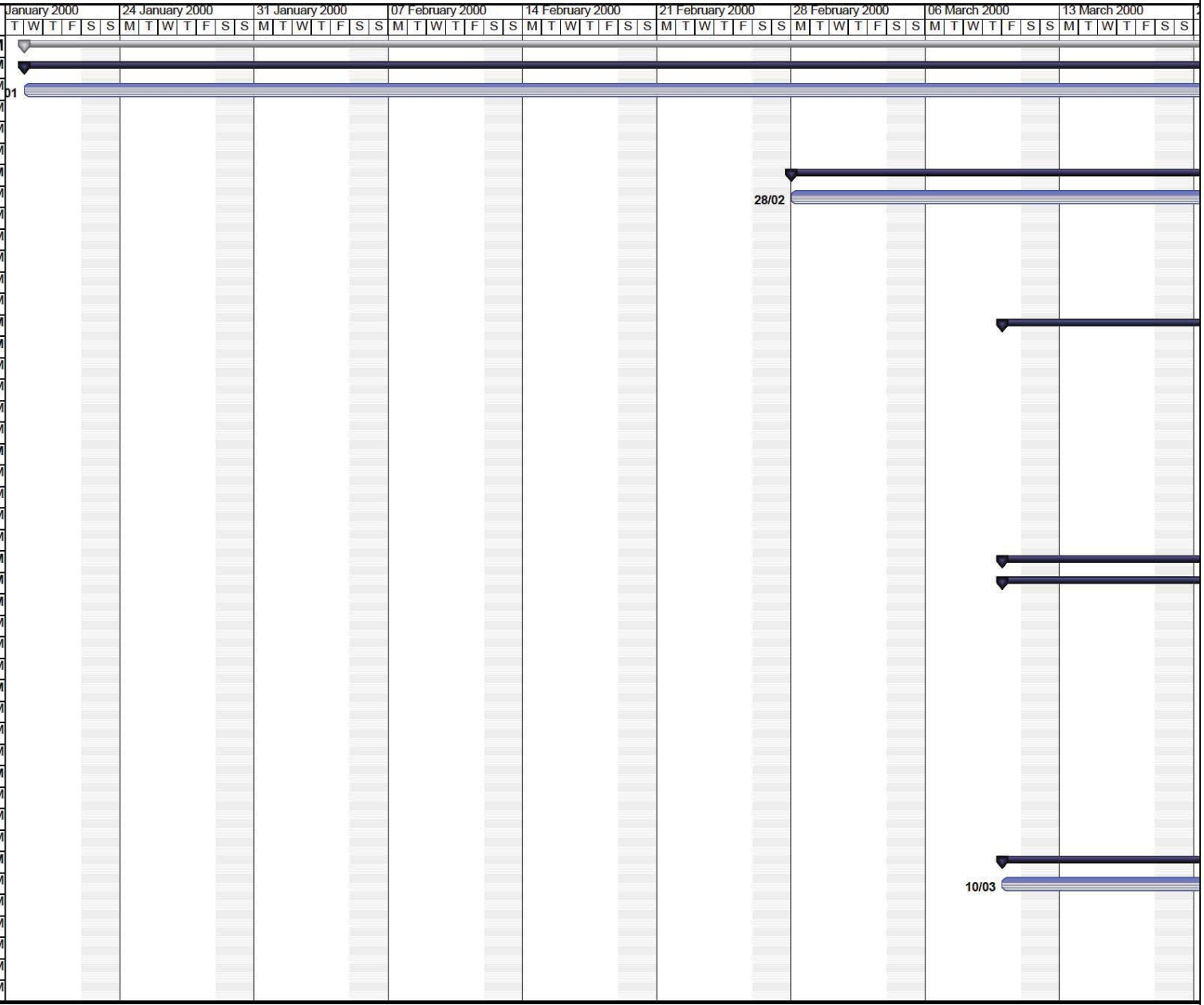
Task | Progress | Summary | Rolled Up Split | Rolled Up Progress | Project Summary

Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks

INTEGRATED TEST AND EVALUATION SCHEDULE

ID	Task Name	Duration	Start
0		**982 days**	**/00 8:00 AM**
1	**LM-Aero T&E**	**311 days**	**9/01/00 8:00 AM**
2	LM-Aero Block 5.3 DT&E	176 days	9/01/00 8:00 AM
3	LM-Aero Block 5.3.1 DT&E	126 days	1/09/00 8:00 AM
4	LM-Aero Block 5.3/5.3.1 TAT&E/PAT&E	18 days	5/03/01 8:00 AM
5	LM-Aero Block Workload Testing	51 days	2/11/00 8:00 AM
6	**RAAF T&E**	**954 days**	**8/02/00 8:00 AM**
7	RAAF Block 5.2 OT&E	25 days	8/02/00 8:00 AM
8	AME Role Equipment OT&E	5 days	2/09/02 8:00 AM
9	RAAF Block 5.3/5.3.1 PAT&E	78 days	6/04/01 8:00 AM
10	5th Block 5.3.1 Airframe availability	1 day	2/06/01 8:00 AM
11	RAAF Block 5.3/5.3.1 OT&E	40 days	1/08/03 8:00 AM
12	RAAF Block 5.3/5.3.1 Workload Testing	20 days	6/09/03 8:00 AM
13	**Role Expansion DT&E**	**885 days**	**0/03/00 8:00 AM**
14	**EMI/EMC Clearances**	**164 days**	**5/01/02 8:00 AM**
15	Spectral determination and planning	20 days	5/01/02 8:00 AM
16	Desktop analysis	5 days	2/02/02 8:00 AM
17	In-aircraft testing	2 days	9/02/02 8:00 AM
18	Reporting	10 days	9/08/02 8:00 AM
19	**Unsealed Airfield Clearance**	**33 days**	**5/06/00 8:00 AM**
20	Planning	15 days	5/06/00 8:00 AM
21	Flow Field Analysis	3 days	6/06/00 8:00 AM
22	Flight Testing	5 days	9/06/00 8:00 AM
23	Reporting	10 days	6/07/00 8:00 AM
24	**Airdrop Loads Clearances**	**885 days**	**0/03/00 8:00 AM**
25	**SASA**	**61 days**	**0/03/00 8:00 AM**
30	**Light Airdrop Loads**	**235 days**	**3/11/01 8:00 AM**
31	Planning	53 days	23/11/01 8:00 AM
32	Flight Testing	12 days	1/04/02 8:00 AM
33	Reporting	122 days	1/05/02 8:00 AM
34	**Paratrooping**	**235 days**	**3/11/01 8:00 AM**
35	Planning	53 days	23/11/01 8:00 AM
36	Flight Testing	12 days	1/04/02 8:00 AM
37	Reporting	122 days	1/05/02 8:00 AM
38	**Heavy Airdrop Loads**	**143 days**	**4/01/03 8:00 AM**
39	Planning	15 days	4/01/03 8:00 AM
40	Flight Testing	12 days	1/04/03 8:00 AM
41	Reporting	76 days	7/04/03 8:00 AM
42	**Role Expansion Procudural Development**	**915 days**	**0/03/00 8:00 AM**
43	Airborne Instruction	10 days	0/03/00 8:00 AM
44	AME	10 days	4/03/00 8:00 AM
45	SASA	10 days	2/05/00 8:00 AM
46	Paratroop	10 days	8/10/02 8:00 AM
47	AIRDROP	10 days	1/08/03 8:00 AM
48	Combat AIRLAND	10 days	5/08/03 8:00 AM



See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
Date: 27/08/19 1:58 PM

Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks
Progress | Summary | Rolled Up Milestone | Split | Project Summary

ID	Task Name	Duration	Start
49	PNG	10 days	29/08/03 8:00 AM

January 2000							24 January 2000							31 January 2000							07 February 2000							14 February 2000							21 February 2000							28 February 2000							06 March 2000							13 March 2000							2
T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	

