BIODIVERSITY MANAGEMENT PLAN — (NOVEMBER 2026)

The Biodiversity Management Plan (BMP), Revision 3 (REG/RETRAP-85/BMP/REV-3, 4 November 2026), is prepared by RE-GROUP for the ICCO/CET Joint Venture on behalf of MPW/IIU. It is reproduced in full in the Revised and Updated ESIA as Appendix T and is disclosed with it; it is also bound separately and is the instrument against which the Contractor, the Supervising Engineer and the Employer deliver and verify actions A1 to A10.

REPUBLIC OF LIBERIA

MINISTRY OF PUBLIC WORKS — INFRASTRUCTURE IMPLEMENTATION UNIT (IIU)
Rural Economic Transformation Project — Additional Financing (RETRAP-AF, P175263 / P181083)

BIODIVERSITY MANAGEMENT PLAN (BMP)

STANDALONE BMP — ANNEXED TO THE UPDATED ESIA AS VOLUME II, ANNEX T

Rehabilitation of the Côte d'Ivoire Border – Toe Town – Zwedru Road (85 km)
B'hai Jorzon (km 0) – Toe Town – Zwedru · Grand Gedeh County, Liberia
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1. INTRODUCTION

This chapter states the purpose, status, scope, and governing framework of the Biodiversity Management Plan (BMP) for the Rehabilitation of the Côte d'Ivoire Border – Toe Town – Zwedru Road (85 km), Grand Gedeh County, Liberia, financed under the Liberia Rural Economic Transformation Project Additional Financing (RETRAP-AF, P181083; parent project P175263), and explains how the plan relates to the Updated ESIA, the ESMP, the CESMP and the project-level World Bank instruments.

1.1 Purpose and Status

This BMP is the Project instrument that translates the Biodiversity Field Survey (BFS) of the 85 km B'hai Jorzon–Toe Town–Zwedru corridor into measures that can be designed, contracted, supervised, and certified. The Project is the rehabilitation of an existing laterite road under the RETRAP-AF, P175263 / P181083. The BFS determined that Environmental and Social Standard 6 (ESS6) Critical Habitat is triggered under Criterion 1. This plan therefore specifies, for the period of detailed design, civil works, and defects liability, how those values will be avoided, minimized, and restored within the works footprint; how compliance will be checked; and how communities will be notified when a construction front enters a mapped node.

The purpose of this BMP is to: (i) record the Critical Habitat and Priority Biodiversity Feature findings that bind the works; (ii) set the avoidance, minimization and footprint-restoration actions the Contractor shall implement; (iii) set the supervision checks and stop-work triggers the Supervising Engineer shall apply; and (iv) identify the conditions the Employer shall hold before vegetation clearance begins in segment S3 (approximately kilometer 18–20) or segment S6 (approximately kilometer 38–50).

The plan discharges the Environmental and Social Commitment Plan (ESCP) requirement that necessary biodiversity management measures be prepared and applied before the relevant works commence. It is issued as an annex to the 85 km Environmental and Social Impact Assessment (ESIA). It shall be operationalized through the Construction Environmental and Social Management Plan (CESMP) before a front enters S3 or S6. Until those CESMP clauses are in place, vegetation clearance shall not start in those segments.

The BMP was prepared by Royal Environmental Group Liberia Inc. (RE-GROUP) for the Infrastructure Implementation Unit (IIU) of the Ministry of Public Works (MPW), the Employer. Its evidential basis is the two-season BFS undertaken by the Society for the Conservation of Nature of Liberia (SCNL) with the Wild Chimpanzee Foundation (WCF), Fauna & Flora and Solimar International (October 2025 – February 2026; Final Report Version 3, 30 September 2026), supplemented by the RE-GROUP 2026 update survey and the biological baseline of the Updated ESIA (Chapter 6). The BMP is self-contained and can be read, implemented and audited without reference to any other volume; cross-references are provided for traceability. In substance, this BMP consolidates the BFS's BMP-ready outputs into the Project's biodiversity management plan, restating them as enforceable obligations without altering their technical content.

1.2 Scope

The alignment is an existing public road. Habitat conversion along most of the corridor is already part of the environmental baseline (BFS, Sections 1.1.2 and 1.3.6). The Project does not open a new forest corridor. Additional biodiversity risk arises where plant, ancillary sites, hours of work, blasting, right-of-way clearance and a concentrated workforce meet mapped Criterion 1 nodes and Priority Biodiversity Features. This BMP is written for that increment, not for historical forest loss.

Physical works comprise rehabilitation within the approved right-of-way, associated drainage and structures, and ancillary facilities (borrow pits, quarries, crushers, batching plants, camps and laydowns) as registered in the ESIA's canonical ancillary register (ESIA Section 3.8, Tables 3.4 to 3.6) and screened on the overlay of Table 3.2 of this plan; the BFS records the sensitivity zones within which none of them may be sited. Existing ancillary sites outside the Chimpanzee Sensitivity Zone and the pangolin polygons may continue in use if they meet the same environmental controls. New sites shall not be opened inside those polygons (Action A3).

Spatially, the plan applies to the 85 km centerline, the approved rural and urban right-of-way, all ancillary sites proposed or approved for the works, the Chimpanzee Sensitivity Zone (approximately 3.14 square kilometers at kilometer 18–20, including a 0.78 square kilometer no-go core), the two White-bellied Pangolin Critical Habitat polygons at kilometer 38–50, and the Priority Biodiversity Features listed in Table 2.2.

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Temporally, the plan applies to detailed design, mobilization, peak construction and the defects-liability period. It does not extend into a separate operation-phase biodiversity program, and it does not set long-term performance targets. Access-related hunting or conversion that may follow paving is noted in the BFS as a landscape pressure. It is not assigned a residual class that this works contract is required to close.

Construction will begin at the Zwedru end of the corridor; the contractor's kick-off was held on 2 August 2026 and, at the date of this revision, mobilization, surveys and design are under way and civil works have not yet commenced. Detailed design is progressing from the Zwedru terminus (km 85+000) westward and has been completed for approximately the first 10 km from Zwedru (about km 85 to km 75); every candidate quarry, borrow pit, spoil area, stockpile, camp and equipment yard is being plotted against Figure 3.1 as the design advances (Action A3), the wildlife-crossing warning and awareness signage of Action A9 is being carried into the road-furniture design, and the evidence-led crossing provisions of Actions A6 and A7 are tested at each design review (ESIA Section 3.16). This provides program lead time for the pre-mobilization prerequisites attached to the sensitive western and mid-corridor segments.

1.3 Relationship to other Project Instruments

The 85 km ESIA is the assessment umbrella. Biological baseline and impact assessment remain in the ESIA; this BMP does not reopen those chapters. The Environmental and Social Management Plan (ESMP) summarizes biodiversity controls for the Employer’s overall environmental and social management. This BMP governs the biodiversity detail. In any difference in biodiversity specifications for the works, this BMP prevails.

The CESMP shall reproduce Table 3.1 (zone rules and actions), Table 7.1 (checks) and Table 7.2 (triggers) of this plan, with method statements for hours of work, pre-clearance walkover, the Code of Conduct and in-stream method at Towah Swamp. The Stakeholder Engagement Plan and the Project grievance mechanism remain the instruments for notice and complaints; this BMP adds only the node-specific notice required before a front enters S3 or S6 (Action A10). The Resettlement Action Plan and Labor Management Procedures are not duplicated here.

A consolidated corridor instrument covering the parallel 40 km segment, if prepared, shall not expand the scope of this 85 km plan: this plan's obligations run for the construction and defects-liability period of the 85 km works contract only, and the 40 km section is governed by its own instruments — no obligation of this plan extends to it.

1.4 Applicable Standards

The governing standard is ESS6. Screening method follows **IFC** Performance Standard 6 and Guidance Note 6 (2019), as applied in the BFS Chapter 4 screen. National requirements that bind the works include the Environment Protection and Management Law, the Environmental Protection Agency **(EPA)** procedural guidelines, Forestry Development Authority Regulation No. 113-08 on Class A and Class B species, and the Wildlife Conservation and Protected Areas Management Act (2016) insofar as workforce hunting or unauthorized taking is concerned.

ESS6 requires that, where Critical Habitat (CH) is present, the Project avoid or minimize impacts on the qualifying values and restore residual disturbance associated with the works. For this rehabilitation, that requirement is discharged by the actions in Table 3.1, the checks in Table 7.1 and the conditions in Table 6.3.

1.5 Implementing Parties

The Employer is the Infrastructure Implementation Unit (IIU) of the Ministry of Public Works (MPW). The Contractor (including all subcontractors and suppliers on the alignment) implements Table 3.1. The Supervising Engineer verifies Table 7.1 and issues Table 7.2 instructions the same day a trigger is met. The Forestry Development Authority (FDA) and the EPA are engaged under national procedure for Class A stems and for incidents the wildlife law requires to be referred. Corridor communities are informed through the Stakeholder Engagement Plan (SEP). They are not contracted as a ranger service under this plan.

1.6 BMP Revision Protocol

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The BMP is version-controlled. A revision is required if: (i) a further Criterion 1 record is verified on the alignment; (ii) detailed design moves a quarry, pit, crusher, camp or laydown toward the Sensitivity Zone or a pangolin polygon; or (iii) Table 7.2 triggers are repeated on the same front. The Employer decides the revision, notifies the World Bank and the EPA, and reissues the affected sections. No revision may weaken Table 6.3 without that notification. Scheduled Year-2, Year-5 or Year-10 evaluations are not milestones of this plan.

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2. BIODIVERSITY VALUES SUMMARY

This chapter states, in compact form, the values this BMP manages. Full evidence remains in the BFS (Chapters 3 and 4) and in Chapter 6 of the 85 km ESIA.

2.1 Critical Habitat Determination

Testing the five criteria of ESS6 paragraph 23 with the quantitative decision rules of Guidance Note 6, the BFS determined that Criterion 1 (habitat of significant importance to CR/EN species) is TRIGGERED. Criteria 2, 3, 4 and 5 are not triggered.

The primary trigger is the White-bellied Pangolin (*Phataginus tricuspis*, Endangered). Verified camera events are clustered at approximately kilometers 38–50. Two Critical Habitat (CH) polygons were delineated around those detections and contiguous suitable habitat.

The Western Chimpanzee (*Pan troglodytes verus*, Critically Endangered) is treated as a precautionary Sensitivity Zone on a single verified camera record at station T59 on 3 February 2026, near Sennehwein Town at approximately kilometer 19. The zone covers about 3.14 square kilometers, including a 0.78 square kilometer no-go core. The BFS does not treat that record as evidence of a resident population. Management is therefore precautionary: demarcation, hours, no blasting, a siting freeze and a sighting trigger. It is not a chimpanzee residency or monitoring program.

This Sensitivity Zone supersedes the kilometer 64–72 chimpanzee reference in the 2024 ESIA. Commitments formerly attached to that earlier reference transfer to kilometer 18–20, limited to the construction controls in Table 3.1.

2.2 Critical Habitat Polygons

Three Critical Habitat polygons are delineated, totaling 22.6 km² (Table 2.1; Figure 2.1). The Chimpanzee Sensitivity Zone (CSZ) at km 18–20, centered on the T59 detection near Sennehwein Town, **supersedes the km 64–72 chimpanzee zone of the 2024 ESIA**; all commitments formerly attached to that zone transfer to the km 18–20 zone (Earthtime, 2024; BFS, 2026).

