# Archaeological Impact Assessment
**with comment on Palaeontology by Dr John Almond**

## Proposed Enlargement and Remedial Work on Platrug Dam, Portion 40 of Farm 208, George, Eden, Western Province

prepared for

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by


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***Executive Summary***

*As stipulated in a RoD issued for the above-named project, Heritage Western Cape requested an Archaeological Impact Assessment of the affected property. Apart from the densely vegetated western and northern slopes of the Gwaing ravine, the entire study area was accessible on foot. A large part of the property is used for grazing and is densely vegetated by grass, rendering archaeological visibility next to zero. Adequate ground surfaces and disturbances on the remainder of the property – particularly around the location of the dam – were open to archaeological inspection and assessment.*

*The topography of the study area includes undulating and gently sloping hills with steeper slopes descending to the Gwaing River to the east and south. No rocky outcrops occur on the hills while several large granite boulders were seen on the slopes of the ravine and in the riverbed below. Scatters of naturally occurring water worn cobbles were observed in a few localities and these are likely of Enon or similar origin. Apart from the granite boulders, stone includes sandstone of the Table Mountain Group, quartz and - to a lesser extent – quartzite.*

*Formerly cultivated and/or grazed fields are vegetated with grasses and no indigenous bush or trees remain. Although the valley slopes contain some indigenous bush and trees, the vegetation is dominated by exotic trees such as wattle and pine. No areas with pristine indigenous vegetation were noted.*

*Major disturbances by recent human activities include bulk excavations for the Platrug Dam and cultivation and/or grazing. A few smaller earthmoving scars also occur with two of them yielding Stone Age materials.*

*Two archaeological occurrences of Middle Stone Age origin were recorded in the SE extent of the property while none were identified in the area surrounding excavations for the dam. No archaeological or tangible heritage related resources of the historic period were identified.*

*Because no archaeological materials were recorded in the area of the proposed Platrug Dam, and because no subsurface archaeological resources were seen in exposed profiles of ongoing excavations, there are no objections to the approval of the proposed activity.*

*A comment on Palaeontology by Dr John Almond is given at the end of this document.*

*Required mitigation measures;*

- *In the event that vegetation clearing and earthmoving activities expose archaeological materials, such activities must stop and Heritage Western Cape must be notified immediately.*
- *If archaeological materials are exposed during vegetation clearing and/or earth moving activities, then they must be dealt with in accordance with the*

*National Heritage Resources Act (No. 25 of 1999) and at the expense of the developer.*

- *In the event of exposing human remains during construction, the matter will fall into the domain of Heritage Western Cape (Mr. Nick Wiltshire) or the South African Heritage Resources Agency (Ms Mary Leslie) and will require a professional archaeologist to undertake mitigation if needed.*

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# 1. Introduction

## 1.1 Background

Concerning the proposed enlargement and remedial work on the Platrug Dam, Portion 40 of Farm 208, George, Heritage Western Cape (HWC) issued a RoD requesting that an Archaeological Impact Assessment (AIA) be conducted for the affected property (HWC unique RoD ID 920, unique Case ID 1057). On behalf of the client, Ms Cathy Avierinos of HilLand Associates Environmental Management Consultants appointed CHARM to conduct an AIA of the affected property (Figures 1 & 2).

The project includes remedial work to the Platrug Dam to store 44 000m³ of water with a 4.8m high wall and 1.3ha of full supply area. The proposed activity involves large scale excavations and earthmoving activities that could have a permanent negative impact on archaeological and heritage related resources. The location of the Platrug Dam is shown in Figures 1 through 3 and is based on information provided by Ms Avierinos, and further details and specifications are available from HilLand (see contact details on title page). Coordinate data for the major boundary points of the affected property are given in Table 1 (also see Figure 4).

## 1.2. Purpose and Scope of the Study

Objectives of the Archaeological Impact Assessment are:

- To assess the study area for traces of archaeological and tangible heritage related resources to determine the archaeological sensitivity of the proposed site;
- To identify options for archaeological mitigation; and
- To make recommendations for archaeological mitigation where necessary.

Terms of Reference (ToR):
a) Locate boundaries and extent of the study area.
b) Conduct a survey of the study area to identify and record archaeological and heritage related resources.
c) Assess the impact of the proposed development on above-named resources.
d) Recommend mitigation measures and additional assessment where necessary.
e) Prepare and submit a report to the client that meets standards required by Heritage Western Cape in terms of the National Heritage Resources Act, No. 25 of 1999

## 1.3 Study Area

Portion 40 of Farm 208 is approximately 24ha in extent and is situated south of the N2, SE of the George Airport and George lies to the NE (Figure 1). The R102 leading to Herold's Bay lies to the west of the property (Figures 1 & 2). The Gwaing River and a tributary thereof are situated immediately east and south of the property respectively (Figure 2). Travelling from Mossel Bay along the N2, the property was accessed by vehicle by taking the George Airport/Herold's Bay exit, by turning right onto the R102 at the end of the off ramp and then by turning left onto a gravel road which leads to the study area (see directional arrows in Figure 2).

The topography of the study area includes undulating and gently sloping hills with steeper slopes descending to the Gwaing River in the east and to a tributary of the same river to the south (Plates 1 through 3). No rocky outcrops occur on the hills although several

large granite boulders were seen on the slopes of the ravine and along the riverbed below. Scatters of naturally occurring water worn cobbles were observed at a few localities and these are likely of Enon or similar origin (Plate 4). Apart from the granite boulders, stone includes sandstone of the Table Mountain Group, quartz and - to a lesser extent – quartzite.