See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
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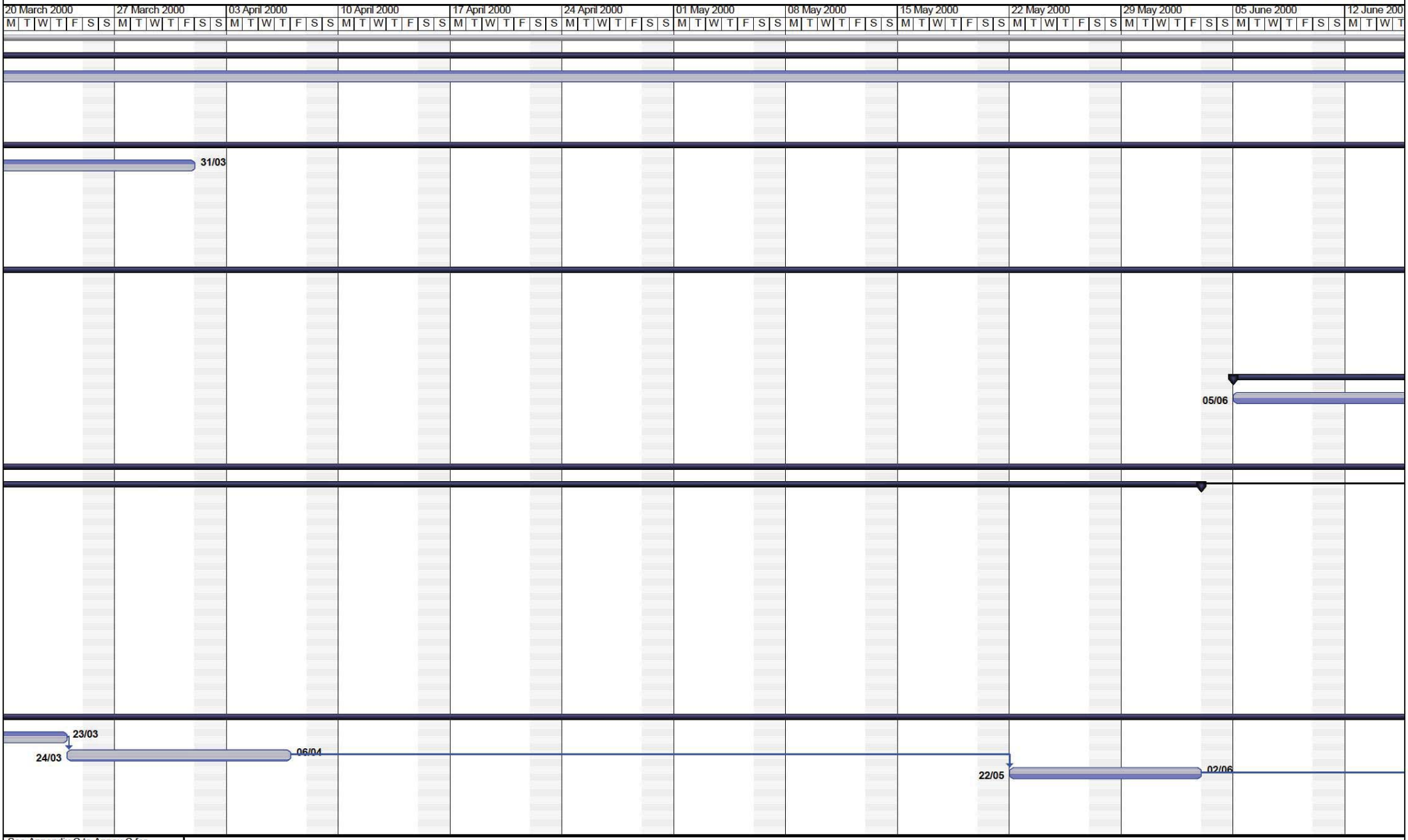
Task — Milestone — Rolled Up Task — Rolled Up Progress — External Tasks
Progress — Summary — Rolled Up Milestone — Split — Project Summary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03 April 2000
10 April 2000
17 April 2000
24 April 2000
01 May 2000
08 May 2000
15 May 2000
22 May 2000
29 May 2000
05 June 2000
12 June 200
M T W T F S S
31/03
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23/03
24/03
06/04
22/05
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See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
Date: 27/08/19 1:58 PM
Task
Milestone
Rolled Up Task
Rolled Up Progress
External Tasks
Progress
Summary
Rolled Up Milestone
Split
Project Summary

INTEGRATED TEST AND EVALUATION SCHEDULE

20 March 2000	27 March 2000	03 April 2000	10 April 2000	17 April 2000	24 April 2000	01 May 2000	08 May 2000	15 May 2000	22 May 2000	29 May 2000	05 June 2000	12 June 200
M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T

See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
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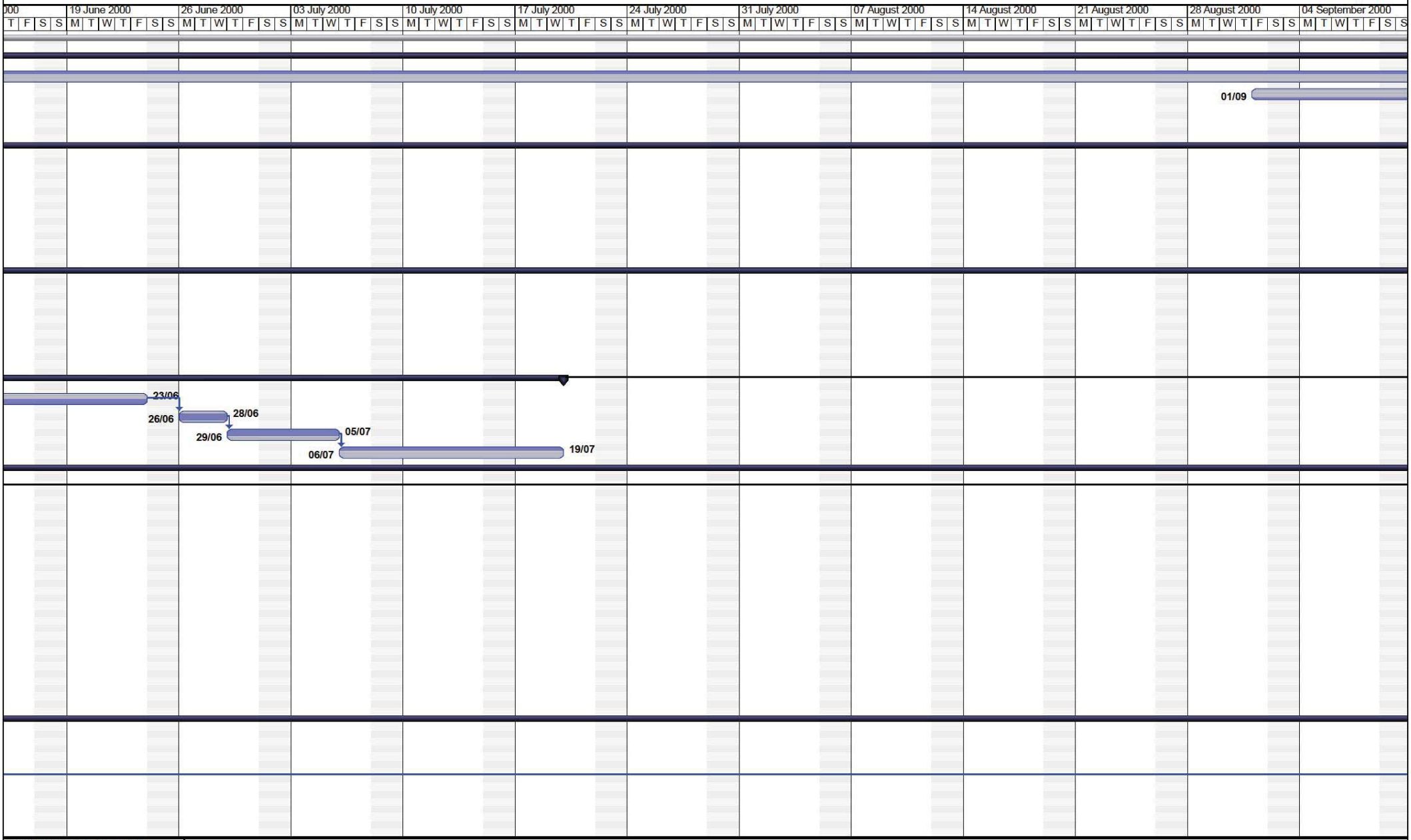
Task		Milestone	◆	Rolled Up Task		Rolled Up Progress		External Tasks	
Progress		Summary		Rolled Up Milestone	◇	Split		Project Summary	

INTEGRATED TEST AND EVALUATION SCHEDULE



See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
Date: 27/08/19 1:58 PM

Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks
Progress | Summary | Rolled Up Milestone | Split | Project Summary

000	19 June 2000	26 June 2000	03 July 2000	10 July 2000	17 July 2000	24 July 2000	31 July 2000	07 August 2000	14 August 2000	21 August 2000	28 August 2000	04 September 2000
T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S

See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
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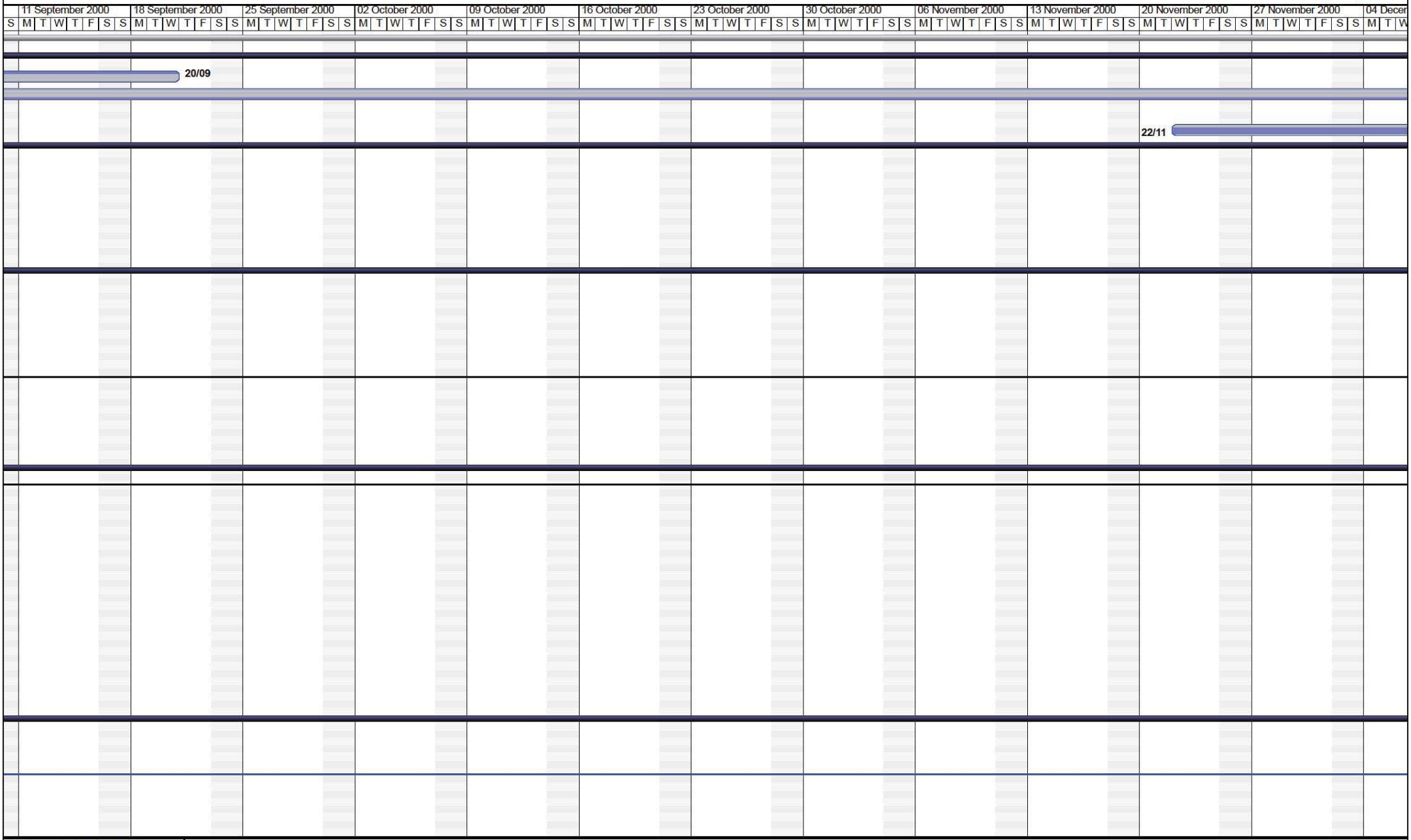
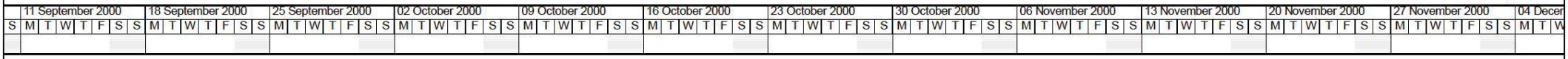
Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks
Progress | Summary | Rolled Up Milestone | Split | Project Summary