Table 2.1: *Critical Habitat polygons and Chimpanzee Sensitivity Zone*

Polygon	Location	Area	Qualifying evidence	Controls under this BMP
CH-West (Pangolin)	km 38–44	8.7 km²	Verified White-bellied Pangolin camera events (stations at T16, T18)	A3 siting freeze; A2 hours; A4 walkover; A5 Code of Conduct; weekly checks while the front is in S6
CH-East (Pangolin)	km 46–50	10.8 km²	Verified White-bellied Pangolin events; Black-bellied Pangolin (VU) contributing	Same as CH-West
Chimpanzee Sensitivity Zone (CSZ)	km 18–20, centered km 19 near Sennehwein Town	3.14 km², of which 0.78 km² no-go core	One verified Western Chimpanzee camera event (T59, 3 February 2026); precautionary	Full CSZ prescription set (Table 3.1): Actions A1, A2, A3, A9 and A10; canopy retention; crossings or canopy connections only where the BFS evidence supports them (A6)
Total		**22.6 km²** (pangolin polygons 19.5 km²)		

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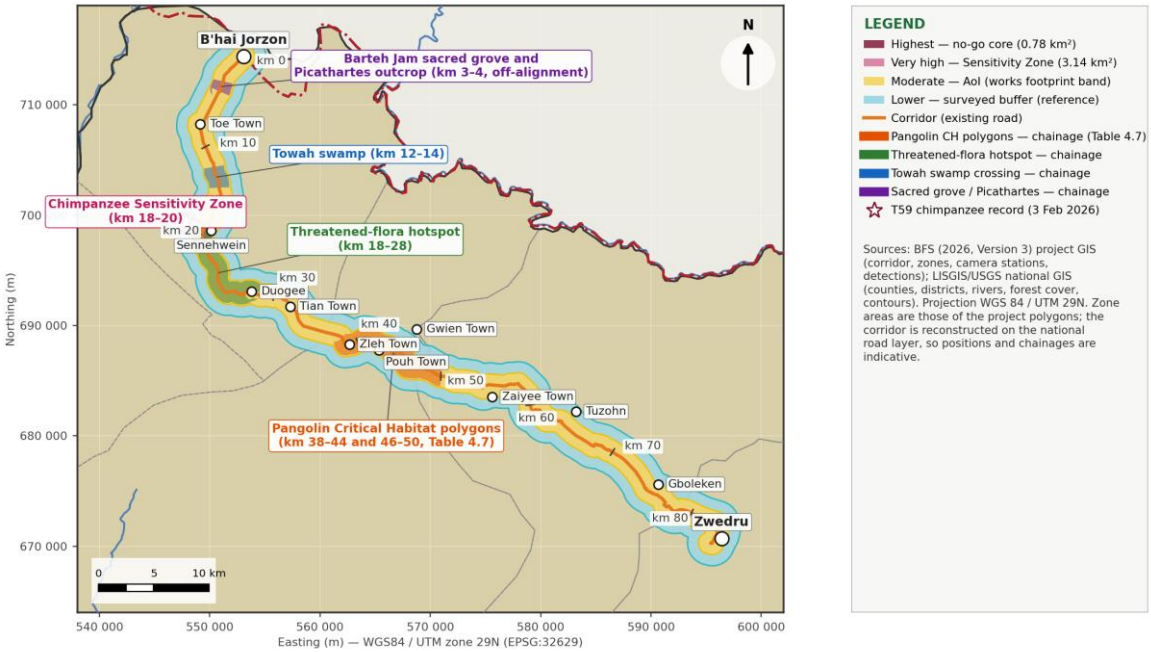


Figure 2.1: Critical Habitat polygons, Chimpanzee Sensitivity Zone and Priority Biodiversity Features along the 85 km corridor — composite sensitivity zonation by chainage (BFS, 2026, Version 3, project GIS; Map Atlas Map 7).

2.3 Priority Biodiversity Features

Features that do not meet a Critical Habitat threshold but require works-period control are designated Priority Biodiversity Features. They are managed by avoidance or method, not by a separate conservation program.

Table 2.2: *Priority Biodiversity Features (BFS, 2026)*

Feature	Location	Why it is listed	Control under this BMP
Towah swamp	km 12–14	Crossing corridor; wetland function	A7 span or large box; silt control; low-flow method where practicable
Threatened-flora hotspot and Class A stems	km 18–28	Cluster of FDA Class A and IUCN-listed trees	A4 pre-clearance walkover and Class A protocol; 5:1 replacement if a stem must be lost
Barteh Jam sacred grove and associated Picathartes use	km 3–4	Cultural site; threatened stems; rockfowl association	No-go during the works; no blasting or quarry in the agreed buffer
Additional sacred groves (Toe Town, Kparblée, Bassa)	As mapped in BFS Table 4.8	Identified through consultation and field-checked	No-go; grievance mechanism if a further grove is declared after mobilization
White-necked Rockfowl outcrop	Buffer, approximately 2.5 km off-road near km 4	Breeding colony recorded	No-go / no-blasting / no-quarry buffer; re-screen any design change that moves an ancillary site

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Feature	Location	Why it is listed	Control under this BMP
Other live watercourse crossings	Corridor-wide	Sediment and barrier risk during in-stream work	A7 method at live crossings; A6 only where BFS Chapter 3 documents a movement hotspot

2.4 Habitat and threat context for the works

The area of influence is a human-modified mosaic. Farm-bush and secondary growth dominate much of the right-of-way. Long-term forest-cover loss (2001–2024) is a baseline condition. It is not a Project impact to be offset under this BMP (BFS, Section 3.1.2 and Table 11.1). Hunting sign recorded on transects is likewise baseline pressure. The additional Project risk is demand created by a concentrated workforce, controlled by the Code of Conduct and camp inspection (Action A5), not by deployment of community rangers.

Construction threat is not uniform along 85 km. BFS Table 8.3 concentrates construction threats in segment S3 (Sensitivity Zone) and segment S6 (pangolin polygons). Mid-corridor farm-bush carries corridor-wide controls only. Supervision intensity follows that density: weekly checks first in S3 and S6 while a front is in those segments.

Confirmed absences. The BFS did not record forest elephant or pygmy hippopotamus. Elder accounts place last reliable sightings more than a decade before the survey. Those species do not trigger Criterion 1 on this alignment and do not generate actions under this BMP. A later verified record would be a revision trigger under Section 1.6.

2.5 Implications for Chapters 3 to 6 of this BMP

Chapter 3 lists the ten construction actions that follow from Tables 2.1 and 2.2. Chapter 4 applies the construction threat set. Chapter 5 states the Contractor rules that operationalize hours, clearance, and the Code of Conduct. Chapter 6 scores residual significance after those actions: Criterion 1 remains Medium, and no feature remains High or Severe through defects liability, if the six construction conditions hold: A1 (no-go core demarcated before clearance in S3), A2 (working hours, with no night work or blasting in the sensitive zones), A3 (no new ancillary site in the CSZ or a pangolin polygon), A4 (pre-clearance walkover with the Class A protocol), A5 (workforce conduct controls, including the camp checks) and A8 (footprint restoration to the certified standard). Chapter 7 sets the checks and triggers. That residual finding is the ESS6 close for this rehabilitation. It does not require a Net Gain dashboard.

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3. SPATIAL MANAGEMENT REGIME

This chapter converts the mapped values in Chapter 2 into rules that can be drawn on a design sheet, pegged on the ground and checked by the Supervising Engineer. The regime is a works-period zoning system. It is not a protected-area network, a geofenced tracking program, or a ranking of ranger effort by node.

Three spatial layers apply at once: (i) the approved right-of-way, within which rehabilitation proceeds under the Construction Environmental and Social Management Plan; (ii) the no-go core and the Chimpanzee Sensitivity Zone at approximately kilometer 18–20; and (iii) the two White-bellied Pangolin Critical Habitat polygons at approximately kilometer 38–50, together with the Priority Biodiversity Features listed in Table 2.2. Ancillary sites are a fourth layer: they may operate only where Action A3 is met.

3.1 Zone Rules

Table 3.1 sets out the binding rules for each management zone. The rules apply to the Contractor, subcontractors and suppliers, and all project vehicles and personnel; they are embedded in the works contract, the CESMP Biodiversity Compliance Plan and the induction regime. No new ancillary facility shall be established within the Chimpanzee Sensitivity Zone or the identified pangolin Critical Habitat polygons. Compliance shall be demonstrated through the ancillary-site overlay and verified during detailed-design review. Particular caution applies at km 19, a documented chimpanzee crossing point. That requirement is embedded in the zone rules of Table 3.1 below. The CSZ rows transcribe the BFS construction-phase restriction.

Table 3.1: *Zone Rules for the Works*

Zone	Chainage /feature	Rule during design, works and defects liability	What is not required
Approved right-of-way	85 km centerline; 150 ft rural / 100 ft urban unless the ESIA states otherwise	Works only inside the pegged limit. Pre-clearance walkover (A4) before each package. Progressive restoration of surfaces the Project opens (A8).	Landscape planting outside the footprint
No-go core	0.78 km² inside the Sensitivity Zone, 500 m radius on the T59 record	No plant, stockpile, temporary track, night lighting or blasting. Demarcate before vegetation clearance in S3 (A1). Unauthorized entry is a Table 7.2 stop-work event.	A residence study or camera grid inside the core
Chimpanzee Sensitivity Zone (CSZ)	3.14 km², km 18–20 (segment S3)	Hours 08:00–16:00. No night work. No blasting. No new ancillary site (A2, A3). 20 km/h and node signs (A9). Sighting within 50 m of an active front suspends the front.	Resident-versus-transient disambiguation as a Project milestone
Pangolin CH-West	8.7 km², km 38–44 (S6)	No new quarry, pit, crusher, camp or laydown. Hours and no blasting while the front is in the node. Code of Conduct and camp inspection.	Anti-poaching patrols funded by this contract

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Zone	Chainage /feature	Rule during design, works and defects liability	What is not required
Pangolin CH-East	10.8 km², km 46–50 (S6)	Same as CH-West.	Same
Towah swamp PBF	km 12–14 (S2)	Span or large box. Low-flow in-stream method where practicable. Silt control each week of in-stream work (A7).	A wetland offset
Flora hotspot / Class A	km 18–28 (S4 and edge of S3)	Walkover and Forestry Development Authority Class A protocol before the cut (A4).	A corridor-wide enrichment block
Sacred groves and Picathartes outcrop	Table 2.2 / BFS Table 4.8	No-go. No blasting or quarry in the agreed buffer. A newly declared grove after mobilization is registered in the grievance mechanism within 48 hours by the Contractor's Community Liaison Officer (communities may also lodge it directly through any tier of the mechanism); the Biodiversity Specialist verifies the claim with the custodians, and the Supervising Engineer holds the affected drawing until the check is closed.	Community Conservation Agreements
Remainder of the corridor	Segments S1, S5, S7 and non-node S2/S4	Corridor-wide A4, A5, A8 and A10. A6 only where Chapter 3 of the BFS documents a movement hotspot.	Default package of crossings on every kilometer

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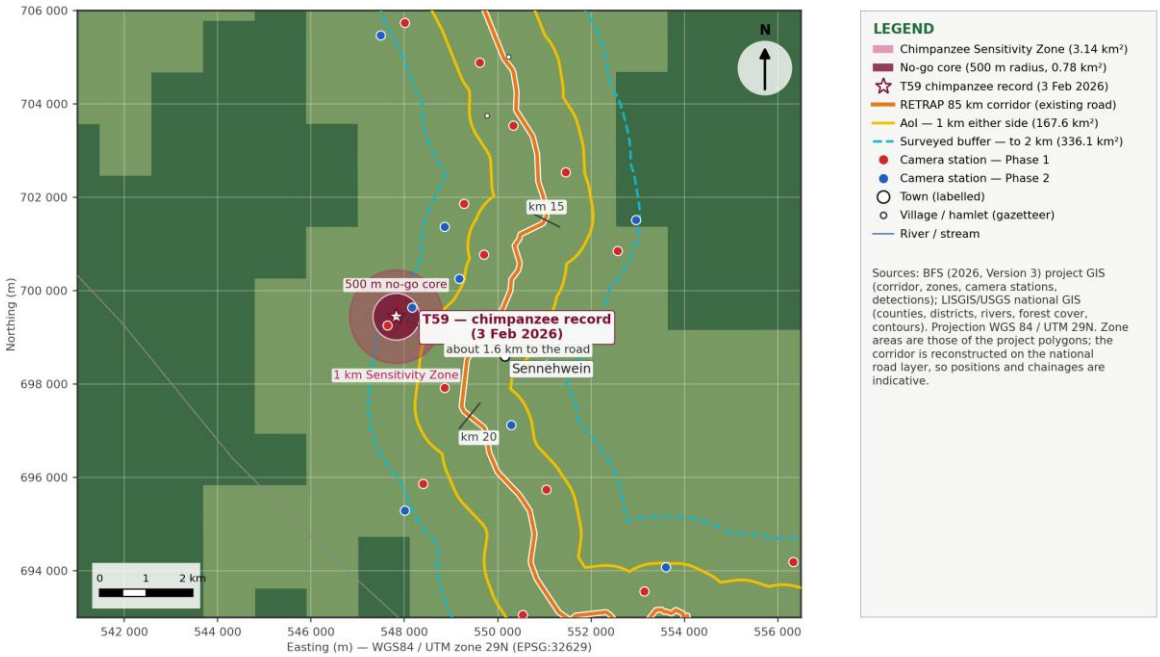


Figure 3.1: *Chimpanzee Sensitivity Zone close-up at km 18–20 near Sennehwein Town — 1 km kernel (3.14 km²) and 500 m no-go core (0.78 km²) centered on the T59 detection, with the AoI and surveyed-buffer boundaries and the camera stations (BFS, 2026, Version 3, project GIS; Map Atlas Map 8).*

Figure 3.2 reproduces the BFS delineation of the CSZ's internal structure — the 500 m absolute no-go core, the 1 km kernel and the canopy-connectivity corridor (BFS, 2026).