Formerly cultivated and/or grazed fields are vegetated with grasses and no indigenous bush or trees remain in this area (Plates 1 through 3). Although the valley slopes contain some indigenous bush and trees, the vegetation is dominated by exotic trees such as wattle and pine. No areas with pristine indigenous vegetation were noted.

Major disturbances by recent human activities include ongoing bulk excavations for the Platrug Dam and farming activities (Plates 1 through 3). A few smaller earthmoving scars also occur with two of them yielding Stone Age materials.

Examples of the affected environment – vegetation cover, topography, disturbances and so on - are shown in Figures 2 through 6 and Plates 1 through 6.

**Table 1. Coordinate data for the major boundary points of Portion 40 of Farm 208 (also see Figures 4, 5 & 6))**

| Name | Description | Datum: WGS 84 Lat/Lon dec.degrees | Datum: WGS 84 Grid: SA National |
|---|---|---|---|
| A | property boundary point | S34.01165 E22.39544 | 23 Y0055845 X3765119 |
| B | property boundary point | S34.01181 E22.39836 | 23 Y0055576 X3765134 |
| C | property boundary point | S34.01514 E22.39859 | 23 Y0055551 X3765503 |
| D | property boundary point | S34.01709 E22.39758 | 23 Y0055643 X3765721 |
| E | property boundary point | S34.01820 E22.39806 | 23 Y0055599 X3765844 |
| F | property boundary point | S34.01807 E22.39434 | 23 Y0055942 X3765831 |

### 1.4 Approach to the Study

Little earlier archaeological work was done in the immediate vicinity of the study area. In general, the area has undergone considerable disturbance by recent human activities, but Stone Age artefacts do occur on the surface and in soft subsurface sediments (e.g., Nilssen 2007, 2009, 2010). Most commonly, Stone Age implements originate in the Early and Middle Stone Age periods, dating from about 2 million to 30 thousand years ago. Heritage resources of the historic period also occur in the surrounding environment.

On behalf of the client, Ms Cathy Avierinos of HilLand Associates Environmental Management Consultants provided background information and a locality plan for the proposed activity (Figure 3). Coordinates for the major property boundary points are given in Table 1 (also see Figures 4, 5 & 6).

Fieldwork was done independently and the survey was conducted on foot. Apart from the densely vegetated western and northern slopes of the Gwaing ravine, the entire study area was accessible on foot. A large part of the affected property is used for grazing and is densely vegetated by grass, rendering archaeological visibility next to zero. Adequate ground surfaces and disturbances on the remainder of the property – particularly around the location of the dam – were open to archaeological inspection and assessment (Figures 5 & 6 and Plates 1 through 6).

Survey tracks were fixed with a hand held Garmin Camo GPS to record the search area (Figures 4, 5 & 6) and a gpx tracking file was submitted to HWC and is available from the author. The positions of archaeological occurrences and photo localities were fixed by GPS (Figures 5 & 6, Plates 1 through 6 and Table 2). Digital audio notes and a comprehensive, high quality digital photographic record were also made (full data set available from author). In this report, localities of archaeological occurrences and photographs are established by matching the numbers on photographs with those of waypoints in Figures 5 & 6 (details in Table 2). Directions of views are indicated with compass bearing names like E is east; WSW is west south west, and so on. Bearing names on panoramic views indicate the bearing at the position of the label on the photograph (Plates 1 through 3).

## 2. Results

On 21 June 2010 - in about 3.5 hours of survey - a distance of 7.5km was walked, covering an area of about 5ha of which an average of about 20% provided archaeological visibility (Figures 5 & 6 and Plates 1 through 6).

Although sufficient exposures and profiles associated with excavations for the dam were inspected, no archaeological materials were identified in this area. Excavated profiles at waypoints 11 and 12 show that geological deposits include soft, friable quartzitic sandstone in the lower part of excavations. Perched on this is a layer of water worn cobbles and stone of quartzite and this is overlain by soft sediments (Plate 4[11 & 12]). The horizon containing water worn stone does not appear to be of Enon origin.

At **waypoint 26**, two isolated quartzite flakes of MSA age were recorded (Plate 5 and Table 2). These artefacts were found in a disturbance resembling a road cutting that is probably associated with the installation of a pipeline. The cutting appears relatively fresh since little vegetation growth occurs in it. A distinct yet ephemeral horizon of water worn stone lies in soft sediments about 30 to 40cm below ground surface (Plate 5). One of the identified artefacts was imbedded in this ephemeral horizon. Artefacts are in medium grained quartzite and a few pieces of un-worked quartz were also noted.

**Significance and Recommendation:**
Because this occurrence consists of very low numbers of artefacts and because better examples of similar materials occur in the surrounding landscape, this find is considered to be of low significance. No further archaeological mitigation is required and the proposed activity will not impact this part of the property.

The occurrence at **waypoint 27** is also in a large cutting about midway down the slope to the Gwaing River (Plates 5 & 6). As with waypoint 26, the artefacts seem to be eroded from a thin horizon of water worn stone some 30 to 40cm below ground surface. These are two isolated Middle Stone Age pieces including a large flake and a disc core (Plate 6). Both specimens are in quartzite. It is possible that more artefacts occur here, but will be present in very low frequencies.