See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
Date: 27/08/19 1:58 PM

Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks
Progress | Summary | Rolled Up Milestone | Split | Project Summary



See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
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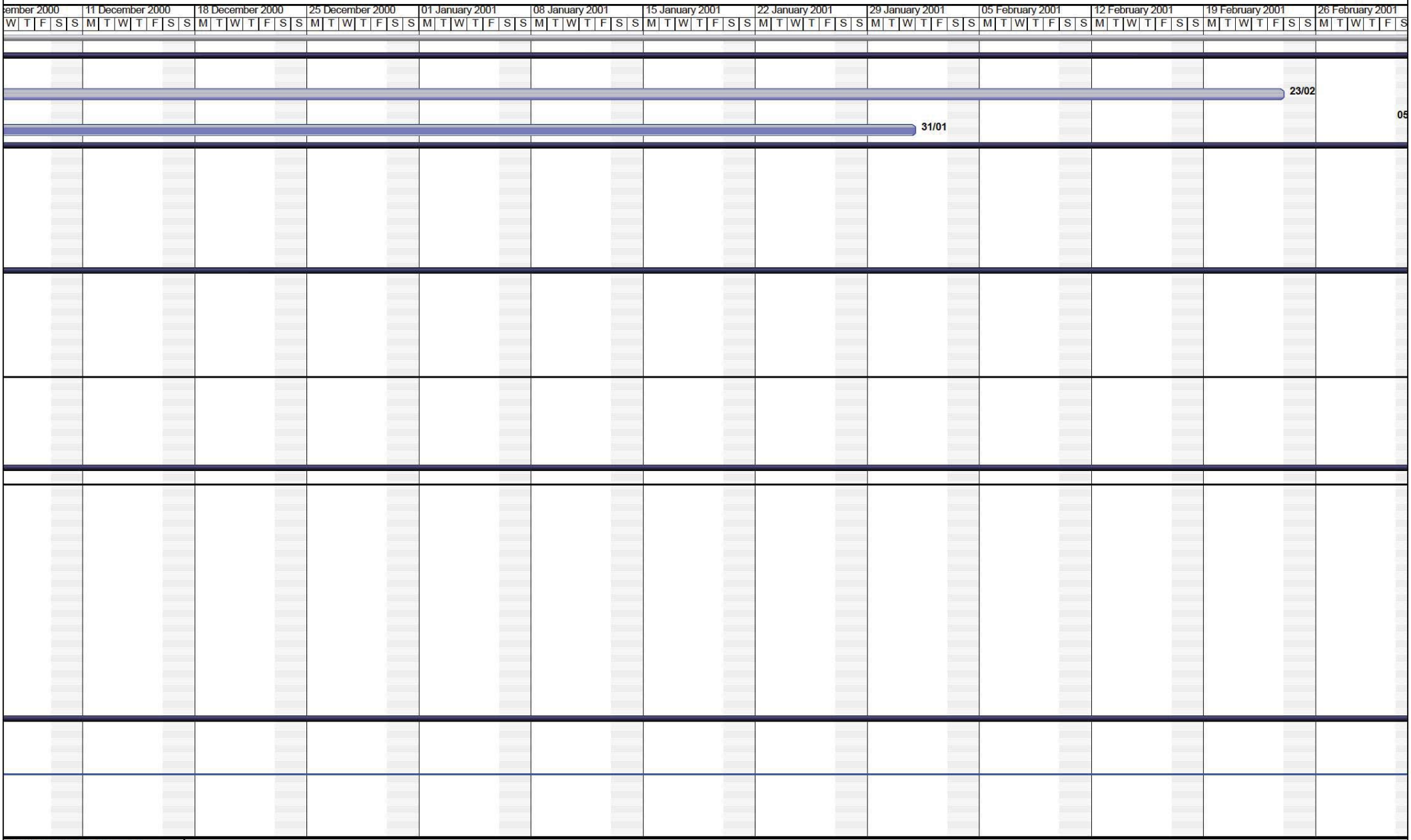
Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks
Progress | Summary | Rolled Up Milestone | Split | Project Summary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See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
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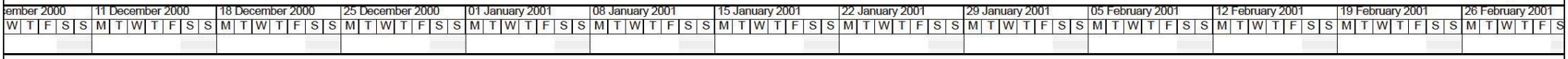

See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
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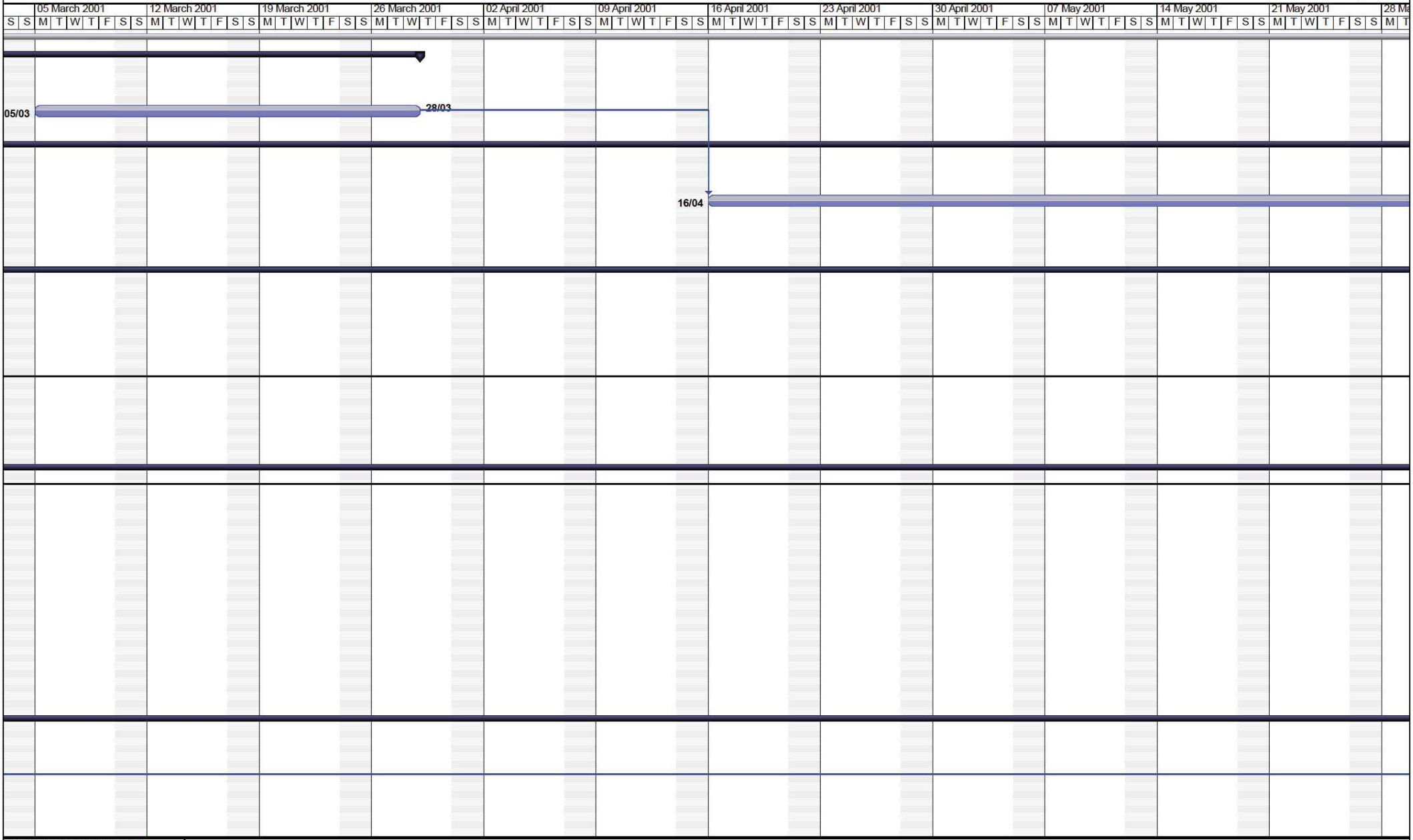
Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks
Progress | Summary | Rolled Up Milestone | Split | Project Summary



See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
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Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks
Progress | Summary | Rolled Up Milestone | Split | Project Summary