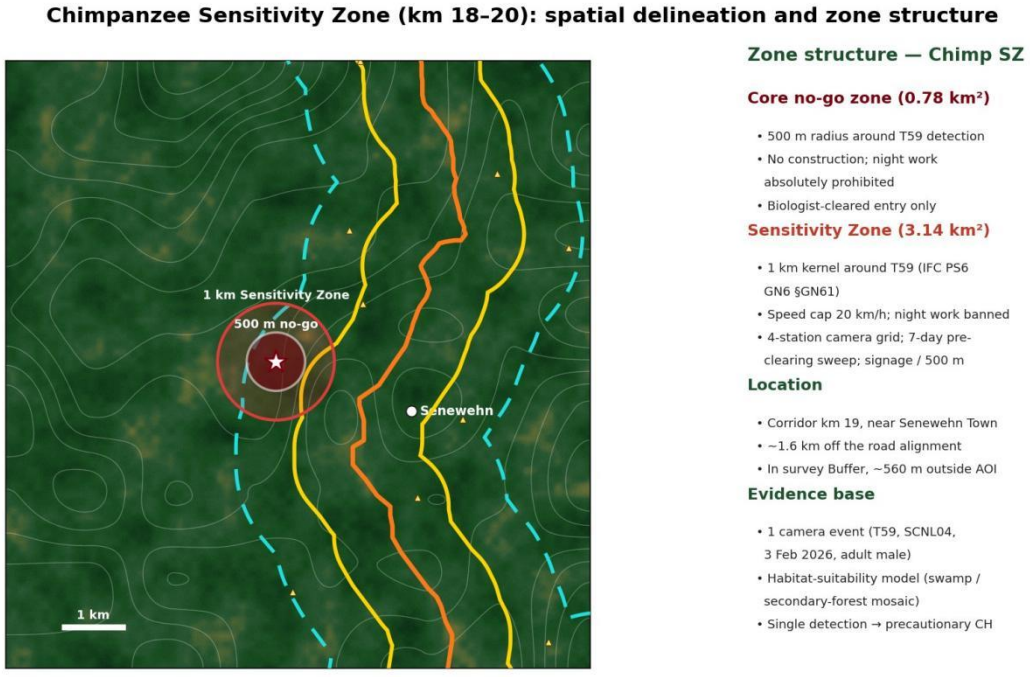


Figure 3.2: *CSZ spatial delineation and zone structure (BFS, 2026, Version 3, Figure 3.23).*

3.2 Ground Marking of Zone Designations

Demarcation is a construction control, not a telemetry system. Before vegetation clearance starts in S3, the Contractor shall:

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- Survey the 0.78 square **kilometer** no-go core from the BFS coordinates and mark it with durable posts and tape or equivalent, visible from the working face;
- Peg the approved right-of-way through S3 and S6 so that creep beyond the pegs is visible to the Supervising Engineer;
- Post the A9 speed and node-warning signs at the approaches to S3 and S6; and
- Keep an entry log for any authorized crossing of the Sensitivity Zone (for example**,** a public through-road already in use). Unauthorized entry is a Table 7.2 event.

The Employer shall not accept a method statement that substitutes a software geofence or vehicle tracker for physical demarcation of the no-go core. Trackers may be used as an internal Contractor tool. They are not a substitute for A1.

3.3 Ancillary-Site Freeze

Action A3 is a spatial rule, not a later mitigation. At detailed-design review, the Contractor shall overlay every proposed or existing borrow pit, quarry, crusher, batching plant, camp and laydown on Figure 3.1. Any site that falls inside the Sensitivity Zone or a pangolin polygon shall be rejected. The Employer shall not accept a non-compliant site. Existing sites outside those polygons remain subject to the Code of Conduct, drainage and restoration rules that apply corridor-wide.

Table 3.2 below tests every named or packaged ancillary site against the CSZ (km 18–20) and the two White-bellied Pangolin CH polygons (km 38–44 and km 46–50). A “No*” cell means the site is not known to fall inside that polygon on current documents; the Contractor shall still plot coordinates on Figure 2.1 before mobilization. A “Confirm” cell means chainage is not fixed in the revised BFS and the overlay is a design-review gate.

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Table 3.2: *Ancillary-Site Overlay*

ID	Site	Type	Location as documented	Inside CSZ?	Inside CH-West?	Inside CH-East?	A3 decision	Note for design review and CESMP
Q-1	Suaken quarry	Quarry	Suaken (confirm km on design overlay)	No*	No*	No*	**Accept if A3 overlay is No**	Restore footprint under A8 at closure.
Q-2	Ziah Town quarry	Quarry	Ziah Town (confirm km)	No*	No*	No*	**Accept if A3 overlay is No**	Blasting hours follow A2 if the site sits near S3 or S6.
Q-3 to Q-5	Three additional quarries (BFS Table 1.1)	Quarry	Not individually chained in the revised BFS	Confirm	Confirm	Confirm	**Screen before approval**	Two ancillary sites require additional EPA permitting — identify which two at design review.
BP-2	Borrow pit BP2	Borrow pit	Coordinates reported to overlap wetland IW-007	Confirm	Confirm	Confirm	**Screen before approval**	Do not open if overlay shows a mapped wetland, Towah swamp, CSZ, or CH polygon. Prefer an already-disturbed alternative.
BP-3	Borrow pit BP3	Borrow pit	Secondary forest / natural-habitat flag	Confirm	Confirm	Confirm	**Screen before approval**	Pre-clearance walkover (A4) before any cut. Reject if the pit falls in CSZ or a pangolin polygon.
BP-1, BP-4 to BP-9, BP-11 to BP-17	Remaining numbered pits (no BP10)	Borrow pit	Corridor — confirm each chainage	Confirm each	Confirm each	Confirm each	**Accept if A3 overlay is No**	Each pit is a separate A3 test. Do not treat the list as pre-approved.
CR-1	Suaken batching/asphalt/crusher complex	Plant	Suaken (with Q-1)	No*	No*	No*	**Accept if A3 overlay is No**	Keep on already-disturbed ground with Q-1. Lighting directed down. No night operation if the overlay places it inside 1 km of S3.
CR-2	RC2 candidate crusher	Crusher	Not screened in the BFS	Confirm	Confirm	Confirm	**Screen before approval**	No opening until the Figure 2.1 overlay is signed by the Supervising Engineer.
C-1	Worker camp — proposed km 12	Camp	km 12 (S2, Towah approach)	No	No	No	**Screen before approval**	Outside CSZ and CH polygons by chainage, but adjacent to Towah swamp PBF. Confirm the pad is not in the swamp or a sacred-grove buffer. Code of Conduct from first occupancy (A5).
C-2	Worker camp — proposed km 45	Camp	km 45 (inside S6 / between CH-West and CH-East)	No	Yes - between polygons	Yes - between polygons	**Reject**	Kilometer 45 sits in the pangolin CH reach. Action A3 does not allow a new camp inside that reach. Relocate west

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								of km 38 or east of km 50 onto farm-bush already disturbed.
C-3	Worker camp — proposed km 73	Camp	km 73 (S7)	No	No	No	**Accept if A3 overlay is No**	Eastern farm-bush. Confirm the pad is outside any late-declared grove. Weekly unannounced camp check by the Contractor's Environmental Officer (cooking areas, waste points and stores, for bushmeat, snares or wildlife parts), with monthly verification by the Supervising Engineer (A5).
C-4	Zuoyou Town camp and mechanical site	Camp/workshop	Zuoyou Town (confirm km)	Confirm	Confirm	Confirm	**Screen before approval**	Overlay before occupancy. Mechanical yard drainage shall not discharge to a live crossing without silt control.
L-1 to L-4	Four laydown areas (BFS Table 1.1)	Laydown	Not individually chained	Confirm each	Confirm each	Confirm each	**Accept if A3 overlay is No**	Part of the 18 ha ancillary package. No laydown inside CSZ, a pangolin polygon, Towah swamp or a marked grove.
D-1	Temporary detours, about 18 km dry-season bypass	Detour	Road-edge, various	Confirm where a bypass enters S3 or S6	Confirm	Confirm	**Screen each bypass in S3 or S6**	A detour that enters the no-go core is a Table 7.2 event. Reinstatement under A8 so the trail does not remain.

How IIU should use Table 3.2:

1. The Contractor plots each row on Figure 2.1 and returns a one-page overlay with coordinates before the first site is opened.
2. Any row that becomes “Yes” in the CSZ or a pangolin column is rejected. The Employer does not accept a substitute location that still sits inside those polygons.
3. Row C-2 (camp at approximately kilometer 45) is rejected on chainage alone. Relocate it outside km 38–50.
4. Yellow rows (BP2, BP3, RC2, the unnamed quarries, camp at km 12, Zuoyou, detours in S3 or S6) are not refusals. They are not approvals either. They require the signed overlay plus, for BP2 and BP3, the A4 walkover.
5. Two sites in the BFS package require additional EPA permitting. Name those two on the overlay sheet.
6. Closed pits, pads, and detours are restored under Action A8 (70 percent cover / 60 percent survival). They are not converted to a landscape-restoration program.
7. This table does not replace the national quarry or EPA permit. It only applies to Action A3

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3.4 Management Intensity by Kilometer Segment

Supervision intensity follows construction-threat density in BFS Table 8.3. Segments S3 and S6 are checked first each week a front is present. Other segments receive the corridor-wide CESMP checks.

Table 3.3: *Segment intensity*

Segment	Approx. km	Principal mapped value	Weekly check while a front is present	Design implication
S1	0–12	Sacred groves at the western end	Corridor-wide; confirm no-go on groves	No quarry or blast in grove buffers
S2	12–18	Towah swamp	A7 silt control in any in-stream week	Span or large box at Towah
S3	18–20	CSZ and no-go core	First on the weekly list: A1, A2, A9	A1 before clearance
S4	20–28	Flora hotspot / Class A	A4 before each cut	Walkover file attached to the package
S5	28–38	Farm-bush mosaic	Corridor-wide A5 and A8	No default crossing package
S6	38–50	Pangolin CH-West and CH-East	First on the weekly list with S3: A2, A3, A5	A3 freeze at design review
S7	50–85	Eastern farm-bush and settlements	Corridor-wide; A10 if a node is entered	Camps remain outside CH polygons

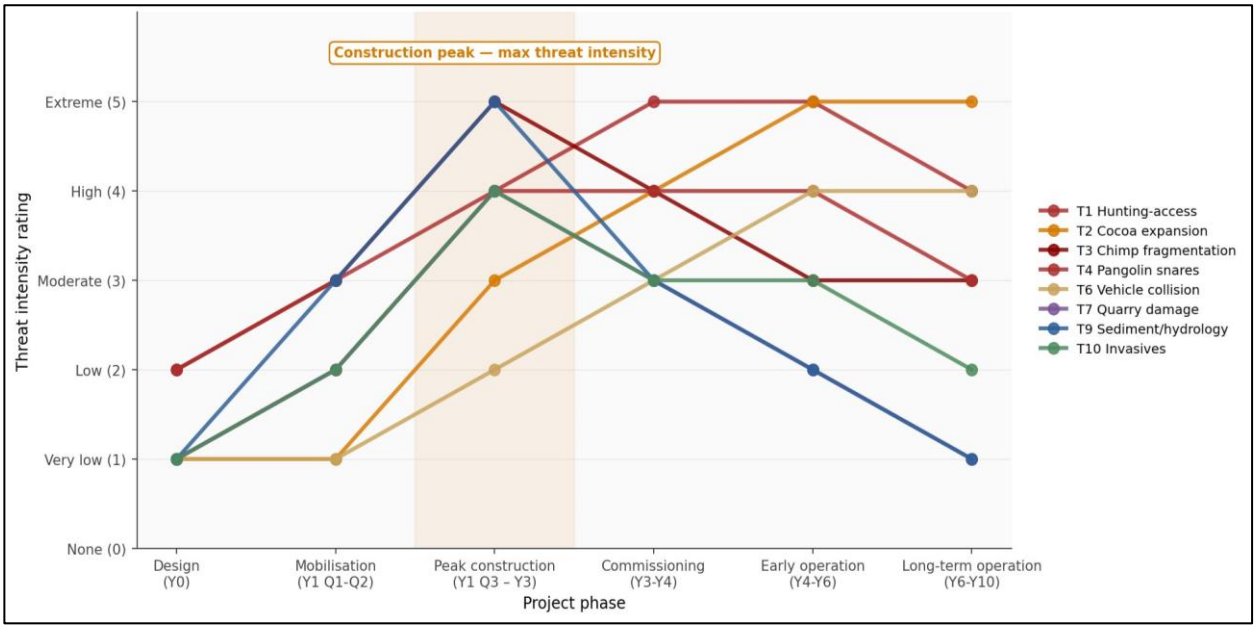


Figure 3.3: *Construction Threat Density by Segment (BFS, Table 8.3)*

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3.5 Structures that have a spatial location

Wildlife passages, oversized culverts, spans and canopy connections (Action A6) are located only where the BFS baseline documents a movement hotspot or where Towah Swamp requires a span or large box (Action A7). They are not a standard kit applied to every kilometer. Drawings are prepared by the Contractor's design engineer, reviewed by the Supervising Engineer and the Employer, and built with the works. Cost is estimated by that engineer and sits in the design and works budgets.

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4. THREAT-BASED MANAGEMENT PROGRAMME

This chapter applies the mitigation hierarchy to the eleven construction threats carried in the BFS (Chapter 8). Avoidance, minimization and footprint restoration are sequenced. Offset and Net Gain are not used as a fourth step under this plan. Landscape hunting after paving is recorded as a residual landscape pressure. It is not assigned an action ID in Table 4.3.

4.1 Threat Register

Table 4.1 restates the construction threat set. Pre-mitigation ratings follow the BFS. Post-mitigation ratings assume Table 4.3 is implemented. A High residual returns if the matching condition in Chapter 6 fails.