**Significance and Recommendation:**
For the same reasons as those given above, this occurrence is considered to be of low significance and no further archaeological mitigation is necessary. The proposed activity will not encroach on this part of the study area.

No archaeological or tangible heritage related resources of the historic period were identified.

**Table 2. Coordinate and descriptive data for archaeological occurrences and photo localities (see Figures 5 & 6 and Plates 1 through 6).**

| Name | Description<br>img=image snd=sound | Datum: WGS 84 Lat/Lon<br>dec.degrees | Datum: WGS 84<br>Grid: SA National | Elevation<br>masl |
|---|---|---|---|---|
| 1 | img7625-8 snd7628 | S34.01276 E22.39523 | 23 Y0055864 X3765242 | 165 m |
| 2 | img7629-32 snd7632 | S34.01169 E22.39559 | 23 Y0055831 X3765123 | 167 m |
| 3 | img7633 snd7633 | S34.01197 E22.39601 | 23 Y0055792 X3765153 | 160 m |
| 4 | img7634 snd7634 | S34.01242 E22.39542 | 23 Y0055847 X3765204 | 158 m |
| 5 | img7635-7 snd7637 | S34.01266 E22.39607 | 23 Y0055786 X3765231 | 152 m |
| 6 | img7638-41 snd7641 | S34.01204 E22.39644 | 23 Y0055752 X3765162 | 153 m |
| 7 | img7642 snd7642 | S34.01202 E22.39675 | 23 Y0055724 X3765159 | 149 m |
| 8 | img7643 snd7643 | S34.01167 E22.39700 | 23 Y0055701 X3765120 | 153 m |
| 9 | img7644-5 snd7645 | S34.01172 E22.39721 | 23 Y0055682 X3765125 | 141 m |
| 10 | img7646 snd7646 | S34.01214 E22.39721 | 23 Y0055681 X3765172 | 140 m |
| 11 | img7647-8 snd7648 | S34.01239 E22.39720 | 23 Y0055682 X3765200 | 143 m |
| 12 | img7648-50 snd7650 | S34.01261 E22.39719 | 23 Y0055683 X3765223 | 147 m |
| 13 | img7651-4 snd7654 | S34.01255 E22.39740 | 23 Y0055663 X3765217 | 153 m |
| 14 | img7655-6 snd7656 | S34.01213 E22.39740 | 23 Y0055664 X3765171 | 141 m |
| 15 | img7657 snd7657 | S34.01184 E22.39743 | 23 Y0055661 X3765138 | 139 m |
| 16 | img7658 snd7658 | S34.01181 E22.39736 | 23 Y0055668 X3765135 | 150 m |
| 17 | img7659 snd7659 | S34.01165 E22.39772 | 23 Y0055634 X3765117 | 139 m |
| 18 | img7660-1 snd7661 | S34.01166 E22.39810 | 23 Y0055599 X3765119 | 138 m |
| 19 | img7662-3 snd7663 | S34.01207 E22.39784 | 23 Y0055623 X3765164 | 141 m |
| 20 | img7664 snd7664 | S34.01271 E22.39803 | 23 Y0055605 X3765235 | 144 m |
| 21 | img7665-9 snd7669 | S34.01342 E22.39777 | 23 Y0055628 X3765314 | 153 m |
| 22 | img7670 snd7670 | S34.01393 E22.39811 | 23 Y0055597 X3765370 | 150 m |
| 23 | img7671 snd7671 | S34.01484 E22.39816 | 23 Y0055592 X3765471 | 148 m |
| 24 | img7672 snd7672 | S34.01647 E22.39670 | 23 Y0055726 X3765652 | 154 m |
| 25 | img7673 snd7673 | S34.01758 E22.39697 | 23 Y0055699 X3765775 | 148 m |
| 26 | MSA img7674-88 snd7688 | S34.01760 E22.39696 | 23 Y0055701 X3765778 | 154 m |
| 27 | MSA img7689-97 snd7693&7 | S34.01801 E22.39699 | 23 Y0055697 X3765823 | 136 m |
| 28 | img7698 snd7698 | S34.01813 E22.39654 | 23 Y0055739 X3765837 | 134 m |
| 29 | img7699 snd7699 | S34.01809 E22.39587 | 23 Y0055801 X3765832 | 141 m |
| 30 | img7700 snd7700 | S34.01808 E22.39556 | 23 Y0055830 X3765832 | 141 m |
| 31 | img7701-5 snd7705 | S34.01727 E22.39447 | 23 Y0055931 X3765743 | 167 m |
| 32 | img7706-10 snd7710 | S34.01629 E22.39654 | 23 Y0055740 X3765633 | 158 m |
| 33 | img7711 snd7711 | S34.01494 E22.39778 | 23 Y0055627 X3765482 | 151 m |
| 34 | img7712-6 snd7716 | S34.01487 E22.39485 | 23 Y0055898 X3765476 | 179 m |

## 3. Sources of Risk, Impact Identification and Assessment

The proposed activity will involve large scale excavations and earthmoving activities – that are already underway - that could have a permanent negative impact on subterranean archaeological resources if they occur in the study area (see section 1.1 above and Figure 3). Although adequate exposed ground surfaces and extensive disturbances were open for inspection and assessment, no archaeological traces were identified in the area of the proposed activity. Archaeological materials were recorded at the southern extent of the

property, but this area will not be impacted by activities associated with the enlargement of the Platrug Dam.