INTEGRATED TEST AND EVALUATION SCHEDULE

05 March 2001 | 12 March 2001 | 19 March 2001 | 26 March 2001 | 02 April 2001 | 09 April 2001 | 16 April 2001 | 23 April 2001 | 30 April 2001 | 07 May 2001 | 14 May 2001 | 21 May 2001 | 28 Ma

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See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
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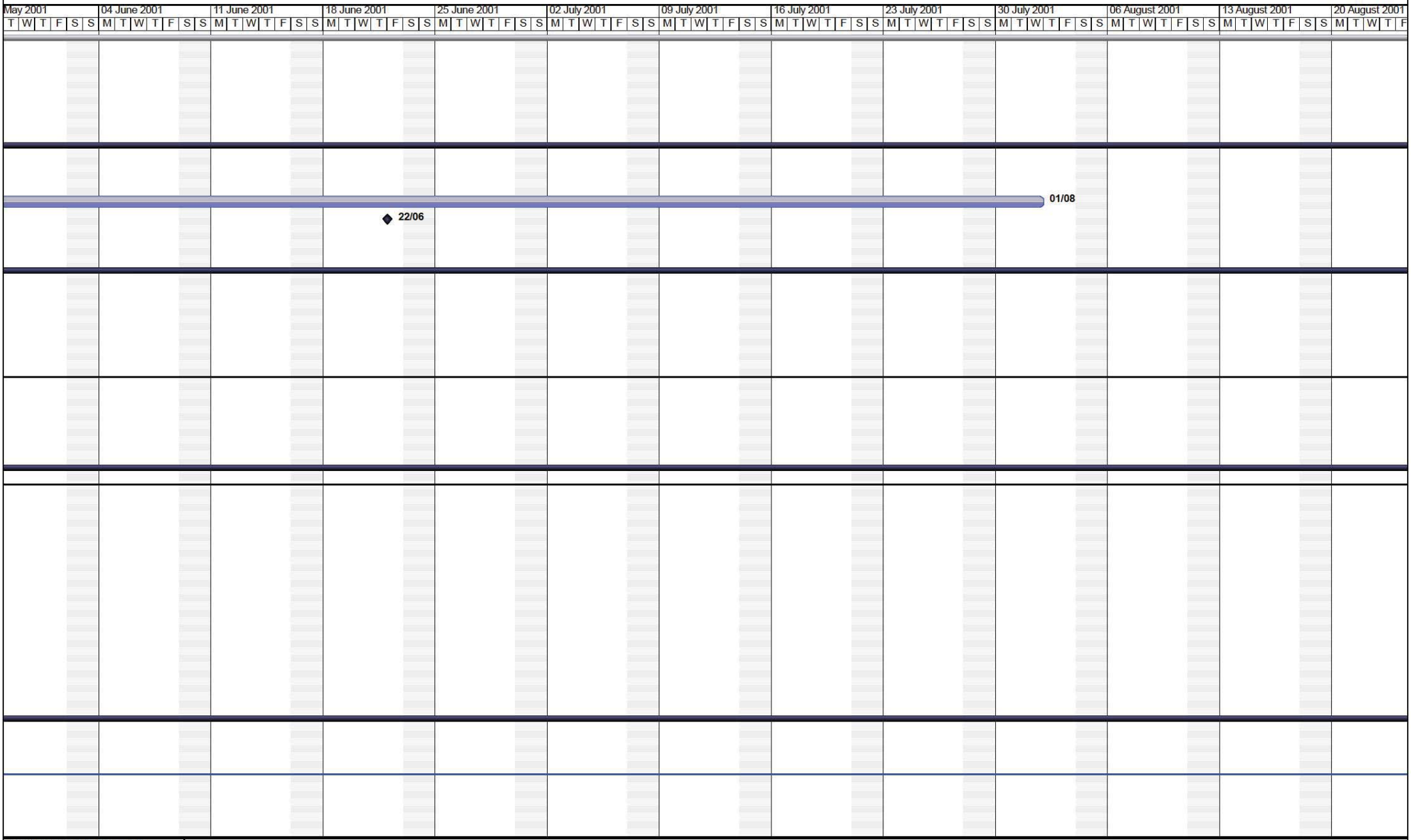
See Appendix C to Annex C for detailed Role Expansion Schedule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See Appendix C to Annex C for detailed Role Expansion Schedule
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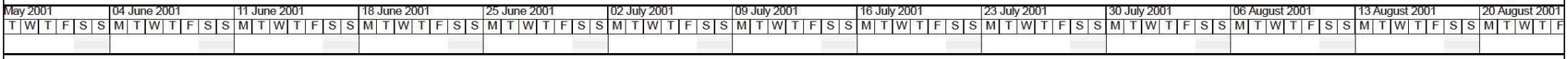
Project Summary



See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
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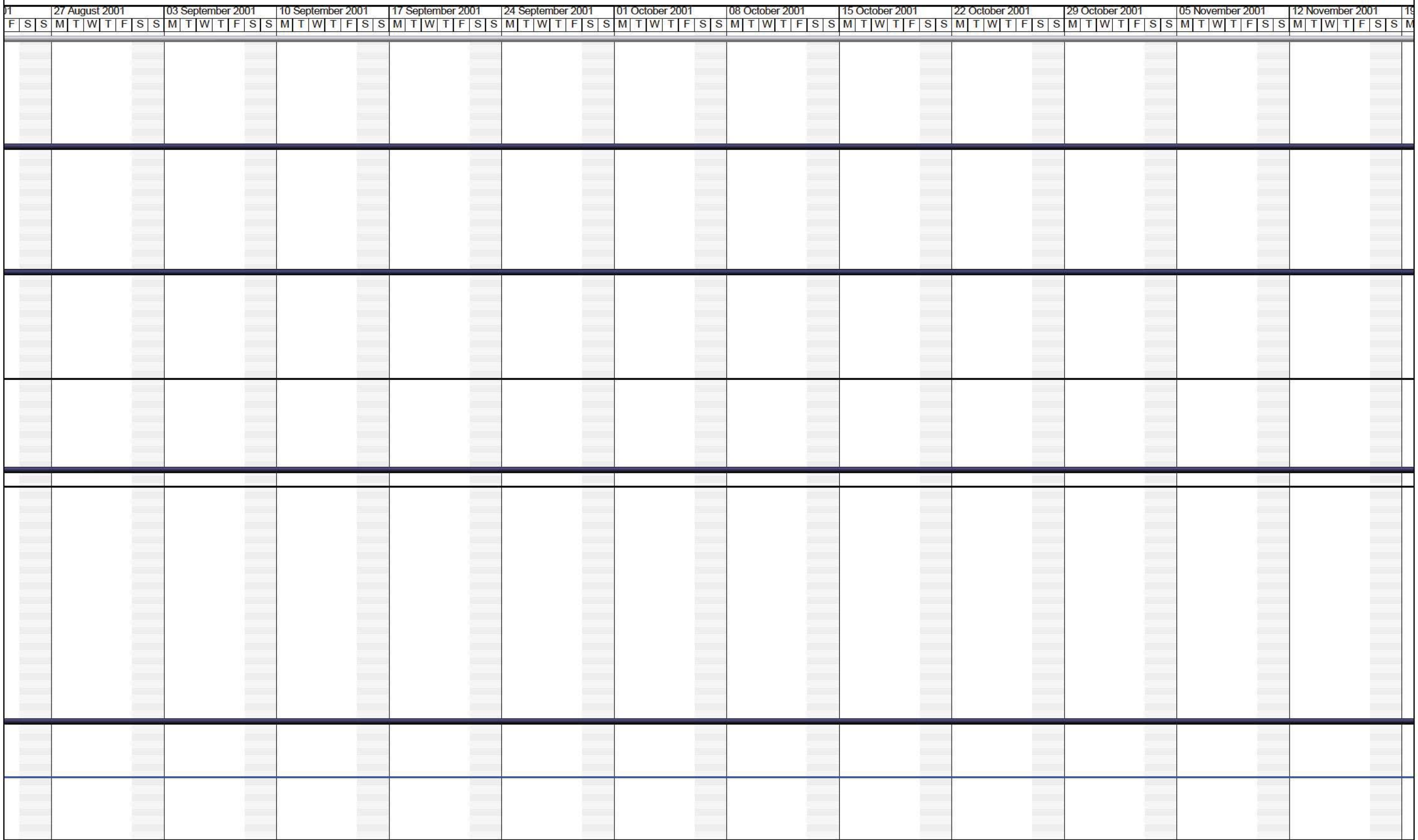
INTEGRATED TEST AND EVALUATION SCHEDULE



See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
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Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks
Progress | Summary | Rolled Up Milestone | Split | Project Summary