Table 4.1: *Construction threat register*

ID	Threat	Principal receptor	Peak segment	Primary control
C1	Right-of-way creep and extra clearance	Flora hotspot; edge of CSZ	S3, S4	A4 pegs and walkover
C2	Breach of the no-go core or CSZ	Chimpanzee (precautionary)	S3	A1, A2, Table 7.2
C3	Night work or blasting in a node	Chimpanzee; pangolin; Picathartes	S3, S6	A2
C4	Ancillary site inside CSZ or CH	Both Criterion 1 values	S3, S6	A3 at design review
C5	Unauthorized Class A felling	Threatened flora	S4	A4 protocol; 5:1 if a stem is lost
C6	Sediment at live water	Towah; other crossings	S2	A7 method and weekly silt check
C7	Workforce hunting or bushmeat	Pangolin; general fauna	Camps/corridor	A5 Code of Conduct
C8	Collision at a documented hotspot	Mobile fauna	S3, S6, evidenced sites	A9; A6 only if evidenced
C9	Blocked or undersized crossing	Movement at documented sites	S2 and evidenced sites	A6 / A7 as drawn
C10	Failed footprint restoration	Local cover and erosion	Any opened surface	A8 70/60 percent rule
C11	Protected-species sighting on an active front	Criterion 1 individuals	S3, S6	Table 7.2 50-meter rule

Table 4.1A: *Construction Threat Register with Pre- and Post-Mitigation Scoring (BFS Table 8.2)*

ID	Threat	Where	Pre	Control	Residual
C1	Clearance beyond the approved right-of-way	Any segment; highest at km 18–28 and km 38–50	4×4	Peg the right-of-way; pre-clearance walkover (Chapter 5)	2×2
C2	Works inside the Chimpanzee Sensitivity Zone no-go core	km 18–20 (BFS Figure 3.23)	3×5	Demarcate before clearance; Table 7.2 stop-work	1×3
C3	Night work or blasting in the Sensitivity Zone or Critical Habitat	km 18–20; km 38–50	3×4	Hours 08:00–16:00; no blasting in those nodes	1×3
C4	New quarry, borrow pit, crusher or camp in the Sensitivity Zone or Critical Habitat	Ancillary sites in BFS Table 1.1	3×5	Siting freeze in Section 3.3 (Table 3.2)	1×4

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ID	Threat	Where	Pre	Control	Residual
C5	Unauthorized Class A felling	Flora hotspot km 18–28 (BFS Figure 3.30)	3×4	Section 5.4 protocol; 5:1 replacement if a stem is lost	2×2
C6	Sediment at Towah swamp and live crossings	km 12–14 and other watercourses	4×3	Span or large box; low-flow work; silt control	2×2
C7	Workforce hunting or bushmeat	Camps and corridor	3×4	Code of Conduct; weekly camp check (with monthly Supervising Engineer verification)	2×3
C8	Collision at a documented hotspot during the works	Sensitivity Zone and camera clusters (BFS Figure 3.14)	3×3	20 km/h signage; crossing only where BFS Chapter 3 supports it	2×2
C9	Blocked or poorly built crossing or culvert	Sites justified by BFS Chapter 3	2×3	Design-engineer drawings; Table 7.2 repair	1×2
C10	Invasive plants on opened ground	Disturbed right-of-way, pits, camp edges	3×2	Progressive restoration; 70 percent cover rule	2×1
C11	Sighting of a protected species at an active front	Any live front	2×4	Table 7.2 suspend-and-clear	1×3

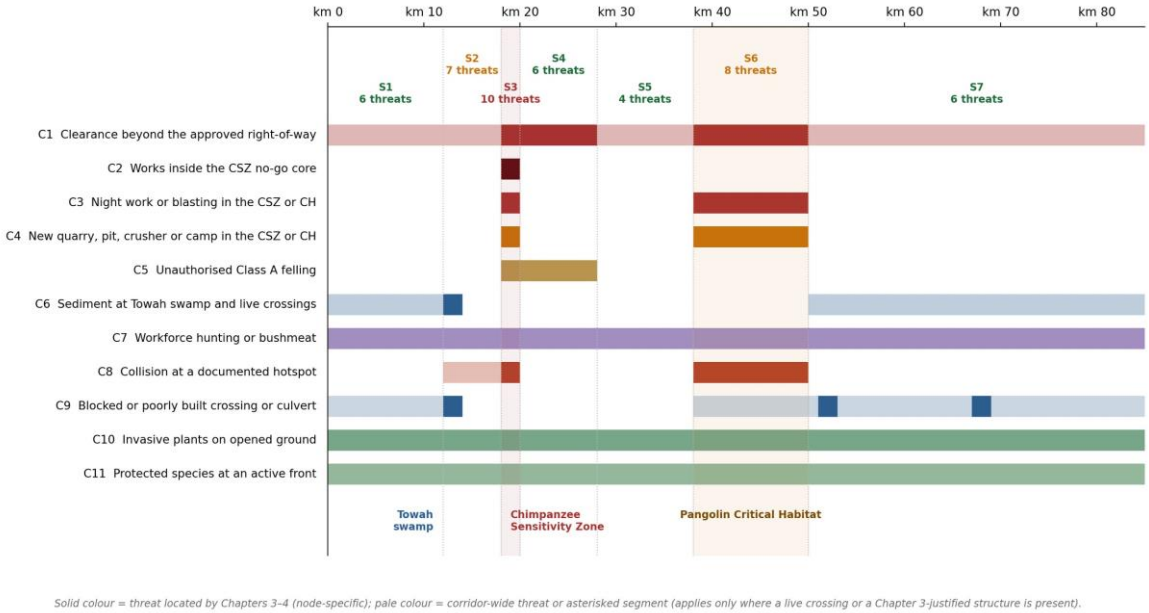


Figure 4.1: Spatial distribution of the construction threats C1–C11 along the 85 km corridor by segment S1–S7 (BFS, 2026, Version 3, Figure 8.3).

4.2 Avoidance Measures

Avoidance is the first and preferred step. For this rehabilitation, it means keeping the works out of places the survey mapped as no-go or as a siting freeze, and keeping methods out of hours that the SZ cannot absorb.

Table 4.2: *Avoidance Actions*

Action	Avoidance content	Where it binds	Gate
A1	Physical demarcation of the 0.78 km² no-go core. No plant, stockpile, or temporary works inside the core.	S3	Before vegetation clearance in S3

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Action	Avoidance content	Where it binds	Gate
A2	Working hours 08:00–16:00. No night work. No blasting in the CSZ or the pangolin polygons.	S3 and S6	Each week the front is in the node
A3	No new quarry, borrow pit, crusher, batching plant, camp or laydown inside the CSZ or a pangolin polygon.	Design overlay on Figure 3.1	Detailed-design review; mobilization
A4 (avoidance part)	Peg the approved right-of-way. Do not take extra width to avoid a design constraint.	Corridor; first in S3 and S4	Before each clearance package

4.3 Minimization

Where the works must pass a mapped node, impact is reduced by method, timing, speed and conduct. Minimization does not include a worker-funded alternative-livelihood scheme or a canopy-bridge obligation at sites the BFS did not document.

Table 4.3: *Minimization Actions (BFS)*

Action	Minimization content	Where it binds	Verification
A4 (minimization part)	Class A walkover. Forestry Development Authority protocol. Micro-adjustment of the working face only where a marked stem can be kept without a new alignment.	S4 and CH segments	Walkover file attached to the package
A5	Code of Conduct: no hunting, bushmeat, keeping or trading wildlife. Induction before deployment. Weekly camp check (with monthly Supervising Engineer verification).	All camps and the corridor	Signed file; monthly Supervising Engineer check
A6	Crossing, oversized culvert, span or canopy connection only at a hotspot documented in BFS Chapter 3.	Evidence-led sites only	Accepted drawings
A7	Span or large box at Towah swamp. Low-flow in-stream method. Silt control.	km 12–14 and other live crossings	Weekly during in-stream work
A9	20 km/h and node-warning signs.	S3, S6 and evidenced hotspots	Posted before the front enters
A10	Community notice before a front enters S3 or S6. Wildlife, grove and camp complaints through the grievance mechanism.	SEP / Chapter 9 of this BMP	Notice issued; grievance log

4.3.1 Hours and blasting

In S3 and S6 the working window is 08:00 to 16:00. Night work and blasting are prohibited in those nodes for the period a front occupies them. A single breach produces a written instruction. A repeat breach suspends the front until the Employer accepts a corrective statement. The rule protects the precautionary chimpanzee zone and the pangolin polygons during the works. It is not a permanent operational speed or blasting ban after defects liability.

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4.3.2 Code of Conduct and camps

Workforce hunting is the Project increment on a baseline already hunted landscape. Control is contractual: signed Code of Conduct, induction, protein that is not wild-caught, weekly inspection of kitchens and quarters (with monthly Supervising Engineer verification), and dismissal plus referral to the Forestry Development Authority where the wildlife law requires it. Camps themselves remain outside the Sensitivity Zone and the pangolin polygons (A3).

4.3.3 Crossings and drainage

A6 is evidence-led. If BFS Chapter 3 does not document a hotspot at a chainage, the default is a hydraulically adequate culvert with a dry bench or equivalent only where the design engineer can show it is needed for drainage or for a recorded crossing. Towah swamp is the one location where a span or large box is required on habitat grounds (A7). Costs are estimated by the design engineer.

4.4 Restoration of Works Footprint

Restoration activities outlined in this plan are confined to areas directly affected by the Project, including cut slopes, unused shoulders, closed pits that have been disturbed by the works, camp pads, and temporary access tracks. The performance standard, designated as Action A8, stipulates a minimum coverage of 70 percent by the conclusion of the first rainy season following planting, along with a minimum survival rate of 60 percent. In the event that these benchmarks are not met, a replacement ratio of five-for-one will be implemented at the Contractor's expense, and the section will remain uncertified. Native species that are included in the BFS planting palette may be utilized within the specified footprint.

Table 4.4: *Footprint Restoration (A8)*

Item	Rule	When it is judged	If it fails
Area to restore	Only ground the works open	Progressive, not left through a second rainy season	Add to the next package; do not open further ground in that section
Cover	at least 70 percent	End of first rainy season after planting; defects liability	5:1 replanting; withhold certificate
Survival	at least 60 percent of planted stems	Same inspection	Same
Invasives on the footprint	No seed-bearing invasive cover left on a certified section	Same inspection	Manual removal before certification

4.5 Summary of Cumulative Impacts during the Works

Applied together, Tables 4.2 to 4.4 are the mitigation hierarchy for this rehabilitation. The BFS residual assessment (Chapter 10) finds that Criterion 1 significance falls from High to Medium and that no feature remains High or Severe through defects liability, provided the six construction conditions hold.

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5. CONTRACTOR BIODIVERSITY REQUIREMENTS

This chapter states the rules the Contractor shall write into the CESMP and apply from mobilization through defects liability. It operationalizes Actions A1, A2, A4, A5, A8 and A9. It does not create a Biodiversity Monitor post as a separate long-term institution, a worker-funded livelihood scheme, or a chimpanzee module delivered by an external foundation as a Project milestone.

Every obligation in this chapter is a works-contract obligation. Failure is managed through the Supervising Engineer's instructions, withholding of section certification where Action A8 fails, and, for hunting or taking, referral under the Wildlife Conservation and Protected Areas Management Act (2016).

5.1 Worker Code of Conduct

No person shall be deployed on the alignment, in a camp, or in a quarry or pit serving the works until that person has signed the acknowledgment in Annex A. The acknowledgment covers subcontractors and supply-chain drivers who sleep or eat on a Project site. The six undertakings are:

1. The worker shall not hunt, trap or capture any wild animal, and shall not purchase, possess, consume, sell or transport bushmeat, while employed on the Project.
2. The worker shall not keep wild animals as pets and shall not trade in wildlife, wildlife parts — including pangolin scales and chimpanzee parts — or protected plants.
3. The worker shall not bring weapons, snares, or hunting equipment into any camp, vehicle, or work site, and shall not fish or collect plants in mapped no-go areas.
4. The worker shall not enter any area marked as a no-go zone, Critical Habitat polygon, Sensitivity Zone core, or sacred site unless authorized in writing by the Supervising Engineer.
5. The worker shall report immediately any chimpanzee, pangolin, or other protected-species sighting within 50 meters of an active front.
6. The worker understands that breach is a dismissible offense and, where the law requires, will be referred to the Forestry Development Authority.

A signed file is a monthly inspection item (Chapter 7). An unsigned crew is not a deployed crew.

5.2 Camp Management and Food Supply

Camps, mechanical yards and kitchens shall sit outside the CSZ and outside both pangolin polygons (Action A3, Table 3.2). The Contractor shall supply protein that is not wild-caught. Weekly camp checks by the Contractor's Environmental Officer, with monthly inspection by the Supervising Engineer, cover kitchens, quarters, cold rooms and refuse. Bushmeat, snares, firearms and live wild animals found on a Project site are a Table 7.2 event and a disciplinary case.

Lighting at camps and night-time security positions in or adjoining segments S3 and S6 shall be directed downward and kept off the no-go core. Generators and noisy plant shall not be sited against the core boundary.