Provided that the required mitigation measures are implemented, there are no objections to the authorization of the enlargement and remedial work on the Platrug Dam on Portion 40 of Farm 208, George. Table 3 summarizes the potential impact of the proposed development on archaeological resources with and without mitigation.

**Table 3. Potential impact on and loss of archaeological resources.**

| | With Mitigation | Without Mitigation |
|---|---|---|
| **Extent** | Local | Local |
| **Duration** | Permanent | Permanent |
| **Intensity** | High | High |
| **Probability** | Low | Low |
| **Significance** | Low | Low |
| **Status** | Probably low | Probably low |
| **Confidence** | High | High |

## 4. Required and Recommended Mitigation Measures

For reasons given above, there are no recommended mitigation measures.

*Required Mitigation Measures*

- In the event that vegetation clearing and earthmoving activities expose archaeological materials, such activities must stop and Heritage Western Cape must be notified immediately.
- If archaeological materials are exposed during vegetation clearing and/or earth moving activities, then they must be dealt with in accordance with the National Heritage Resources Act (No. 25 of 1999) and at the expense of the developer.
- In the event of exposing human remains during construction, the matter will fall into the domain of Heritage Western Cape (Mr. Nick Wiltshire) or the South African Heritage Resources Agency (Ms Mary Leslie) and will require a professional archaeologist to undertake mitigation if needed.

## References

Nilssen, P.J. 2007. Archaeological Impact Assessment: Proposed Thembalethu Plaza and Nursery School, Thembalethu, George, Western Cape Province. prepared for Ms. Susanna Nel, Dirisana Environmental and Ecological Consultants

Nilssen, P.J. 2009. Archaeological Monitoring: Le Grand Golf Estate on Portion 76, 77 and 78 of the Farm Craige Burn 202, Pacaltsdorp, George, Western Province (in prep)

Nilssen, P.J. 2010. Archaeological Impact Assessment: Proposed Extension of Rand Street across Erven 464 & 325, Pacaltsdorp, George, Eden, Western Province, prepared for George Municipality C/o Aurecon South Africa (Pty) Ltd

**Figures and Plates** (on following pages)

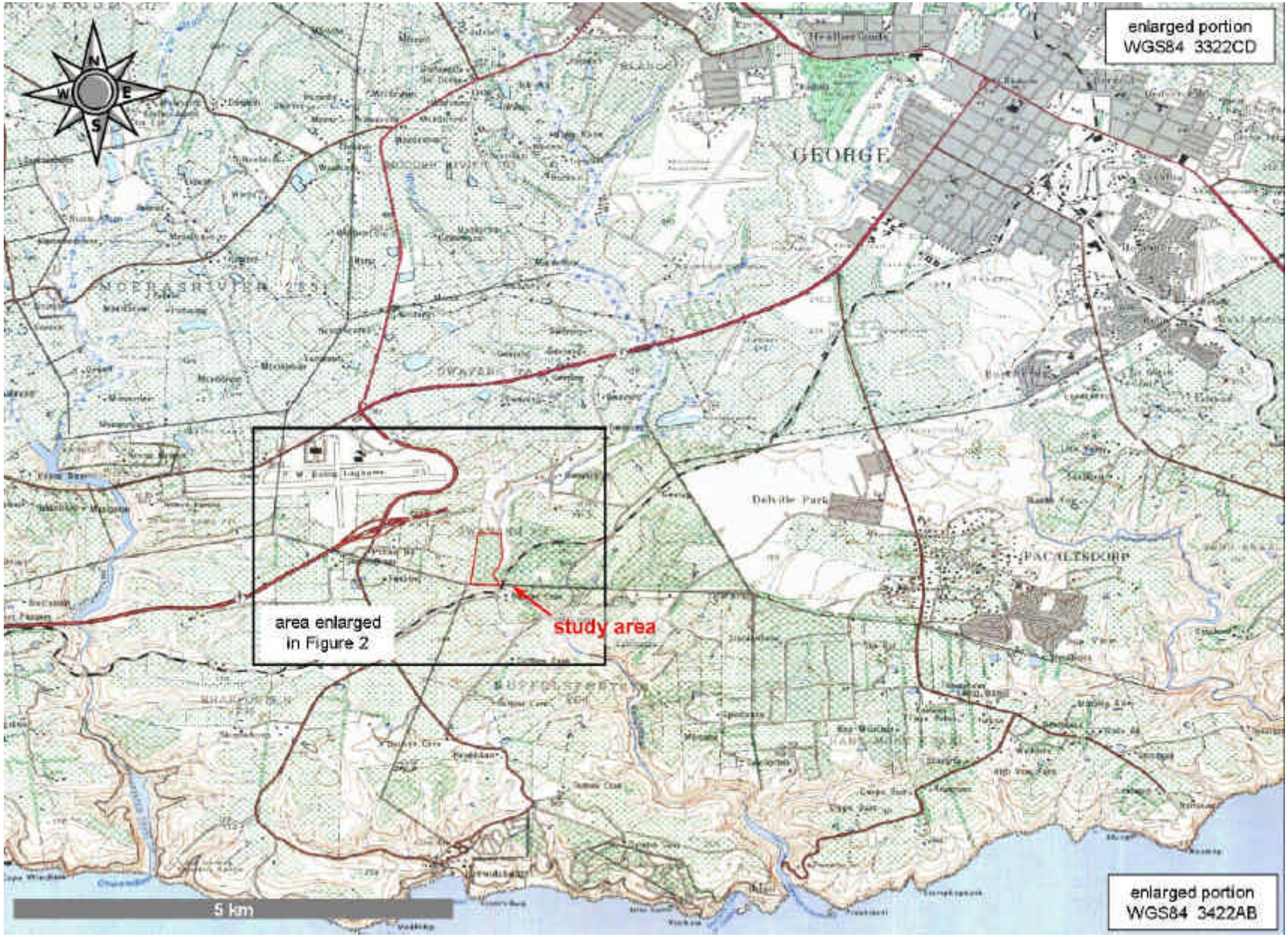


Figure 1. Location of study area near George, Western Province (Map courtesy of The Chief Directorate, Surveys & Mapping, Mowbray [CDSM]).