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See Appendix C to Annex C for detailed Role Expansion Schedule
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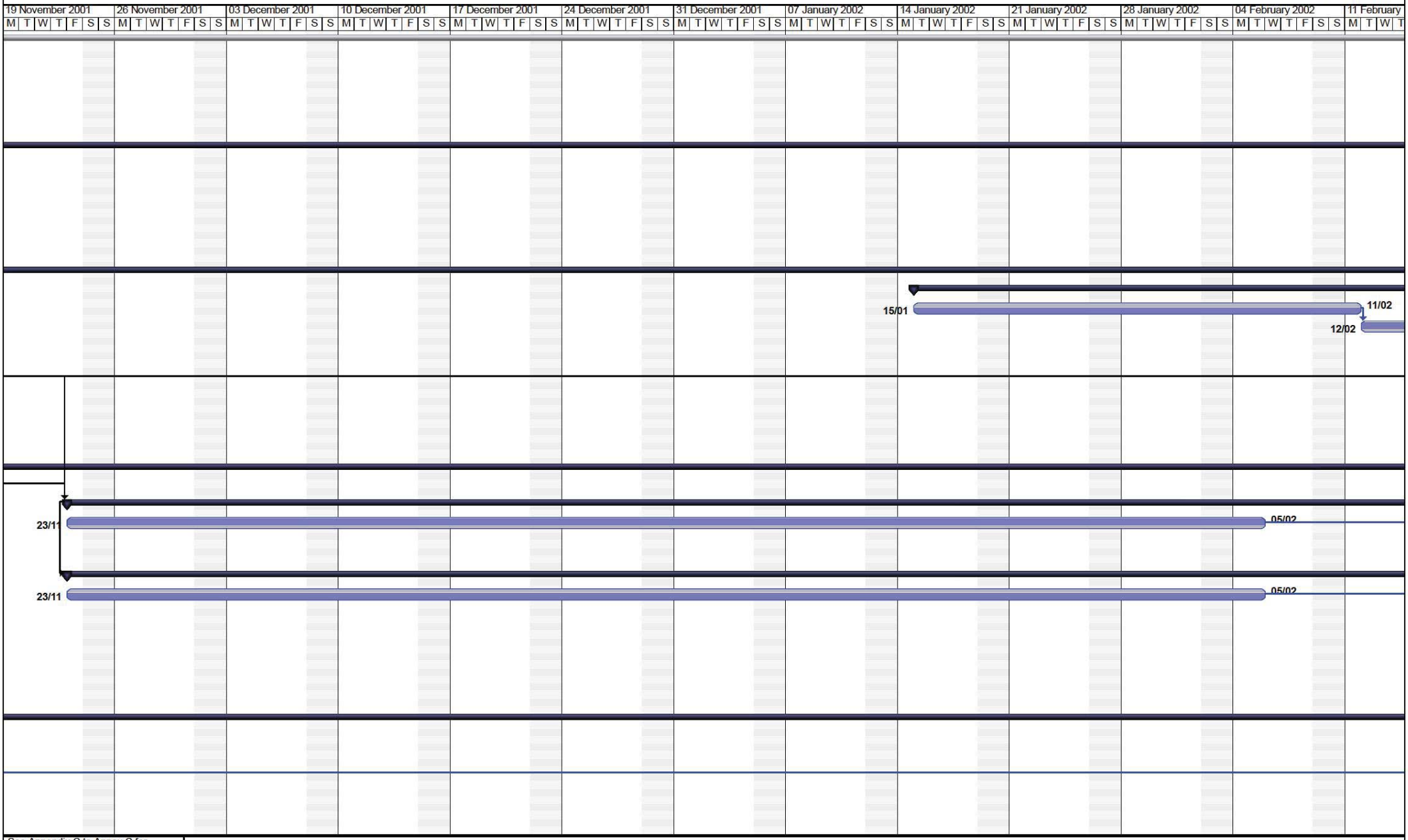
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See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
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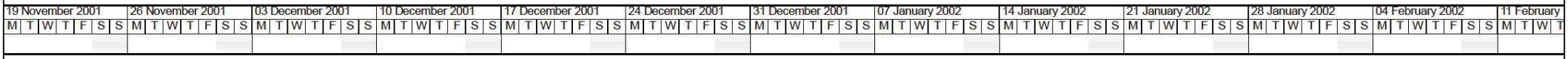
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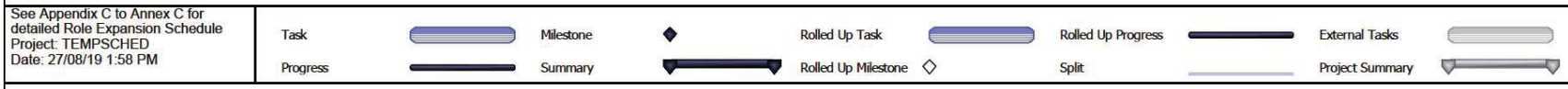
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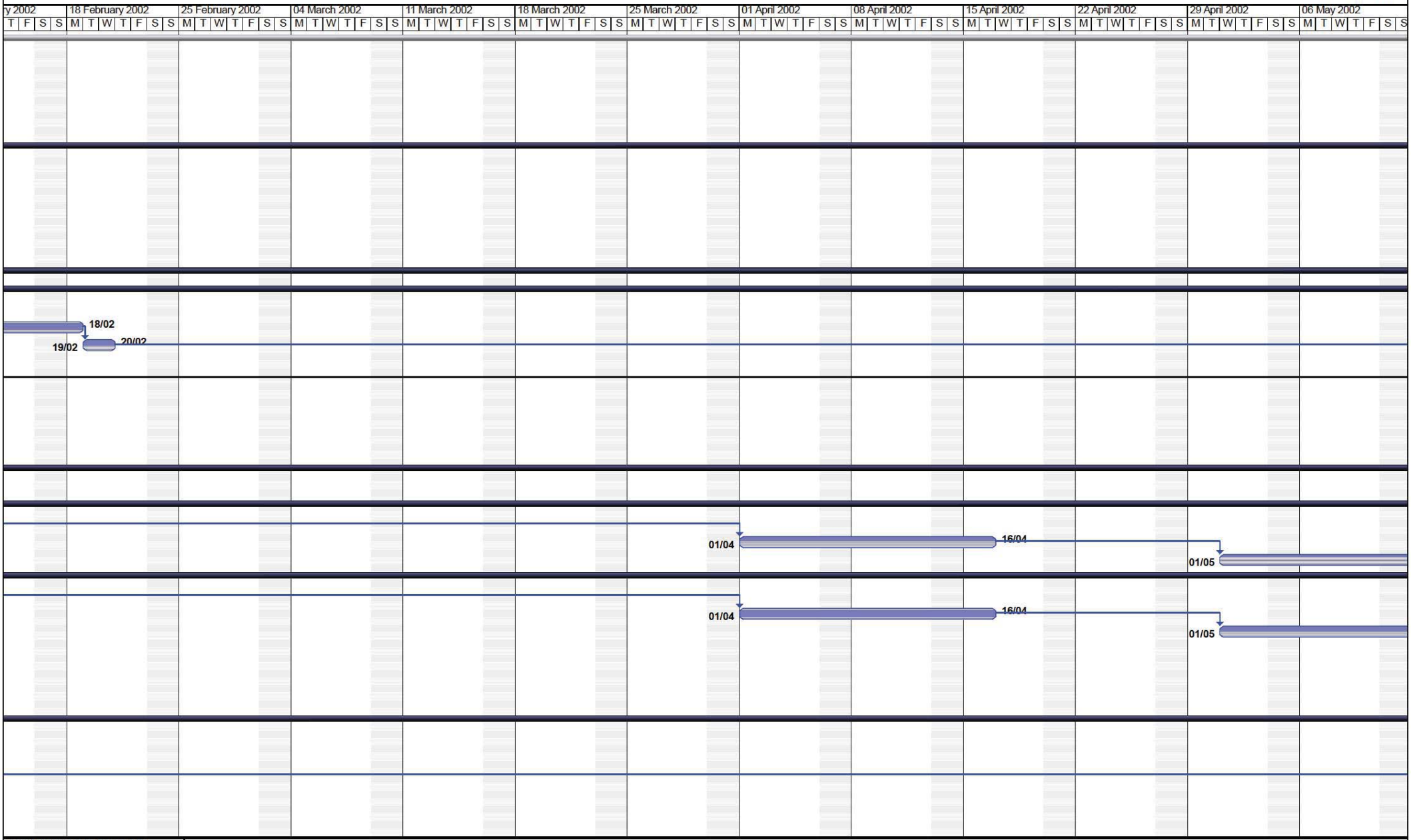

See Appendix C to Annex C for detailed Role Expansion Schedule
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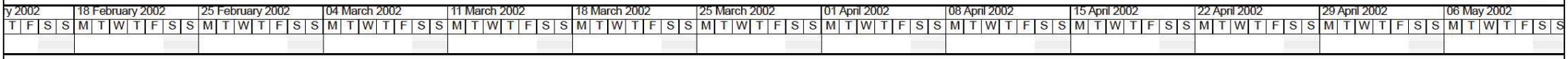
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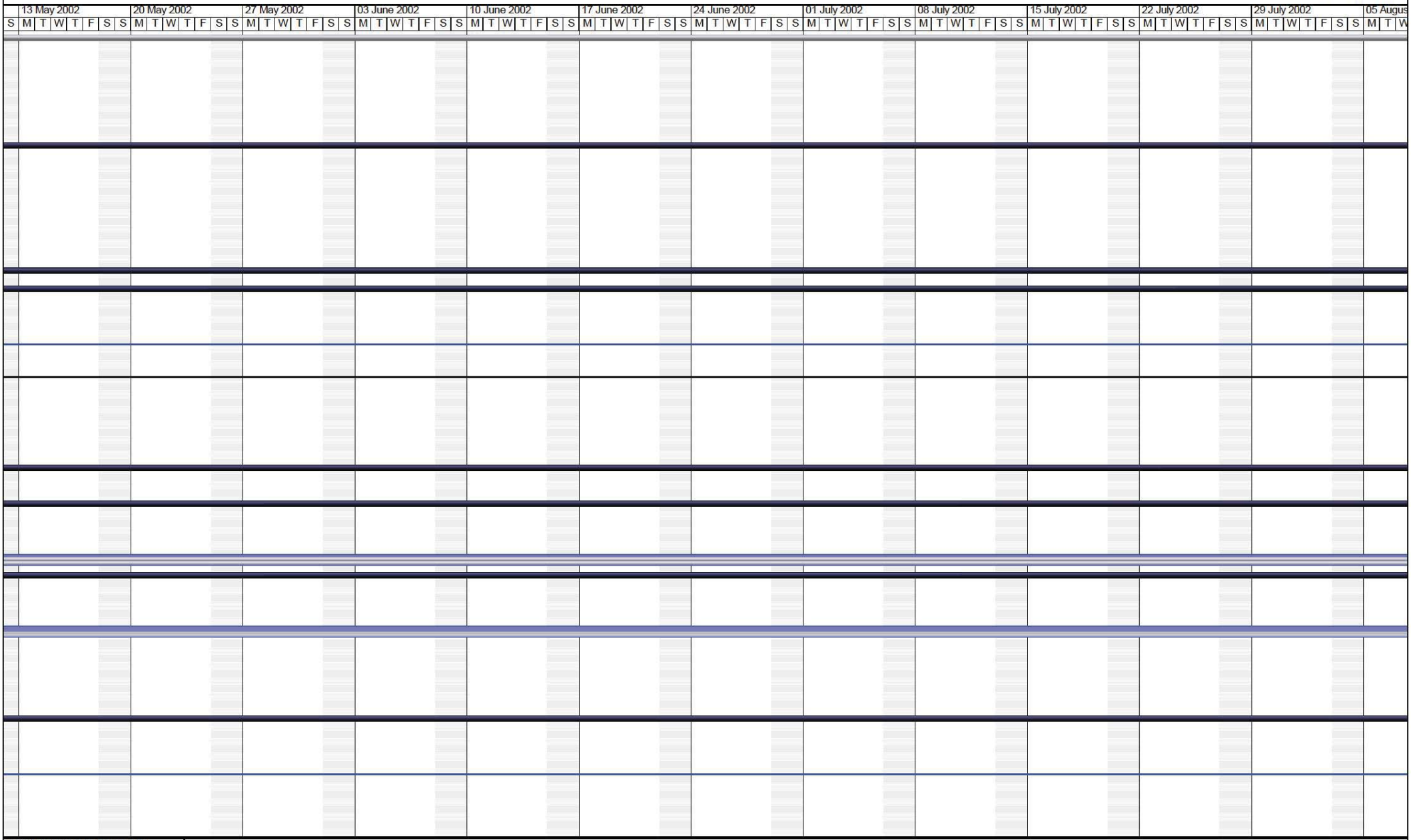