5.3 Speed and Driving Rules

Once Action A9 signs are posted, the speed limit is 20 kilometers per hour through segment S3, segment S6 and any other hotspot in the revised BFS documents. Off-right-of-way driving is limited to approved access. A kill of a pangolin, chimpanzee or other protected species on a Project vehicle is a serious incident: the front in that node stops, the Employer is notified within 24 hours, and the World Bank and the Environmental Protection Agency are notified within 48 hours as required by Project reporting rules.

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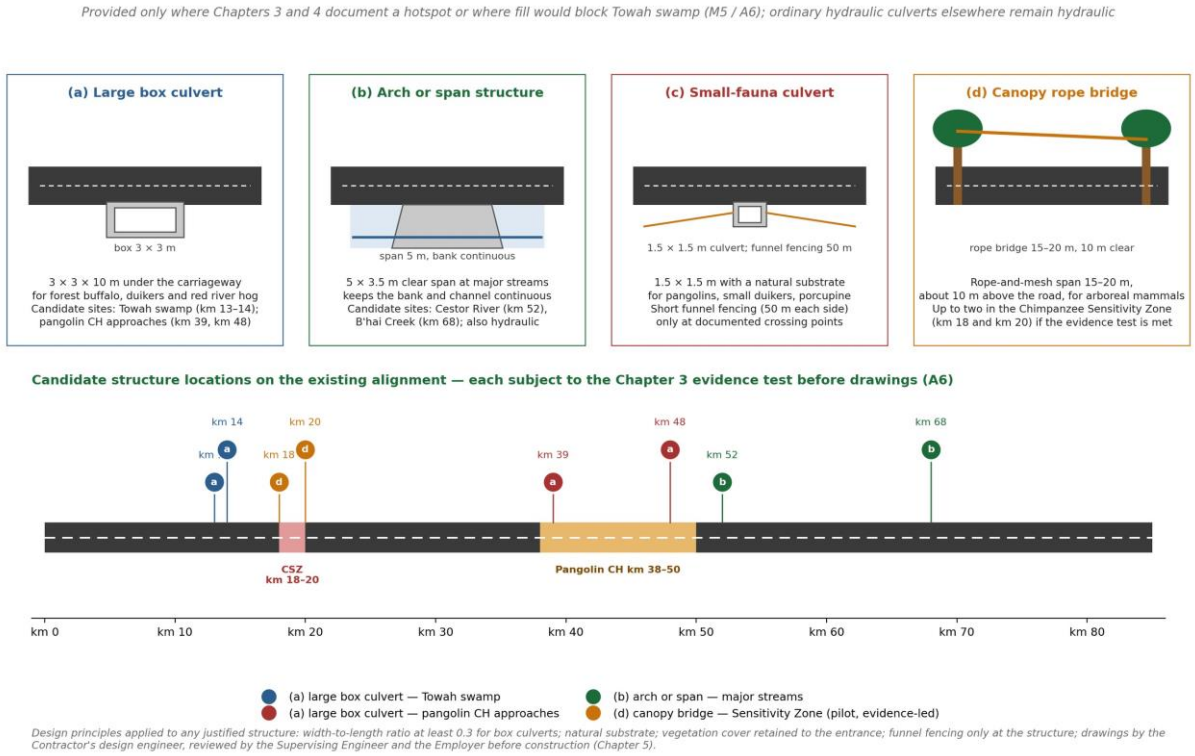


Figure 5.1: Wildlife crossing structure types and candidate locations — indicative only; a structure is built only where BFS Chapter 3 documents a movement hotspot and the design engineer's drawings are accepted (Action A6) (BFS, 2026, Version 3, Figure 5.2).

5.4 Vegetation Clearance Protocol

No package shall be cut until three things exist: (i) the approved right-of-way is pegged; (ii) the pre-clearance walkover file is attached, including Forestry Development Authority Class A markings in segment S4 and in any Critical Habitat segment; and (iii) in S3, the no-go core is demarcated (Action A1). A verified chimpanzee or pangolin within 50 meters of the working face suspends that face until the Supervising Engineer issues written clearance (Table 7.2).

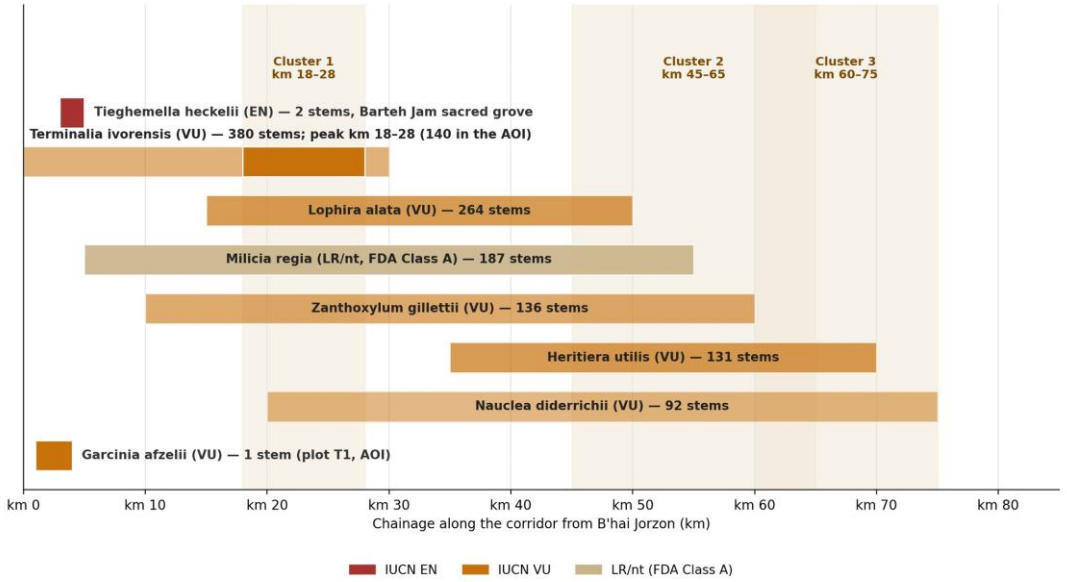
Extra width taken to avoid a design constraint is right-of-way creep (threat C1). It is not permitted as informal mitigation. If a marked Class A stem cannot be kept, the stem is taken only under the national protocol and is replaced five-for-one on the works footprint or an agreed adjoining restoration strip. Ten-for-one landscape ratios from earlier drafts are not used.

Table 5.1: *Class A and listed stems in the flora hotspot (BFS, Table 3.8)*

Species	Scientific name	IUCN	Records	FDA class	Primary distribution along the corridor
Framire	Terminalia ivorensis	VU	380	A	Peak km 18–28; widespread in AoI and buffer
Ekki	Lophira alata	VU	264	A	km 10–55; higher density in Buffer
Iroko	Milicia regia	LR/nt	187	A	km 5–55; sacred-grove protected
African rubber	Funtumia elastica	LC	149	B	Throughout; secondary forest
East African satinwood	Zanthoxylum gillettii	VU	136	B	Scattered; km 15–65
Niangon	Heritiera utilis	VU	131	A	km 20–70; Buffer secondary forest
Kusia	Nauclea diderrichii	VU	92	A	km 15–75; riparian/wet forest

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Species	Scientific name	IUCN	Records	FDA class	Primary distribution along the corridor
Abura	Hallea ciliata	LC	41	B	Swamp-forest margins
Sipo	Entandrophragma utile	VU	34	A	km 30–65; scattered
African mahogany	Khaya ivorensis	VU	28	A	km 15–70; FDA Class A — no-fell
Makore	Tieghemella heckelii	EN	2	A	Barteh Jam sacred grove (km 3–4) only
Garcinia afzelii	Garcinia afzelii	VU	1	C	T1 AoI only (km ~2)



Bar = approximate along-corridor extent of plot records; darker shading = higher stem density. Shaded bands mark the three VU clusters that set the Class A protocol and pegging rules (Chapter 5, M3–M4).

Figure 5.2: *Threatened flora hotspots along the 85 km corridor (BFS, 2026, Version 3, Figure 3.30).*

5.5 Invasive-Species Hygiene

Plant, fill, and mulch entering S3 or S6 shall be reasonably free of seed-bearing invasive material. The test is visual and contractual, not a laboratory protocol. Invasive cover left on a restored footprint is an Action A8 failure at the rainy-season inspection.

5.6 Lighting Design

Task lighting on fronts in S3 and S6 shall be aimed at the working face and switched off when the face is idle inside the 08:00–16:00 window. Floodlighting of the no-go core is prohibited. This rule applies during the works. It is not a permanent operational lighting standard after defects liability.

5.7 Induction, Toolbox Training and the Biodiversity Monitor

Induction is delivered before first deployment and covers: the composite sensitivity map for the worker's section; hours and no-go rules; the six Code of Conduct undertakings; how to report a sighting; and the grievance mechanism. The first morning a crew enters S3 or S6, a short toolbox reminder is given. The Contractor's environmental officer (or equivalent named in the CESMP) keeps the file.

Table 5.2: *CESMP Biodiversity File*

CESMP item	Minimum content	Record
Code of Conduct file	Annex A signed by every deployed person	HR file; monthly SE check
S3 / S6 briefing	Hours, no-go, 50-meter rule, A9 speed	Toolbox log the morning the crew enters
Walkover file	Pegs, Class A marks, package chainage	Attached before the cut

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CESMP item	Minimum content	Record
Camp inspection	Kitchen, quarters, weapons, bushmeat	Weekly (Contractor EO); monthly SE checklist verification
Sighting/incident log	Species, chainage, time, action	Feeds Table 7.2 and the 24/48-hour notice

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6. RESIDUAL SIGNIFICANCE AFTER THE WORKS CONTROLS

This chapter examines the residual impacts and their significance after full implementation of works control measures. For the existing road project, compliance with ESS6 requirements is achieved by avoiding or minimizing impacts on Criterion 1 values during project activities, restoring the project footprint in accordance with the Action A8 rule, and ensuring that no features remain with High or Severe residual significance throughout the defects liability period. This assessment is derived from the BFS Chapter 10 and is reiterated here for consistency in both the CESMP and the ESIA annex.

6.1 Scoring Factors

Table 6.1: *Scoring Factors (BFS, Table 10.1)*

Factor	1	2	3	4 (forces High if this factor stands after controls)
Magnitude	Negligible change at the feature	Detectable disturbance inside the approved right-of-way	Clear effect on a mapped node in Table 4.7 or 4.8	Loss of no-go core function, CH polygon function, or a Class A stand without the Section 5.4 protocol
Duration	Days to a few weeks at one chainage	One construction season at the node	The full construction period at the node	Effect continues after defects liability because restoration did not hold
Reversibility	Reverses without intervention	Reverses with standard footprint restoration (A8)	Reverses only if a Table 7.2 instruction is completed	Not reversible within the works period
Scale	A short chainage or a single structure	One Table 8.3 segment	Both Criterion 1 nodes, or several Priority Biodiversity Features	Corridor-wide effect on a Chapter 4 value

6.2 Residual significance by feature

After Actions A1–A10, the BFS finds:

Table 6.2: *Residual significance*

Feature	Pre-mitigation (works)	Residual through defects liability	Depends on
White-bellied Pangolin / CH polygons	High	Medium	A3 freeze; A5 conduct; S6 weekly checks
Western Chimpanzee / CSZ (precautionary)	High	Medium	A1 demarcation; A2 hours; 50-metre trigger
Towah swamp	High / Medium	Low	A7 span or large box and silt control
Flora hotspot / Class A stems	High	Low to Medium	A4 walkover and protocol
Picathartes outcrop and sacred groves	Medium	Low	No-go and no-blast / no-quarry buffer
General farm-bush remainder	Low to Medium	Low	A8 footprint rule; A5

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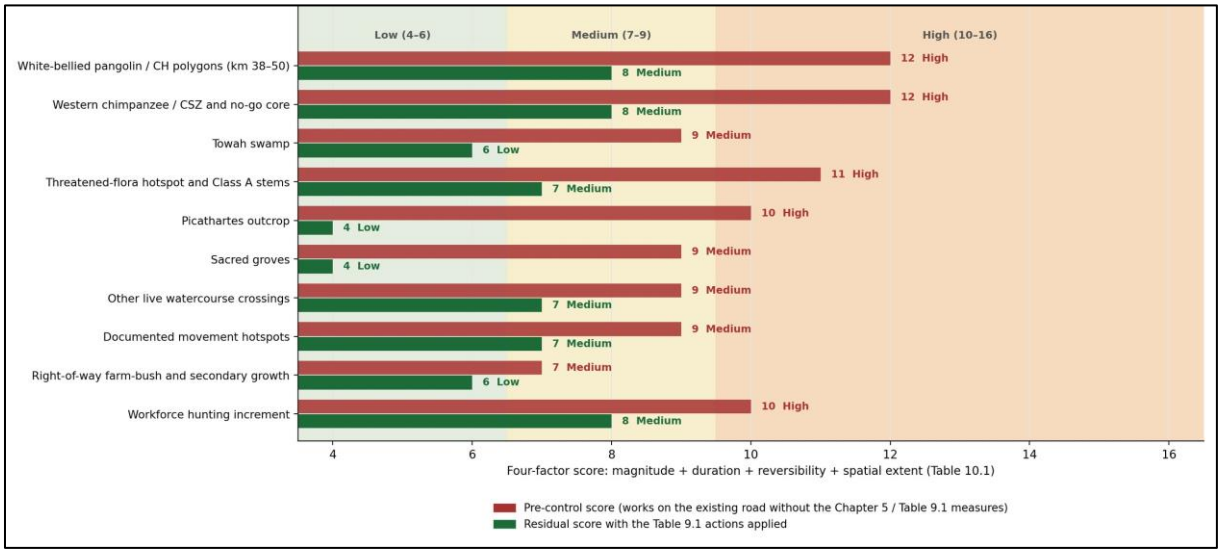


Figure 6.1: Pre-control versus residual significance after the construction measures (BFS, 2026, Version 3, Figure 10.2).