Figure 2. Enlarged area as indicated in Figure 1 showing study area and access route (Aerial photos courtesy of CDSM).

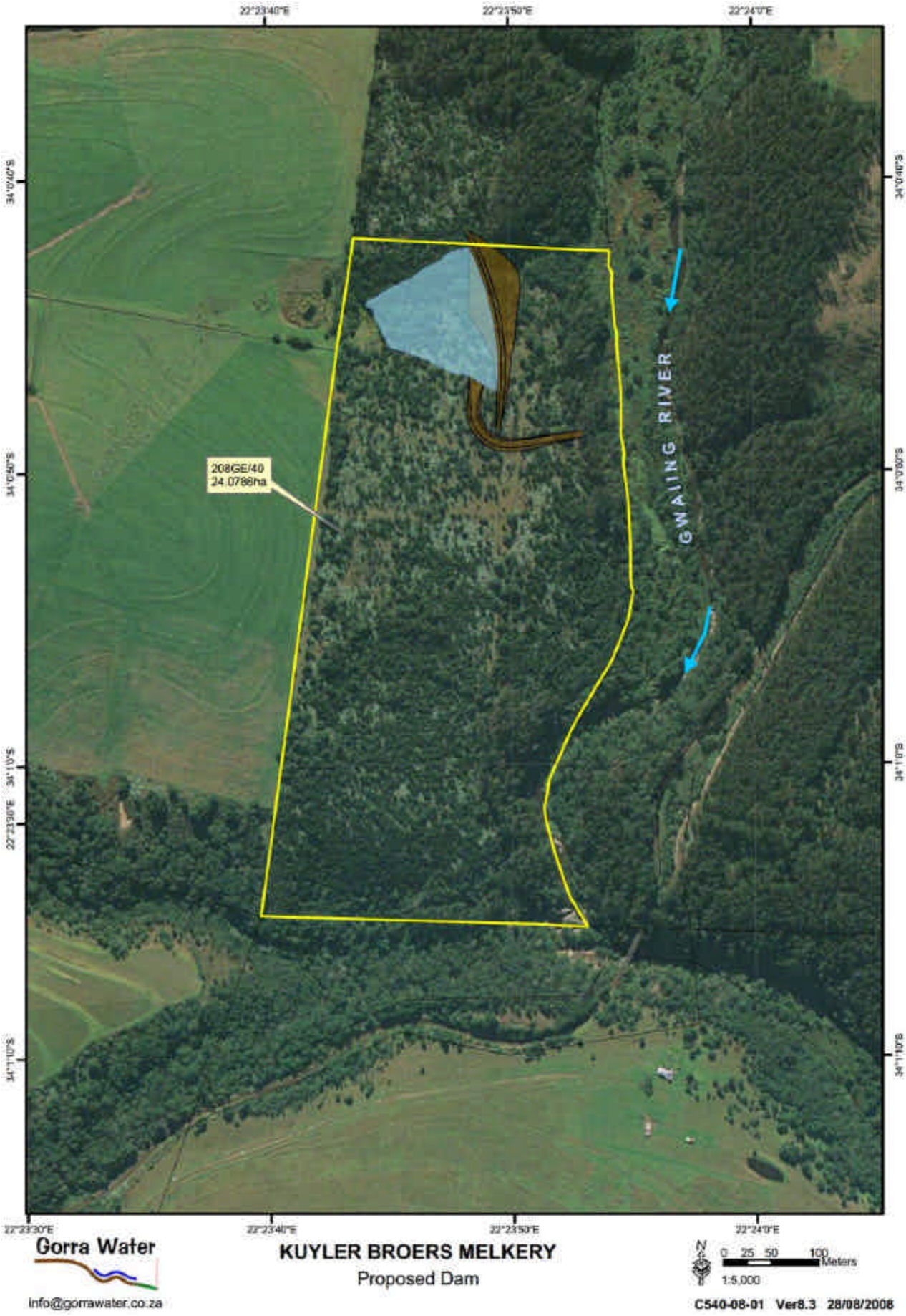


Figure 3. Enlarged area as indicated in Figure 2 showing the location of the dam and the property outline in yellow (Courtesy of HilLand Associates).