See Appendix C to Annex C for detailed Role Expansion Schedule
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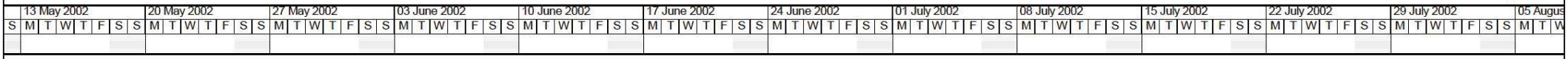

See Appendix C to Annex C for detailed Role Expansion Schedule
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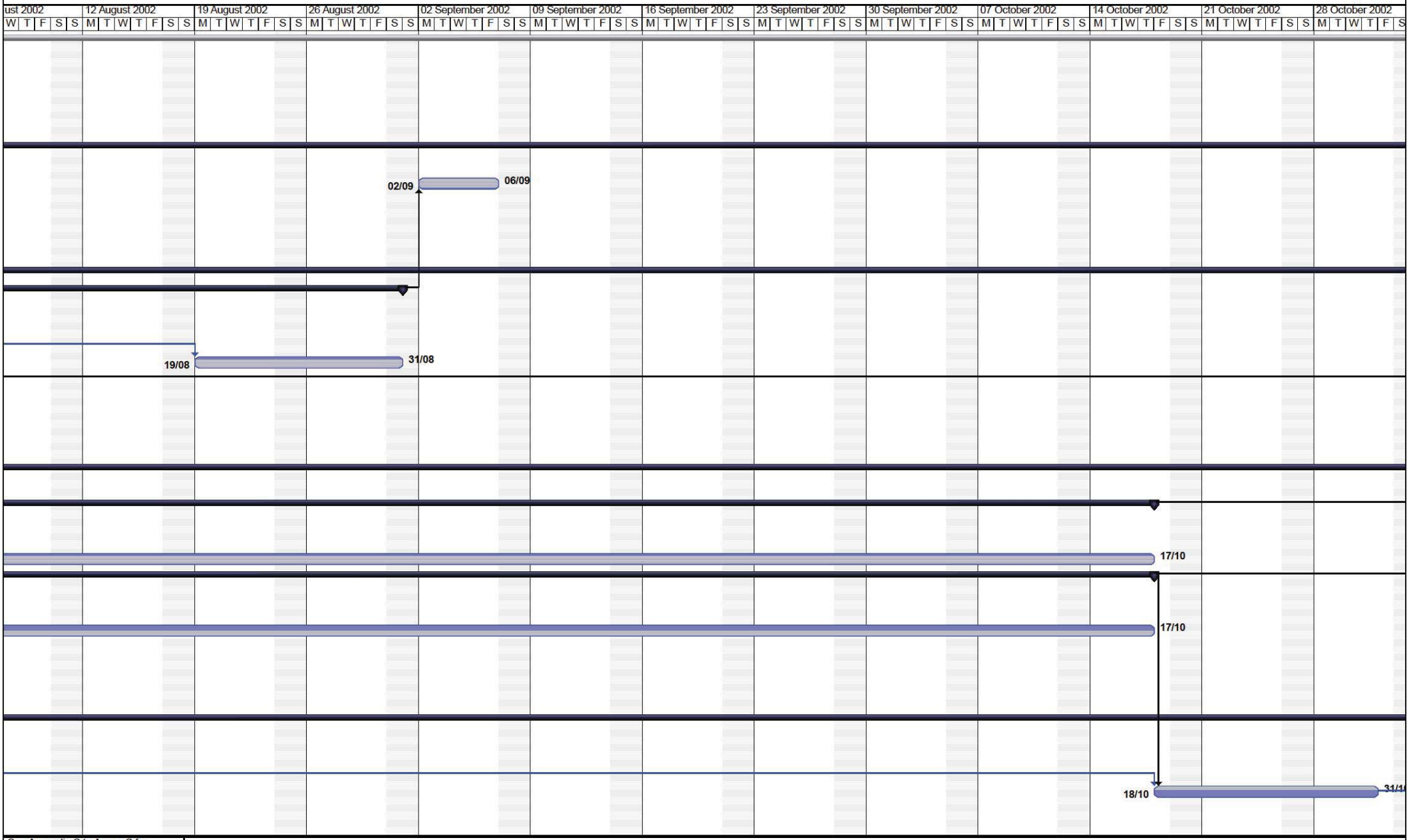
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See Appendix C to Annex C for detailed Role Expansion Schedule
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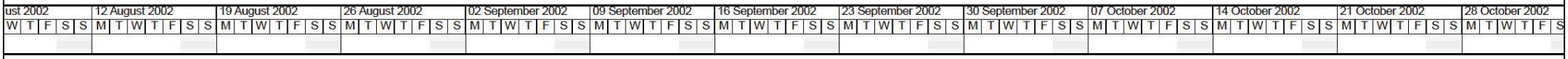