6.3 Matters Outside the Scope of This Plan

This chapter does not include elements such as a multi-indicator dashboard, species-specific Net Gain action plans, Community Conservation Agreements, a partnership framework, or a long-term strategic trajectory. These components are associated with a landscape program and do not pertain to the ESS6 compliance for rehabilitating an existing road. Future activities, which may be funded separately, could utilize the BFS baseline; however, it should not be incorporated as a requirement in the CESMP for section certification.

6.4 Criteria for Identifying Residual Findings

The Medium residual on Criterion 1, and the absence of High or Severe rows through defects liability, hold only if the six conditions in Table 6.3 below are met.

Table 6.3: *Conditions for the residual conclusion*

Condition	Action it protects	If it is dropped
No-go core demarcated before clearance in S3	A1	Chimpanzee residual returns toward High
No new ancillary site inside the CSZ or a pangolin polygon	A3	Both Criterion 1 rows return toward High
Hours 08:00–16:00 and no night work or blasting while a front is in S3 or S6	A2	Disturbance and collision rise
Class A walkover and right-of-way pegs before the cut in S4	A4	Flora-hotspot residual returns toward High
Code of Conduct, induction and weekly camp check (with monthly Supervising Engineer verification)	A5	Workforce-hunting residual returns toward High
Footprint restoration meets 70 percent cover and 60 percent survival before certification. Planting covers every Project-opened surface in the site register — borrow pits, spoil and laydown areas, and the camp and plant pads, with the area taken per site from that register; species are native framework species from the BFS botanical list (ESIA Appendix M), sourced from FDA-registered or community nurseries with provenance records; certification is by the Supervising Engineer on the Biodiversity Specialist's written verification, with FDA witness wherever Class A stems are involved.	A8	Section is not certified; C10 residual rises

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6.5 Lingering Uncertainty

The chimpanzee sighting data comes from a single verified occurrence, so a cautious approach is needed. The pangolin observations are based on a limited number of independent camera-trap events. Coverage during the rainy season was not comprehensive in certain areas, as noted in the BFS Chapter 11. These uncertainties are mitigated through a 50-meter sighting trigger, the A3 freeze mechanism, and routine weekly assessments in S3 and S6. However, this contract does not address these uncertainties by establishing a long-term monitoring program. The residual uncertainty is owned, not orphaned: the IIU carries the follow-up surveys (the bat and Jentink's Duiker follow-ups and the ichthyological survey of the nine creeks) through the Project's E&S and monitoring provisional sums during construction and the defects-liability period; thereafter the operation-phase monitoring passes with the road to the MPW as road authority, with the EPA and FDA exercising their statutory mandates. Two of the nine creek crossings are sacred creeks — the B'hai Jorzon sacred creek (SS-003), whose fish may not be eaten, and the Kougae Creek at Nicko Town (SS-004), whose water may not be taken into the town — and the Toe Town Sacred Stream (SS-006) is treated in the same way where the works affect it. At these creeks the ichthyological survey is designed with the custodians, so that it also answers the sacred-creek concern raised in consultation: their documented consent is obtained before any sampling; the methods are non-lethal (visual census and environmental DNA, with catch-and-release only where the custodians permit handling); no fish is removed from a creek whose fish may not be eaten and no water is drawn from a creek whose water may not be taken into the town; the findings are shared with the custodians; and the crossing design and the in-stream method at each sacred creek are agreed with the custodians before any in-stream work (ESIA Sections 6.3.2, 8.6 and 11.9.3). None of this transfers works-contract obligations to third parties.

6.6 Statement that closes this chapter

Subject to Table 6.3, the Project may proceed through construction and defects liability with Medium residual significance on Criterion 1 and with no feature remaining High or Severe.

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7. SUPERVISION AND MONITORING DURING THE WORKS

This chapter outlines the procedures for verifying compliance with Actions A1 to A10 throughout the duration of construction activities and the defects-liability period. The supervision of this BMP is integrated into the ESMP oversight framework and does not constitute an independent scientific assessment. It is important to note that no new camera-trap grid will be established under this chapter, nor will there be tracking of relative abundance or snare density trajectories. Monitoring will be conducted at locations where construction activities are occurring, as well as on the restored areas, until the relevant sections receive certification.

7.1 Monitoring Overview

The following four inquiries are essential for compliance assessment:

1. Is adherence being observed regarding the no-go core designation, the SZ hours regulation, and the ancillary-site freeze within segments S3 and S6?
2. Have all clearance packages within the flora hotspot and designated CH undergone thorough examination and verification prior to any cut operations?
3. Is the workforce compliant with the Code of Conduct, ensuring that all camps are devoid of hunting activities, bushmeat, and weapons?
4. Is the footprint established by the Project progressing in alignment with the Action A8 cover and survival guidelines, and are appropriate silt control measures implemented at Towah swamp and other active crossing points during in-stream operations?

It is important to note that any sightings of chimpanzees or pangolins within a 50-meter radius of an active front are classified as incidents rather than part of a systematic population monitoring effort.

7.2 Supervision Checks

Table 7.1 serves as the checklist under the management of the Supervising Engineer. Inspections are conducted on a weekly basis for fronts operating in segments S3 or S6, and also weekly during any in-stream weeks at Towah. Inspections at camps occur monthly, in addition to assessments scheduled at the onset of the rainy season following planting. A defects-liability inspection is mandated for Action A8. For all other segments, adherence to the corridor-wide CESMP will be enforced.

Table 7.1: *Supervision checks during the works (BFS, Table 7.1)*

Location	What is checked	When	Who
Chimpanzee Sensitivity Zone and no-go core (BFS Fig. 3.23)	Demarcation intact; no unauthorized entry; works 08:00–16:00; no night work or blasting; 20 km/h signage in place	Weekly while the front is in the zone; monthly at other times during the works	Contractor records; Supervising Engineer verifies
Pangolin polygons km 38–50 (BFS Fig. 3.14)	No new quarry, camp or laydown; pre-clearance walkover done; clearance inside approved ROW only	Weekly during vegetation clearance; monthly during other works in the segment	Contractor records; Supervising Engineer verifies
Crossing, culvert or canopy-bridge sites justified by BFS Chapter 3	Built as approved drawings; not blocked; drainage working	Monthly while the structure is under construction; at completion	Supervising Engineer
Towah swamp and live watercourse works (BFS Table 4.8)	Sediment contained; in-stream work in low flow where practicable	Each week of in-stream work	Contractor; Supervising Engineer
Flora hotspot km 18–28 (BFS Fig. 3.30)	Class A protocol followed; ROW pegs in place	Before and during clearance	Contractor with Supervising Engineer
Restored surfaces (Section 4.4; footprint only)	Cover and survival against the 70 percent and 60 percent rules	End of the first rainy season after planting; before section certification	Supervising Engineer

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Location	What is checked	When	Who
Camps and corridor	Code of Conduct records; weekly camp check (with monthly Supervising Engineer verification); grievance entries on wildlife; signage	Monthly	Contractor; Supervising Engineer; Employer as needed

7.2.1 Order of weekly work

When a front is in S3 or S6, those two segments are checked first that week. That order follows construction-threat density in BFS Table 8.3 (Table 3.3 and Figure 3.2). The Supervising Engineer does not need a second density map. Weekly priority follows Table 3.3 and Figure 3.2.

7.2.2 Monthly verification form

On a monthly basis, the Supervising Engineer shall complete Annex B and submit it alongside the environmental and social report to the Employer, ensuring compliance with established guidelines and standards.

7.3 Triggers and Response

A trigger refers to a specific event that necessitates immediate action within the same day. Refer to Table 7.2 for the detailed list of such triggers. Upon identification of the affected front, the Contractor shall cease operations accordingly. Subsequently, the Supervising Engineer will issue a formal written instruction. It is imperative that IIU is informed within the timeframe specified in the third column.

Table 7.2: *Stop-work and notify triggers (BFS Table 7.2).*

Trigger	Threshold	First action	Notify
No-go core or CH polygon	Any unauthorized entry or works	Stop work in the vicinity; reinstate demarcation; record the incident	Employer within 24 hours
Working hours/blasting	Night work or blasting in CSZ or CH	Written instruction; repeat event may suspend the front	Employer on repetition
Class A stem (Section 5.4)	Unauthorized felling	Halt the segment; apply the agreed protocol; replace at 5:1 if the stem is lost	Employer; FDA as required
Code of Conduct	Verified hunting, capture or bushmeat by project personnel	Disciplinary process; review induction	Employer; FDA where the law requires
Watercourse	Uncontrolled sediment beyond the approved footprint	Add silt control; correct drainage; photograph	Supervising Engineer
Approved crossing or canopy bridge	Damage or persistent blockage	Repair within the agreed time	Supervising Engineer and Employer
Restoration	Cover below 70 percent, or survival below 60 percent, at the first rainy-season check	5:1 replacement at the Contractor's cost; re-inspect after the next rainy season	Supervising Engineer before certification
Protected or priority species	Verified sighting within 50 m of an active front	Suspend the front until the Supervising Engineer clears restart	Supervising Engineer and Employer

7.3.1 Serious incidents

The following events constitute serious incidents: the injury or fatality of a chimpanzee; activities conducted within the designated no-go core; and unauthorized Class A tree felling. The Contractor, in conjunction with the Supervising Engineer, is required to inform IIU within a 24-hour timeframe. IIU must then relay this information to the World Bank and the EPA within 48 hours, in accordance with the established Project incident-reporting protocols. A detailed root-cause analysis will be included in the subsequent monthly report.

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7.4 Reporting

The reporting processes will leverage the established Project chain. There is no requirement for a separate public biodiversity portal or the submission of an annual Net Gain report under this section.

Table 7.3: *Reporting Requirements*

Product	Who prepares	When	What it contains
Monthly environmental and social report — biodiversity pages	Contractor; Supervising Engineer verifies	Monthly while works, or defects liability run	Table 7.1 results; Table 7.2 events and close-out; camp inspection; A8 progress
Quarterly report to the EPA and the IIU	Employer	Each Project quarterly cycle	Summary of Table 7.1; open Table 7.2 items; serious incidents
Serious-incident notice	Contractor / Supervising Engineer to Employer, then World Bank and Agency	24 hours to Employer; 48 hours onward	Species or breach; chainage; immediate action
Section certification file	Supervising Engineer	When a section is offered for taking-over	Action A8 evidence; any open trigger in that section closed

7.5 Data that must be kept

The Contractor and the Supervising Engineer shall maintain comprehensive documentation throughout the duration of the works contract and the defects-liability period. This documentation includes signed Annex A forms, weekly check sheets for S3 and S6, monthly Annex B forms, walkover files, an ancillary-site overlay referencing Figure 3.1, a sighting and incident log, and photographs and counts from Action A8 inspections. The coordinates for the no-go core and pangolin polygon areas shall remain as recorded in the BFS. Sensitive locations pertaining to nests or dens shall not be disclosed at a resolution finer than one kilometer.

The BFS SMART/PostGIS geodatabase shall serve as an integral record under the IIU framework from the survey, and it is important to note that this chapter does not impose an operational obligation on the Contractor regarding this database.

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8. GOVERNANCE, IMPLEMENTATION AND CAPACITY

This chapter defines who governs, implements, verifies and supports the BMP. It assigns the actions in Tables 7.1 to 7.3 and in Chapter 5 to named parties.

8.1 Institutional Roles

Table 8.1 sets out the BMP roles.

Table 8.1: *Roles during design, construction and defects liability.*

Party	Does	Does not
Employer (IIU, MPW)	Holds this BMP as an annex to the 85 km ESIA. Puts Table 3.1 of this plan in the works specification. Refuses an ancillary site that fails Action A3. Withholds taking-over until Action A8 is met. Reports through Table 7.3.	Does not convene a Biodiversity Task Force or appoint an independent biodiversity committee as a condition of this plan.
Contractor, including subcontractors	Delivers Actions A1 to A10. Signs and polices the Code of Conduct. Issues Action A10 notices before S3 and S6. Reports monthly against Table 7.1.	Does not recruit community rangers or sign conservation agreements under this contract.
Supervising Engineer	Verifies Table 7.1. Issues Table 7.2 instructions the same day. Completes Annex B monthly. Does not certify a section that fails Action A8.	Does not run a camera-trap grid or a Year-2 residency study.
FDA and EPA	Receive Class A and wildlife-law referrals during the works. Receive quarterly and serious-incident notices as national procedure and the environmental permit require.	Are not assigned a long-term field program under this works contract.
Corridor communities	Receive Action A10 notice. Use the Project grievance mechanism for wildlife, sacred sites, camp conduct and tree loss.	Are not implementing agencies and are not paid as rangers under this plan.