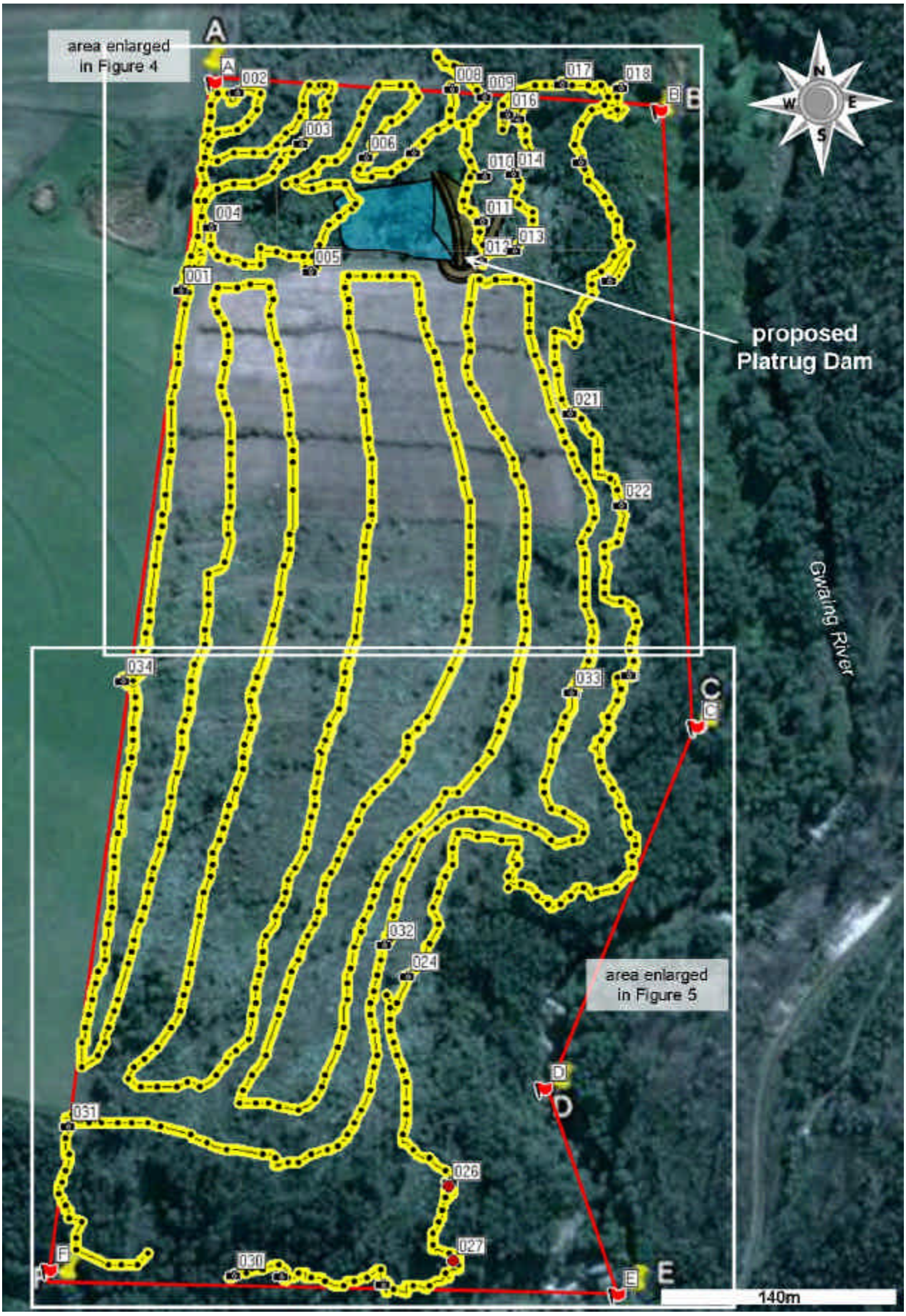


Figure 4. Enlarged area as indicated in Figure 2 showing the study area, location of dam, walk tracks and waypoints (Aerial photos courtesy Google Earth). See Tables 1 and 2 for coordinate data and Plates 1 to 6.