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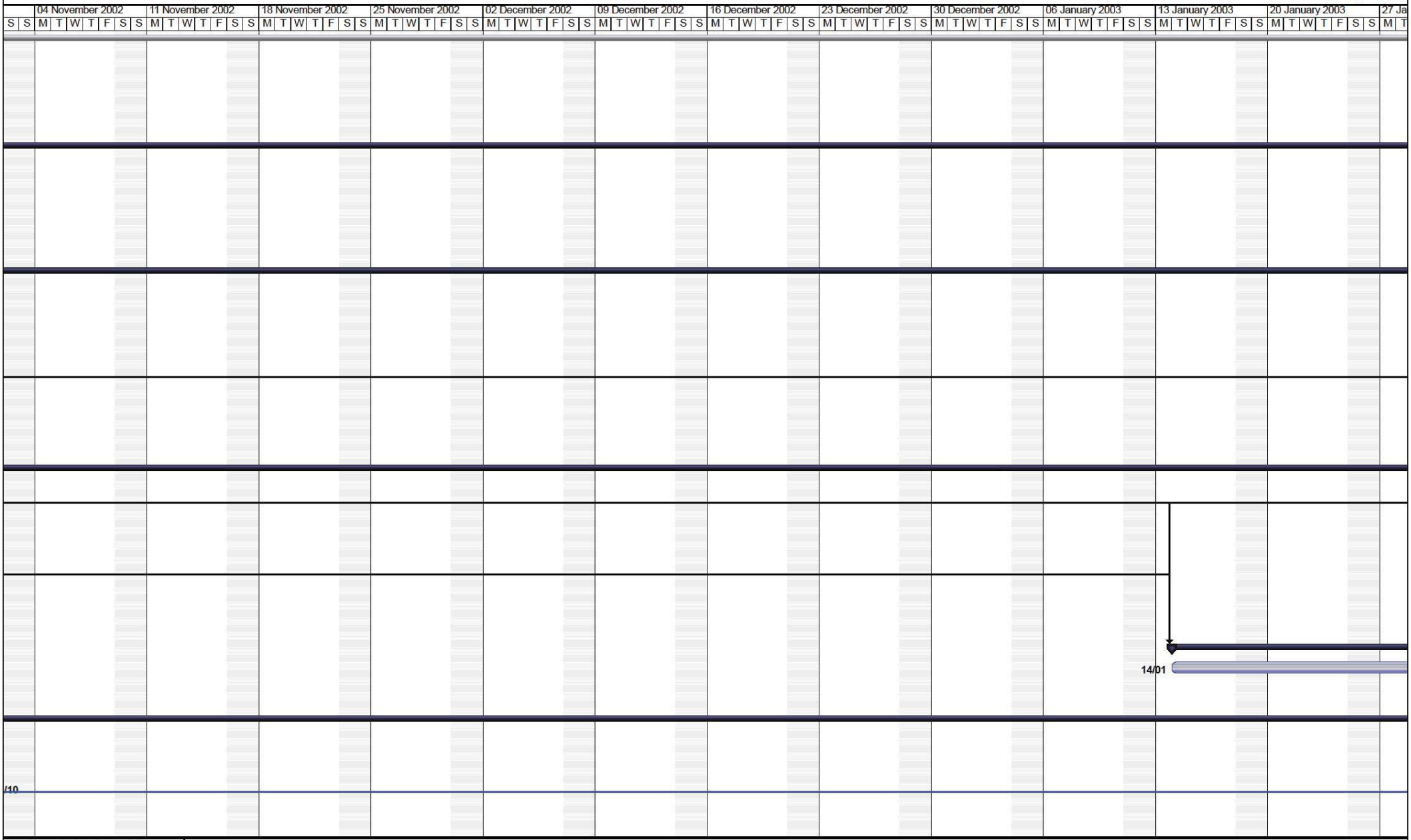
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See Appendix C to Annex C for detailed Role Expansion Schedule
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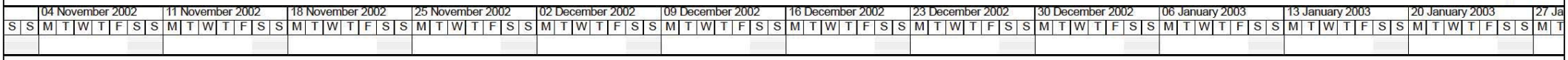
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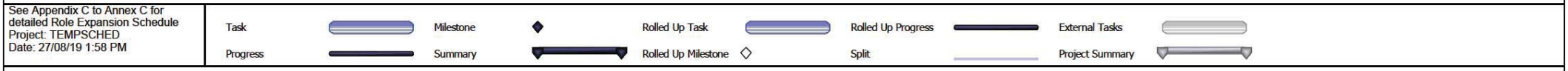
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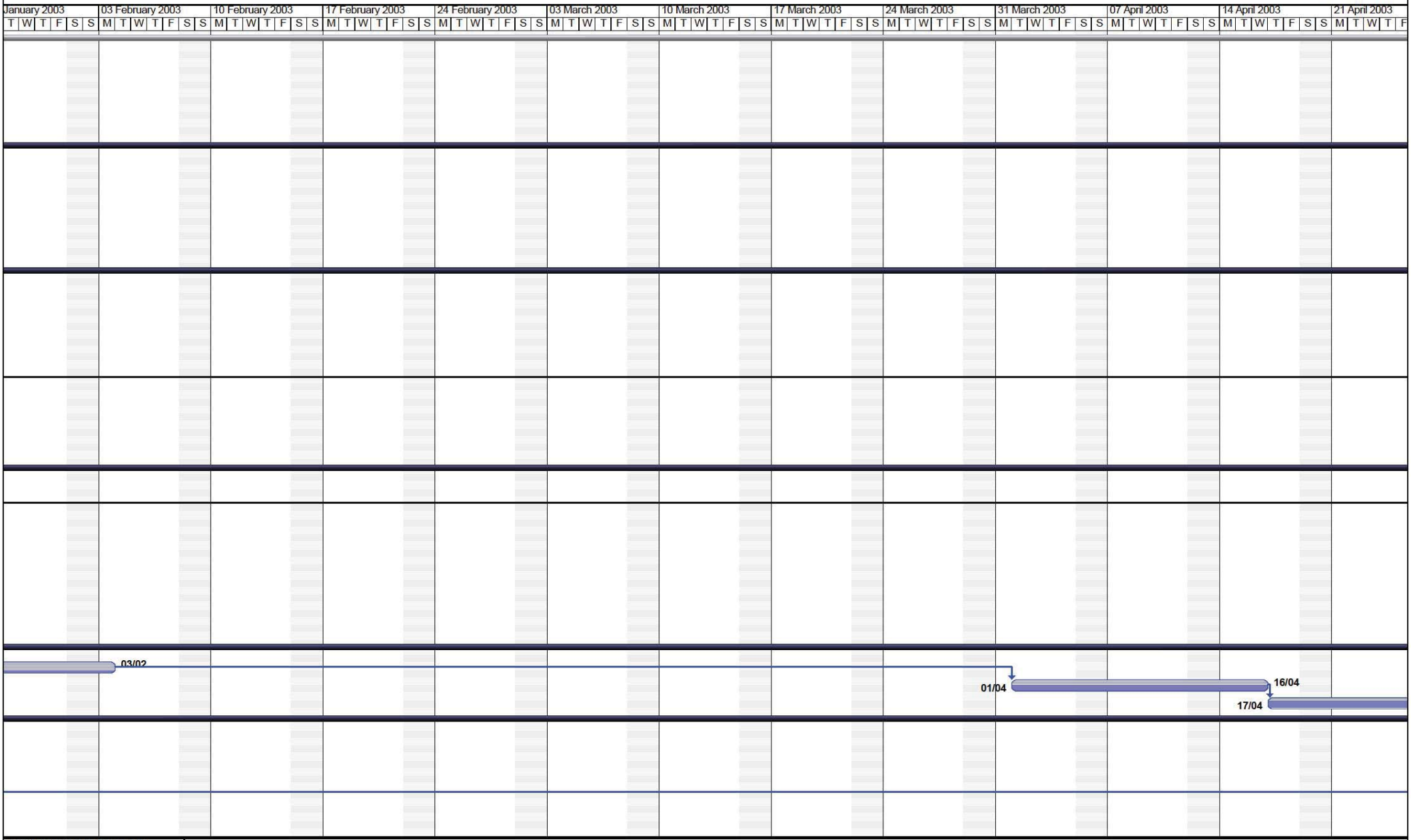
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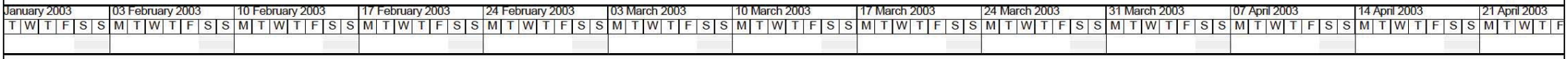