8.2 Sequence that binds mobilization

Construction operations are prohibited from commencing in segments S3 and S6 until the following conditions are met:

Table 8.2: *Gates before S3 or S6*

Gate	Ready before the front enters S3 or S6	Who accepts
G1	CESMP contains Tables 7.1, 7.2 and 3.1 (Actions A1–A10)	Employer and Supervising Engineer
G2	No-go core demarcation materials on site; method statement for Action A1	Supervising Engineer
G3	Ancillary-site overlay (Table 3.2) shows no new site inside the Sensitivity Zone or a pangolin polygon	Employer; non-compliant site refused
G4	Annex A signed for the crews that will enter the node; Action A9 signs ready	Supervising Engineer
G5	Action A10 notice issued to the affected communities, with grievance contacts	Employer confirms
G6	Drawings for Action A6 or A7 exist only where the revised BFS documents a hotspot or where Towah swamp requires a span or large box	Employer and Supervising Engineer at design review

8.3 Capacity that this plan requires

Capacity under this chapter shall be limited to the explicit requirements of the works undertaken. The Contractor is responsible for appointing an Environmental Officer (or equivalent) who will maintain the Annex A documentation, oversee the sighting log, and manage the monthly biodiversity reporting pages. Crews assigned to work in segments S3 or S6 are required to complete the induction outlined in Section 5.7 prior to accessing the node. The Supervising Engineer's site personnel will be briefed on the contents

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of Tables 7.1 and 7.2 and shall carry Annex C as part of their operational responsibilities. IIU will retain the BFS coordinates along with the composite sensitivity map (refer to Figure 2.1) to serve as the spatial reference framework for the project.

It should be noted that SMART ranger training, community-monitor stipends, and external scientific retainers are not prerequisites under this plan. Should IIU decide to finance these initiatives at a later date, they shall be treated as distinct and separate activities.

8.4 Meetings

Biodiversity is incorporated as an agenda item within the existing environmental site meetings rather than being managed as a distinct task force. The Supervising Engineer addresses any outstanding events from Table 7.2 during these meetings. IIU is responsible for including a comprehensive quarterly summary of biodiversity in the standard Project report. It is important to note that minutes from a standalone Biodiversity Task Force are not considered a deliverable.

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9. COSTING OF THE WORKS CONTROLS

This chapter states how Actions A1 to A10 are financed and administered through the works contract. It is written for IIU, the Contractor and the Supervising Engineer.

The Project is the rehabilitation of an existing laterite road. Biodiversity expenditure under this annex is therefore limited to the increment the works create: keeping plant and ancillary sites out of mapped nodes, controlling hours and conduct while a front occupies those nodes, building only those structures the survey documented, and restoring the surfaces the Project opens.

9.1 Governing rule

The project's funding allocation is organized into three distinct channels.

First, any physical structures that the BFS supports, such as a span or large box at Towah Swamp, and any crossings, oversized culverts, or canopy connections at hotspots identified in Chapter 3 of the BFS, are designed and estimated by the Contractor’s design engineer. These estimates are incorporated into the design and works budgets through standard contract mechanisms, including accepted drawings, billed items, and variations only when the specification requires it.

Second, the Contractor is responsible for tasks such as demarcation, signage, pre-clearance walkovers, induction, adherence to the Code of Conduct, camp inspections, and footprint restoration, all of which fall under the Contractor's obligations as outlined in the CESMP. These tasks do not constitute a separate biodiversity allocation.

Third, the checks listed in Table 7.1 involve the Supervising Engineer's time for oversight as part of ESMP supervision. Any corrective work described in Table 7.2 will be funded from the works contract contingency.

Unit rates are produced by the design engineer and reviewed by the Supervising Engineer and the IIU at bidding or variation in the normal way. Table 9.1 states, for each action, what is procured or performed, the quantity (or its measurement basis where the quantity is fixed at detailed design), the payment channel and the Bill of Quantities item or ESMP budget line that carries the cost — with the works-contract priced activity under which it is paid — and an indicative amount at 2026 prices for pricing the Bill of Quantities. The indicative Contractor-borne cost of Actions A1 to A10 is about US$224,000, plus a provisional sum of US$80,000 for the evidence-led structures of Action A6; the Action A7 structure at Towah swamp is a permanent-works item priced in the drainage and structures bill from the design engineer’s estimate. These amounts are carried in the standalone ESMP budget (ESMP Section 8: Table 8.1, line 7, and Table 8.3, biodiversity lines) and are reconciled against the accepted design schedules under the ESMP update protocol (ESMP Section 1.5). No separate multi-year biodiversity program — no ranger, monitoring-and-evaluation, independent-verification, landscape-restoration or multiple-crossing line — is part of this plan or is carried in the ESMP. An indicative ceiling discussed in earlier drafts is not presented in this BMP and is not a contractual cap on Action A6 or A7 where those actions are justified by evidence and accepted drawings.

The works contract (ICCO/CET Joint Venture; Contract Agreement of 5 May 2026) is priced as lump-sum activities and sub-activities in its Schedule of Priced Activities, not as a measured Bill of Quantities: Activity 1, design services (US$1,200,000); Activity 2, mobilization and site establishment (US$9,428,279.63); Activity 3, construction of the 75 km road (US$46,431,114.33 — site works, bituminous construction, concrete works and incidental works); Activity 4, environmental and social management (US$520,000 — environmental and social impact assessment 45,000; stakeholder engagement 20,000; environmental and social monitoring and mitigation 430,000; grievance redress mechanism 25,000); and Activity 5, health and safety management (US$540,000); with a provisional sum of US$100,000 for specific environmental and social outcomes and a contingency allowance of US$4,000,000, both expended only at the direction of the Engineer. Table 9.1 therefore names, beside each ESMP budget line, the contract activity under which the action is paid. Measured quantities for the cross-drainage, culvert, retaining-wall and slope works — within which the A6 and A7 structures and the A8 restoration quantities sit — are produced with the design-schedule packages at detailed design (ESIA Section 3.14 and Table 3.9) and the itemized Bill of Quantities follows them; the mapping in Table 9.1 is confirmed in the C-ESMP costing and reconciled under ESMP Section 1.5.

9.2 Payment channel, quantities and Bill of Quantities items by action

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Table 9.1: *Payment channel, quantity basis and Bill of Quantities item or ESMP budget line, by action*

Action	What is procured or performed	Quantity and basis	Payment channel; BoQ item / ESMP budget line; works-contract priced activity	Indicative amount (US$, 2026 prices)
A1	Durable marking of the 0.78 km² no-go core before vegetation clearance in segment S3	Boundary of the 0.78 km² no-go core (500 m radius; perimeter about 3.1 km): durable posts at about 50 m spacing (about 65 posts), boundary signs and survey set-out, in place before any S3 clearance and kept up while a front is in S3	CESMP preliminary-and-general items (ESMP Section 3.9; ESMP Table 8.3, line “BMP Actions A1 to A10”). Works contract: Activity 4, Environmental and Social Management (environmental and social monitoring and mitigation) or Activity 2, Mobilization and Site Establishment, as the C-ESMP costing allocates	11,000
A2	Hours 08:00–16:00; no night work or blasting in S3 and S6; lighting aimed at the face	All fronts in S3 (km 18–20) and S6 (km 38–50); method compliance — no measured quantity	No separate item: priced within works rates through the method statement; supervised under ESMP Section 4. Works contract: within Activity 3, Construction of the 75 km road	—
A3	Design overlay of every pit, quarry, crusher, camp and laydown on Figure 3.1; refusal of a non-compliant site	Overlay of every ancillary site in the register (ESIA Tables 3.4 to 3.6) and in Table 3.2 on Figure 3.1, at each design review	Detailed-design task within the design fee; no works item unless a site is opened. Works contract: Activity 1, Design Services (detailed design)	—
A4	Walkover; pegged right-of-way; FDA Class A protocol; five-for-one replacement if a marked stem is lost	Pre-clearance walkover and pegging of the works right-of-way (about 85 km) and every ancillary site — about 50 team-days, with FDA attendance for Class A marking (Table 5.1); 5:1 replacement where a stem is lost	BoQ clearance series (clearance package; ESMP Table 8.3, line “BMP Actions A1 to A10”); replacement planting in the restoration item (A8). Works contract: Activity 3 (site works), with FDA attendance under Activity 4	28,000
A5	Induction; signed Annex A; weekly camp check (with monthly Supervising Engineer verification); protein that is not wild-caught	Induction and signed Annex A for every deployed person including subcontractors (workforce about 780), with toolbox reminders; weekly unannounced check of every occupied camp, with monthly Supervising Engineer verification	Contractor overhead and camp running cost (ESMP Sections 3.8 and 3.9; ESMP Table 8.3). Works contract: Activity 2, Mobilization and Site Establishment, and Activity 4 (environmental and social monitoring and mitigation)	26,000
A6	Crossing, oversized culvert, span or canopy connection only at a hotspot documented in BFS Chapter 3	Structures only where BFS Chapter 3 documents a movement hotspot and the design review accepts the drawings (gate G6). Candidate types and locations are those of BFS Section 5 and Figure 5.2: up to two canopy connections in the CSZ (km 18 and km 20) and dry-bench or oversized culverts at documented crossing points; the count is fixed at detailed design	Provisional sum in the drainage and structures bill, drawn only against accepted drawings (design-engineer estimate; ESMP Table 8.3, line “A6 evidence-led wildlife structures”). Works contract: the provisional sum for specific environmental and social outcomes (US$100,000) and, beyond it, the contingency allowance, expended only at the direction of the Engineer (gate G6)	80,000 (provisional sum)
A7	Span or large box at Towah swamp; silt controls at live crossings	One span or large box culvert at the Towah swamp (km 12–14); silt control at every live crossing in each in-stream week	Structure: permanent-works item in the drainage and structures bill (design-engineer estimate). Silt control: erosion and sediment control allowance (ESMP Section 3.4; ESMP Table 8.3, line 3.4). Works contract: Activity 3 (concrete works; site works)	Structure priced in the works bill; silt control within the ESMP Section 3.4 allowance
A8	Re-grading and native planting on surfaces the Project opens; five-for-one if survival is below 60 percent	Every Project-opened surface in the site register, to the Section 4.4 specification; surveyed area per site entered in the register (planning quantity about 30 ha: sixteen borrow pits, two quarries, the plant complex, the camp and mechanical site, laydowns and about 18 km of detours); 5:1	Measured works item (site-restoration series; ESMP Sections 3.9 and 3.17; ESMP Table 8.3, line “BMP Actions A1 to A10”); taking-over withheld until certified. Works contract: Activity 3 (site works; incidental works)	150,000

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Action	What is procured or performed	Quantity and basis	Payment channel; BoQ item / ESMP budget line; works-contract priced activity	Indicative amount (US$, 2026 prices)
		replacement where survival is below 60 percent		
A9	Node warning signs and 20 km/h plates at S3, S6 and other documented hotspots. During operation the signs are maintained by the MPW as road authority, and the node speed limits are enforced by the Liberia National Police traffic division with the county authorities under the Project's road-safety arrangements, with compliance checked in the operation-phase monitoring.	Node warning signs and 20 km/h plates at the approaches to S3, to each pangolin polygon in S6 and to other documented hotspots (about 12 signs); sign schedule fixed at detailed design	Signage item in the works BoQ or CESMP (ESMP Table 8.3); the signs pass to the MPW at taking-over. Works contract: Activity 3 (incidental works — road furniture)	6,000
A10	Notice before a front enters S3 or S6; grievance contacts on the notice	One notice per front entry into S3 or S6 (each occurrence), with grievance contacts on every notice	SEP implementation and Contractor notice costs (ESMP Section 3.15; ESMP Table 8.3, line 3.15); Community Liaison Officer time in Contractor overhead. Works contract: Activity 4 (stakeholder engagement; grievance redress mechanism)	3,000
Table 7.1	Weekly verification in S3 and S6; monthly camp file; Action A8 inspection	Weekly verification per front in S3/S6 and in-stream weeks; monthly camp file; Action A8 inspections	Supervision contract — Supervising Engineer time (ESMP Sections 4 and 8); not a works-contract item	Within the supervision contract
Table 7.2	Stop-work, re-marking, five-for-one, disciplinary case	Each event as it arises (Table 7.2 triggers); no planning quantity	Works-contract contingency: the provisional sum for contingency allowance of the contract's Grand Summary (US$4,000,000), expended only at the direction of the Engineer under Sub-Clauses 13.4 and 13.5 of the General Conditions	As arising
Total	Indicative Contractor-borne cost of Actions A1 to A10, excluding the A6 provisional sum and the A7 structure	Sum of the A1, A4, A5, A8, A9 and A10 amounts (11,000 + 28,000 + 26,000 + 150,000 + 6,000 + 3,000)	ESMP Table 8.3 (biodiversity lines: 224,000 plus the 80,000 A6 provisional sum) and ESMP Table 8.1, line 7. Works contract: the contract's own priced environmental and social lines are Activity 4 (US$520,000) and the provisional sum for specific environmental and social outcomes (US$100,000); the balance of the Contractor-borne allowances is embedded in the lump-sum works and design activities and is itemized at design finalization	224,000 (plus the 80,000 provisional sum for A6)

Basis of the indicative amounts (2026 prices). A1: 65 posts at US$60, boundary signs and tape US$2,100, survey set-out and upkeep US$5,000. A4: 50 team-days at US$450 plus FDA attendance US$5,500. A5: 780 inductions at US$20 plus toolbox materials US$10,400. A8: 30 hectares at US$5,000 per hectare (topsoil re-spreading, native planting at about 1,100 stems per hectare and two maintenance weedings). A9: 12 signs at US$350 plus installation US$1,800. A10: six notices at US$500. The amounts are RE-GROUP estimates for pricing the Bill of Quantities; the priced Bill of Quantities governs, and the amounts are reconciled with it under ESMP Section 1.5.