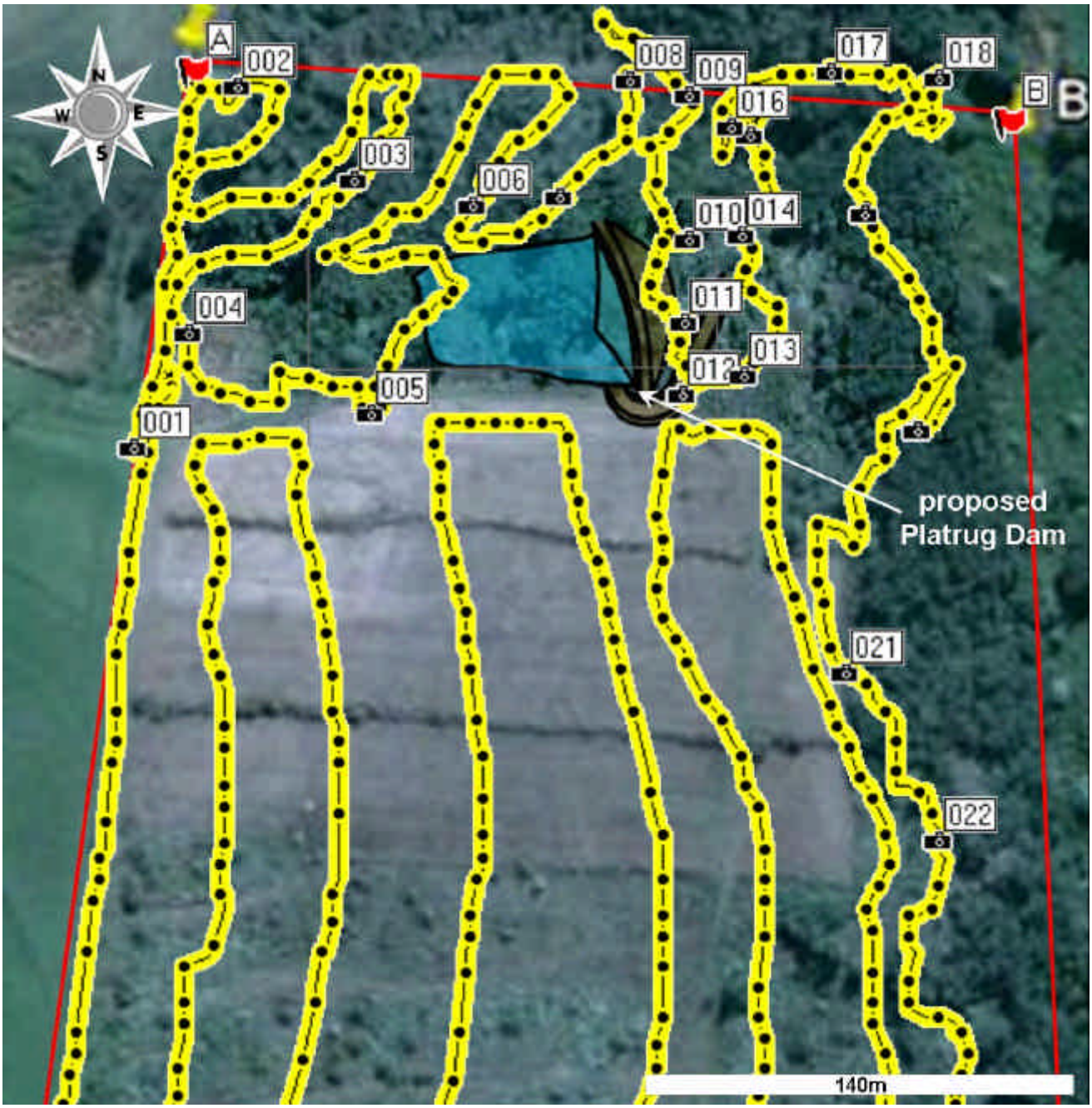


Figure 5. Enlarged area as indicated in Figure 4 showing walk tracks and waypoints of photo localities (Aerial photos courtesy Google Earth). See Tables 1 and 2 for coordinate data and Plates 1 to 6.