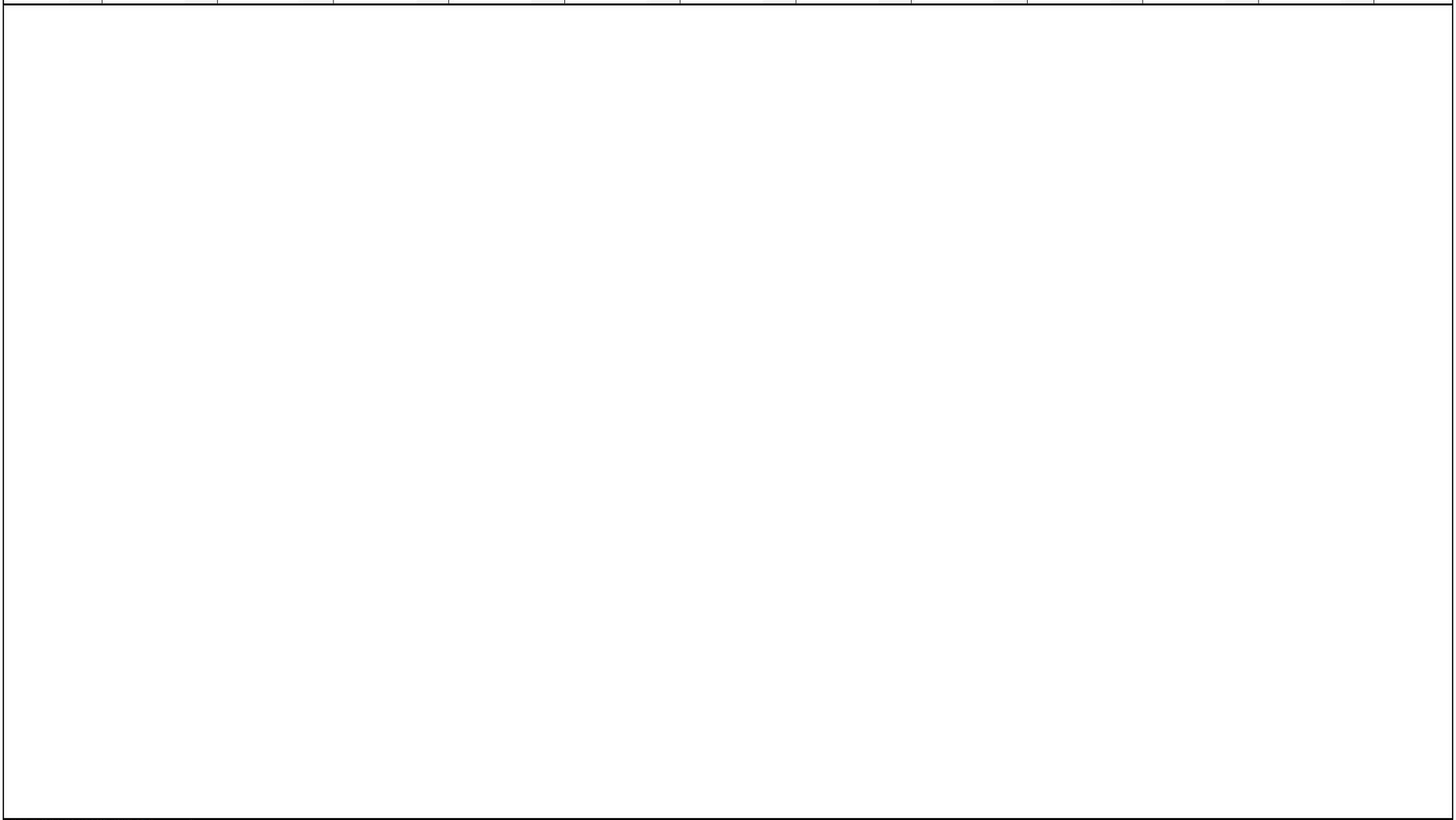

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Project: TEMPSCHED
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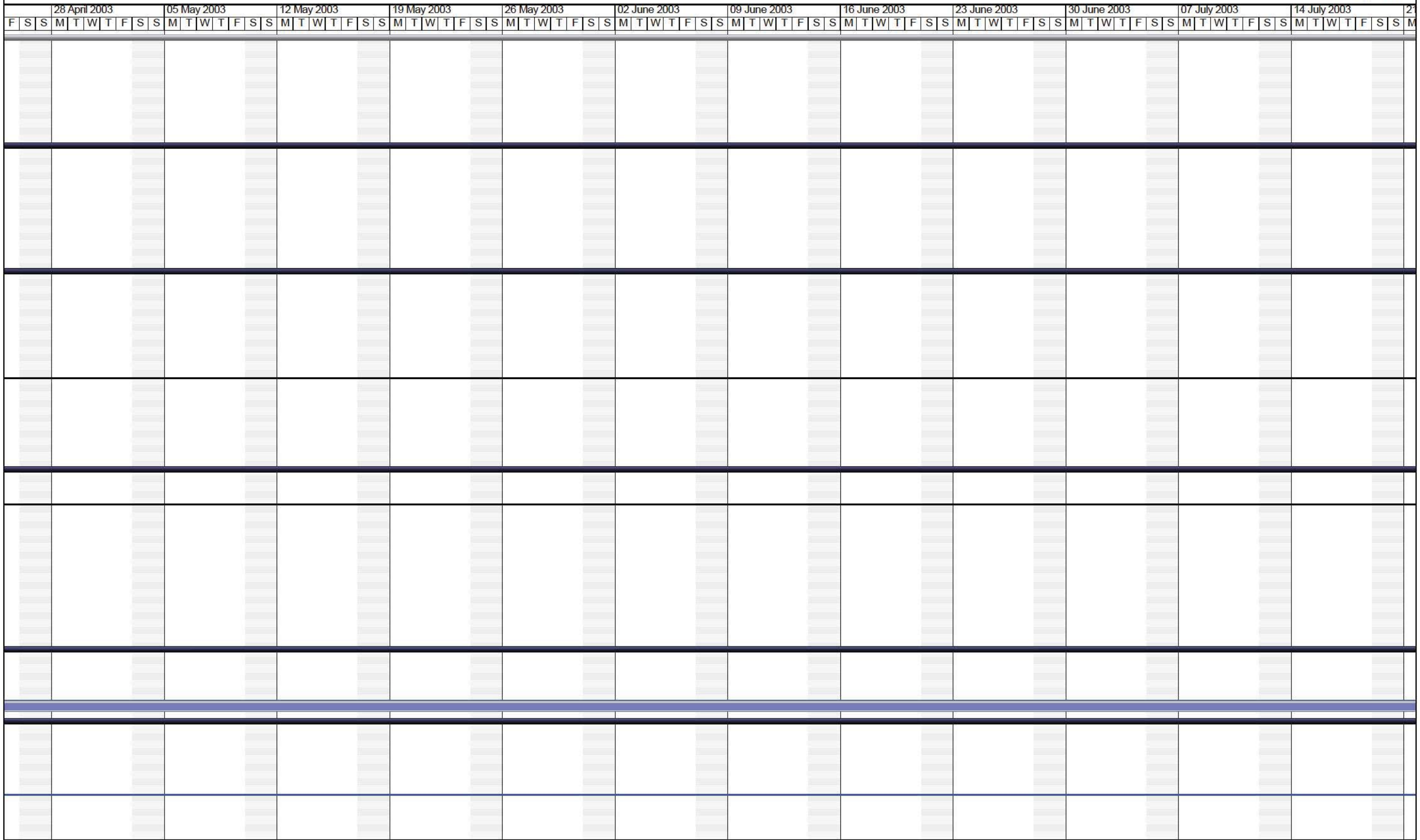
Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks
Progress | Summary | Rolled Up Milestone | Split | Project Summary

INTEGRATED TEST AND EVALUATION SCHEDULE



See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
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Task	Milestone	Rolled Up Task	Rolled Up Progress	External Tasks
Progress	Summary	Rolled Up Milestone	Split	Project Summary

See Appendix C to Annex C for detailed Role Expansion Schedule

INTEGRATED TEST AND EVALUATION SCHEDULE

	28 April 2003	05 May 2003	12 May 2003	19 May 2003	26 May 2003	02 June 2003	09 June 2003	16 June 2003	23 June 2003	30 June 2003	07 July 2003	14 July 2003	21
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See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
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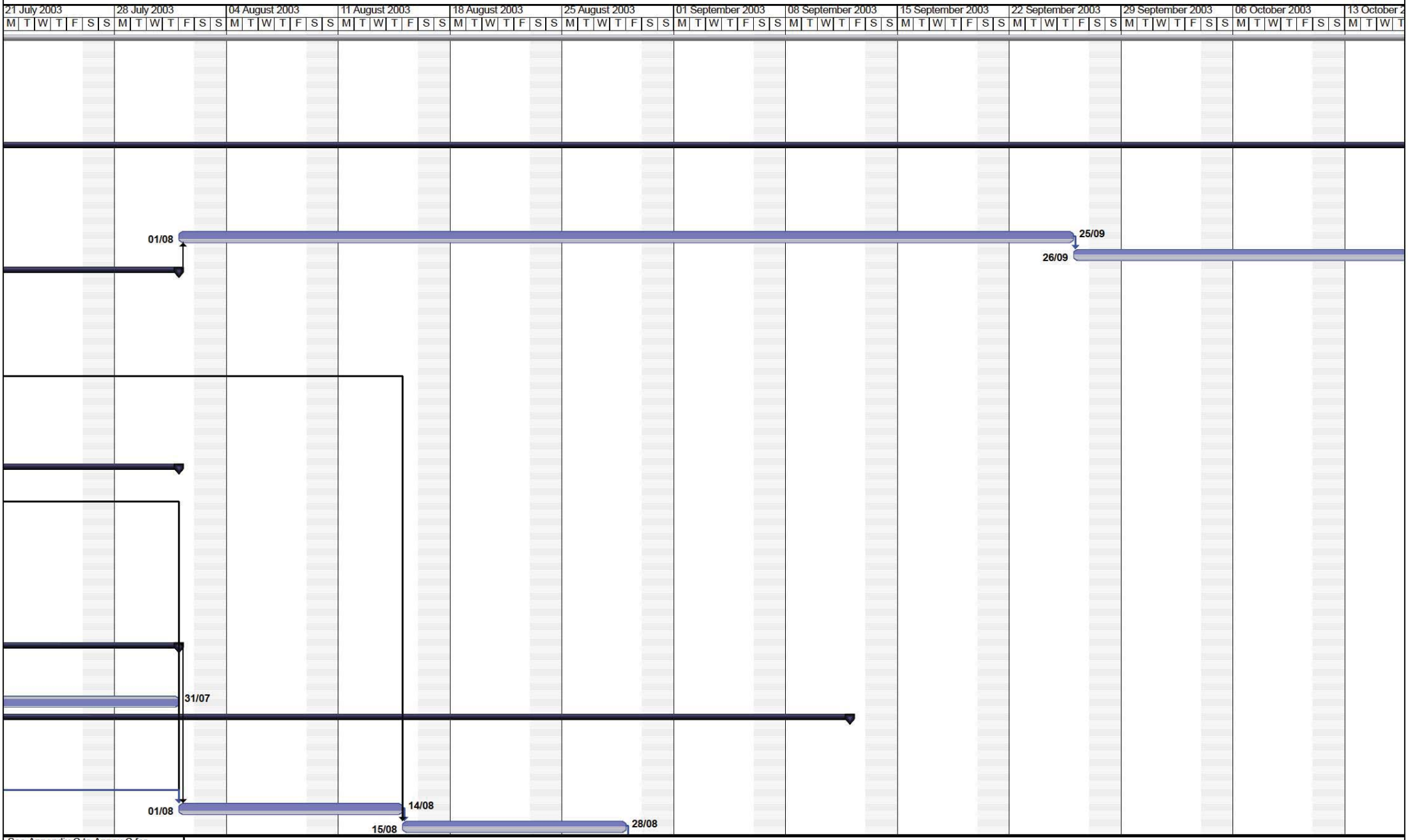
Task	Milestone	Rolled Up Task	Rolled Up Progress	External Tasks
Progress	Summary	Rolled Up Milestone	Split	Project Summary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See Appendix C to Annex C for detailed Role Expansion Schedule
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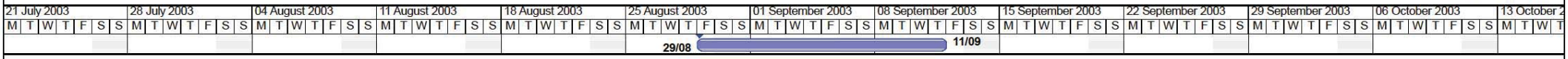

See Appendix C to Annex C for detailed Role Expansion Schedule
Project: TEMPSCHED
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Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks
Progress | Summary | Rolled Up Milestone | Split | Project Summary

LM AERO C130J-30 PROGRAM SCHEDULE

RAAF C-130J-30 INITIAL DELIVERY CONFIGURATIONS

Table F-1. C-130J-30 Delivery Configurations

Serial	Tail Number	Initial Delivery Configuration Block	Estimated Delivery Date	Estimated Block 5.2 Upgrade Date	Estimated Block 5.3 Upgrade Date
1	s47E	5.1	**27Aug99**	~	+Jul01
2		5.1	**17Sep99**	~	+Jul01
3		5.1	**20Sep99**	~	+Jul01
4		5.1	**14Oct99**	~	+Jul01
5		5.1	**15Oct99**	~	+Jul01
6		5.1	**9Nov99**	~	+Jul01
7		5.1	**23Nov99**	~	+Jul01
8		5.2	**17Dec99**	-	+Jul01
9		5.2	**17Mar00**	-	+Jul01
10		5.2	12Apr00*	-	+Jul01
11		5.2	17May00*	-	+Jul01
12		5.2	21Jun00*	-	Jun01

Dates in bold = Actual Dates
Dates annotated * = Acceptance likely to occur earlier than planned dates
Dates annotated ~ = PO to determine