9.3 Structures: design-engineer estimates

Action A6 is evidence-led. A structure is drawn only where BFS Chapter 3 documents a movement hotspot. Action A7 is required on habitat grounds at Towah swamp (approximately kilometer 12–14). In both cases, the Contractor's design engineer prepares drawings and an estimate. The Supervising Engineer and the IIU review those submissions through the ordinary design-review gate (Table 8.2, gate G6). Accepted drawings become measured works. A location that the survey did not document does not receive a biodiversity structure by default; it receives a hydraulically adequate culvert if drainage requires one.

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Estimates for A6 and A7 are compared with sound engineering practice on similar rural roads in Liberia. Variation is used only if site conditions discovered during excavation differ from the accepted drawing. A location that the BFS did not document does not receive a biodiversity structure by default.

9.4 Restoration: Action A8 as a takeover assessment

Action A8 is classified as a testing procedure rather than a landscape capital program. It mandates that by the conclusion of the initial rainy season following planting, a cover of no less than 70 percent must be achieved, alongside a minimum survival rate of 60 percent for the planted stems. The Supervising Engineer will only certify the section upon meeting these criteria. Non-compliance will necessitate a five-for-one replacement at the Contractor's expense, and certification will be withheld. The associated costs are incorporated within the works item and, if required, can be drawn from contingency resources, but are not allocated to a separate biodiversity budget.

9.5 Supervision time

Weekly checks in segments S3 and S6, weekly camp check (with monthly Supervising Engineer verification), and the Action A8 rainy-season and defects-liability inspections are part of the Supervising Engineer’s existing environmental and social mandate. They are not a separate biodiversity consultancy. If the supervision contract must name the hours, they are named as ESMP site time, not as a camera-trap or relative-abundance survey.

9.6 Relationship to Table 6.3

The six conditions that hold the residual-significance finding are in Table 6.3. They are construction controls. They are not a funding covenant. Failure of Action A8 is handled by withholding certification. Failure of Action A3 is handled by refusing the site. Failure of the Code of Conduct is handled as a disciplinary matter and, where the law requires, as a referral to the FDA.

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10. REPORTING AND REVIEW

This chapter states how performance against the plan is reported to IIU, the EPA and the World Bank, and when the plan itself is revised.

10.1 Reporting Principle

Biodiversity reporting uses the chain already committed in the ESCP and in BFS Table 7.3. The Contractor writes the monthly biodiversity pages. The Supervising Engineer verifies them. IIU includes a short biodiversity section in the ordinary quarterly report. Serious incidents follow the Project's 24-hour and 48-hour rule. No parallel public dashboard is opened under this chapter.

10.2 Reporting Products

Table 10.1: *Reporting products during the works and defects liability*

Product	When	From	To
Biodiversity page of the monthly CESMP report, including Table 7.1 checks and any Table 7.2 event	Monthly	Contractor	Supervising Engineer
Consolidated environmental and social progress note	Quarterly	Supervising Engineer	Employer (IIU)
Quarterly project report, including node status	Quarterly	Employer	World Bank and EPA, against permit and commitment-plan items
Serious incident (chimpanzee injury or death, no-go breach, unauthorized Class A felling)	Within 24 hours to IIU; within 48 hours from IIU to the World Bank and the EPA where the ESCP or the permit requires it	Contractor / Supervising Engineer	Employer, then World Bank and EPA as required

10.3 Serious incidents

Three events are always serious incidents under this plan: injury or death of a chimpanzee; work inside the 0.78 square kilometer no-go core; and unauthorized felling of a FDA Class A stem. A verified pangolin mortality caused by a Project vehicle or by Project personnel is treated in the same way. The Contractor and the Supervising Engineer notify IIU within 24 hours. IIU notifies the World Bank and the EPA within 48 hours where the ESCP or the permit requires it. The monthly report that follows carries the root-cause note. Repeat Table 7.2 events on the same front are a revision trigger under Section 10.4.

10.4 Review of this BMP

The plan is a version-controlled annex to the 85 km ESIA. It is revised when one of three things occurs. First, a further Criterion 1 record is verified on the alignment. Second, detailed design moves a quarry, borrow pit, crusher, camp or laydown toward the CSZ or a pangolin polygon. Third, Table 7.2 triggers are repeated on the same front. The IIU decides the revision, notifies the World Bank and the EPA, and reissues the affected sections. No revision may weaken Table 6.3 without that notification.

A chimpanzee residency study, a mid-term evaluation, and a long-term final evaluation are not milestones of this BMP. If the IIU later commissions those studies under a separate activity, their findings may inform a future instrument. They do not reopen taking-over of a section already certified against Action A8.

10.5 Disclosure

This BMP is disclosed with the 85 km ESIA, in the same manner as other environmental and social instruments of the Project. Monthly Contractor reports remain internal supervision files unless the ESCP already requires a wider release. Quarterly reports follow the Project's existing disclosure practice. Coordinates of nests, dens, or exact detection points are not published at a resolution finer than one kilometer.

10.6 Records to be retained

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Through defects liability**,** the **IIU**, the Contractor**,** and the Supervising Engineer retain: signed Annex A forms; weekly S3 and S6 check sheets; monthly Annex B forms; walkover files; the ancillary-site overlay against Figure 3.1; the sighting and incident log; Action A8 inspection photographs and stem counts; and accepted A6 and A7 drawings. The **BFS** geodatabase remains an **IIU** record from the survey. The Contractor is not required to operate that database.

10.7 Closing Statement

The Project may proceed through construction and defects liability with Medium residual significance on Criterion 1, and with no feature remaining of High or Severe significance, if Table 6.3 holds. Plant, camps and pits stay out of the no-go core and the pangolin polygons. Segments S3 and S6 are checked while a front is present. Surfaces the Project opens are restored. Reporting follows the ordinary Project chain.

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ANNEXES

The annexes are the plan's working tools for the Contractor, the Supervising Engineer and the IIU during detailed design, construction and defects liability: the worker Code of Conduct acknowledgment and induction record (Annex A), the Supervising Engineer's monthly verification checklist (Annex B), the field trigger card (Annex C) and the reference list (Annex D). They operationalize, and do not amend, Chapters 3 to 10.

Annex A: Worker Biodiversity Code of Conduct — Acknowledgment and Induction Record

This form operationalizes Sections 5.1 and 5.7. One record is executed per worker before deployment — including all subcontracted and supply-chain personnel — and is retained by the Contractor's HR function for audit at the monthly camp and records inspections (Annex B, item 5). A worker may not be deployed until both parts are complete.

Table A.1: Core prohibitions — personal acknowledgement (to be signed by all personnel)

#	I acknowledge and undertake that:	Initials
1	I will not hunt, trap or capture any wild animal, and I will not purchase, possess, consume, sell or transport bushmeat, while employed on this Project.	
2	I will not keep wild animals as pets and I will not trade in wildlife, wildlife parts — including chimpanzee parts and pangolin scales — or plants.	
3	I will not fish or collect plants in project areas, and I will not bring weapons, snares or hunting equipment into any camp, vehicle or work site.	
4	I will not enter any area marked as a no-go zone, Critical Habitat or sacred site unless expressly authorized in writing.	
5	I will immediately report any wildlife sighting inside or adjacent to active work areas to my supervisor, and I know how to use the biodiversity hotline and the grievance redress mechanism.	
6	I understand that breach of these rules is a dismissible offence and, where applicable, will be referred to the FDA under the National Wildlife Conservation and Protected Area Management Law (2016).	

Table A.2: Biodiversity induction record — minimum module content (Section 5.7)

Item	Content delivered at induction	Completed (✓)
A	Critical Habitat, the Chimpanzee Sensitivity Zone and the corridor sensitivity map for the worker's section	
B	Working-hour restrictions, no-go rules and zone discipline applicable to the worker's section	
C	Prohibition of hunting and bushmeat; disciplinary consequences and FDA referral	
D	How to report wildlife sightings; use of the biodiversity hotline and the GRM	
E	Chimpanzee module, WCF materials (mandatory for all crews working at km 18–20)	

Worker name and ID: _____ · Crew / section: _____ · Inductor (name, role): _____ · Date: _____ · Worker signature or electronic record: _____

Annex B: Supervising Engineer Monthly Biodiversity Compliance Verification Checklist

The Supervising Engineer completes this monthly and files it with the monthly report to the IIU (Section 7.2.2); the completed checklists form part of the audit record held by the Employer and kept available for World Bank supervision missions (Section 10.1).

Table B.1: Monthly biodiversity verification checklist

#	Check item	Yes / No / NA	Date checked	Initials
1	No-go core and CSZ demarcation intact and respected; entry log reviewed (100% of entries)			
2	Working-hour restrictions observed — 08:00–16:00 while a front is in the CSZ or a pangolin polygon (Action A2); no night work or blasting recorded			

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#	Check item	Yes / No / NA	Date checked	Initials
3	Crossings, oversized culverts or canopy connections (Action A6) and the Towah structure (Action A7) under construction or complete in accordance with the accepted drawings			
4	Progressive restoration underway; no area left exposed beyond one rainy season; cover and survival thresholds on track (Section 4.4)			
5	Code of Conduct acknowledgments and induction records current (Annex A); weekly camp check (with monthly Supervising Engineer verification) completed; no uninvestigated breach			
6	Monthly joint site walk-through completed and minutes issued			
7	Table 7.2 triggers: any event this month; first actions and close-out documented and verified (Annex C)			
8	Non-conformance and penalty register updated; certification withheld where non-compliance persists			

Annex C: Field Trigger and Response Quick Reference

A one-page consolidation of the stop-work and notify triggers (Table 7.2) and the compliance-breach responses (Section 7.3) for site staff; the full Table 7.2 and the escalation in Section 7.3 prevail in any difference.

Table C.1: Compliance breaches and Table 7.2 triggers — immediate field response (Section 7.3)

Breach	Immediate response	Notify
Unauthorized entry or works in the no-go core or a CH polygon	Stop work in the vicinity; reinstate demarcation; record incident	IIU within 24 hours
Night work or blasting in a restricted zone	Written corrective instruction; temporary suspension on repetition	IIU on repetition
Verified protected or priority species within 50 m of an active front (Criterion 1 individuals)	Suspend the front; resume only on the written clearance of the Supervising Engineer (Section 5.4; Table 7.2)	Supervising Engineer and IIU
Uncontrolled sediment discharge at a crossing	Additional silt control; drainage correction; photographic record	Supervising Engineer
Structural damage to or blockage of an accepted Action A6 or Action A7 structure	Repair within agreed timeframe; interim traffic or access management	Supervising Engineer and IIU
Worker hunting, bushmeat or wildlife-trade incident	Disciplinary process up to dismissal; FDA referral; induction review	IIU; FDA where applicable
Unauthorized felling of an FDA Class A stem	Halt the segment; apply the agreed protocol; replace at 5:1 if the stem is lost	IIU; FDA as required
Restoration cover below 70 percent, or survival below 60 percent, at the first rainy-season check	5:1 replacement at the Contractor's cost; re-inspection after the next rainy season	Supervising Engineer before section certification

Annex D: Reference Documents

The instruments and sources on which this BMP relies are: the Biodiversity Field Survey of the 85 km corridor (SCNL with WCF, Fauna & Flora and Solimar International; Final Report, 30 September 2026, with its Annexes 1–9, Map Atlas and GIS geodatabase); the draft BMP for the corridor (21 August 2026), integrated at this Rev 2; the Updated ESIA (RE-GROUP, October 2026, Final for Submission, Rev 2), Volumes I and II, with the standalone ESMP and the CESMP framework; the 2024 ESIA (Earthtime); the RAP (2025); the project-level ESCP, ESMF, SEP and LMP (P175263); the World Bank Environmental and Social Framework, ESS6, applying IFC Performance Standard 6 and Guidance Note 6 (2019) as methodology; the Environment Protection and Management Law of Liberia (2002/2003) and the EPA ESIA Procedural Guidelines (2022); the National Wildlife Conservation and Protected Area Management Law (2016), the National Forestry Reform Law (2006) and FDA Regulation No. 113-08; Liberia's National Biodiversity Strategy and Action Plan (NBSAP); and the ICCO/CET design proposal (2025).

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