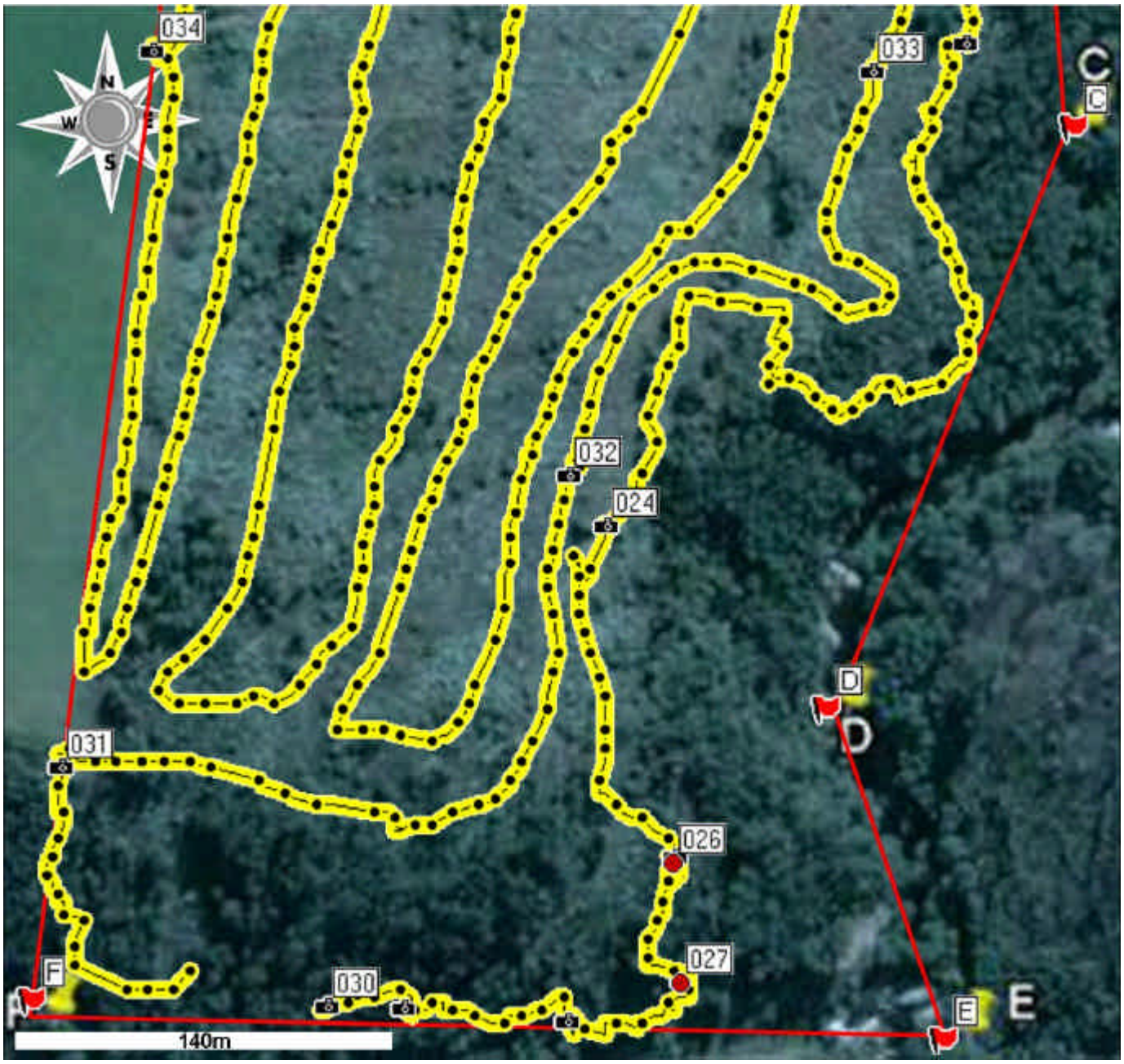


Figure 6. Enlarged area as indicated in Figure 4 showing walk tracks and waypoints of archaeological occurrences and photo localities (Aerial photos courtesy Google Earth). See Tables 1 and 2 for coordinate data and Plates 1 to 6.


Plate 1. Examples of the surrounding environment, excavations, disturbances, topography and vegetation cover (see Figure 5 and Table 2).


Plate 2. Examples of the surrounding environment, excavations, disturbances, topography and vegetation cover (see Figure 5 and Table 2).


Plate 3. Examples of the surrounding environment, topography and vegetation cover (see Figures 5 & 6 and Table 2).

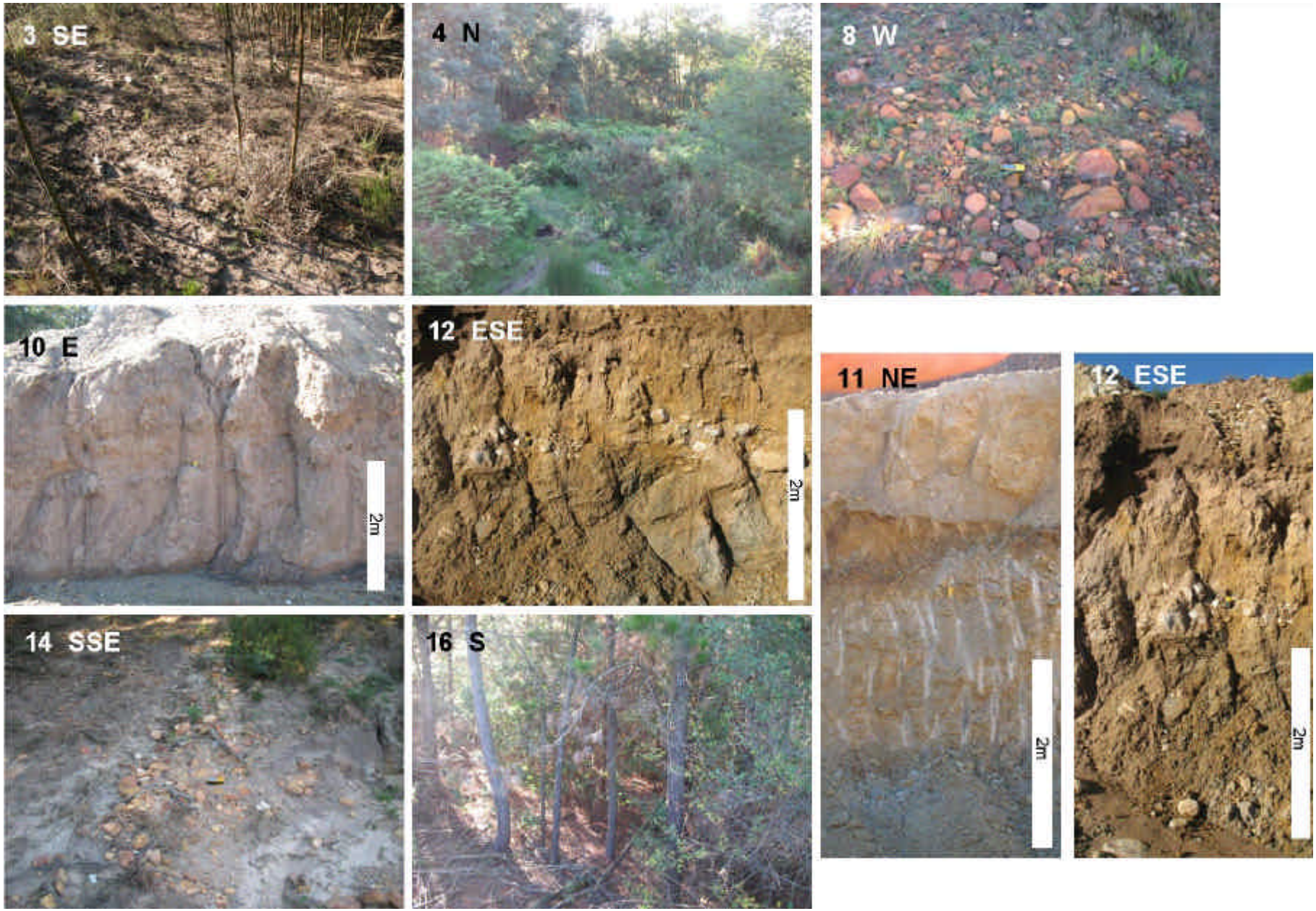


Plate 4. Examples of the surrounding environment, exposures, excavation profiles and vegetation cover (see Figure 5 and Table 2).

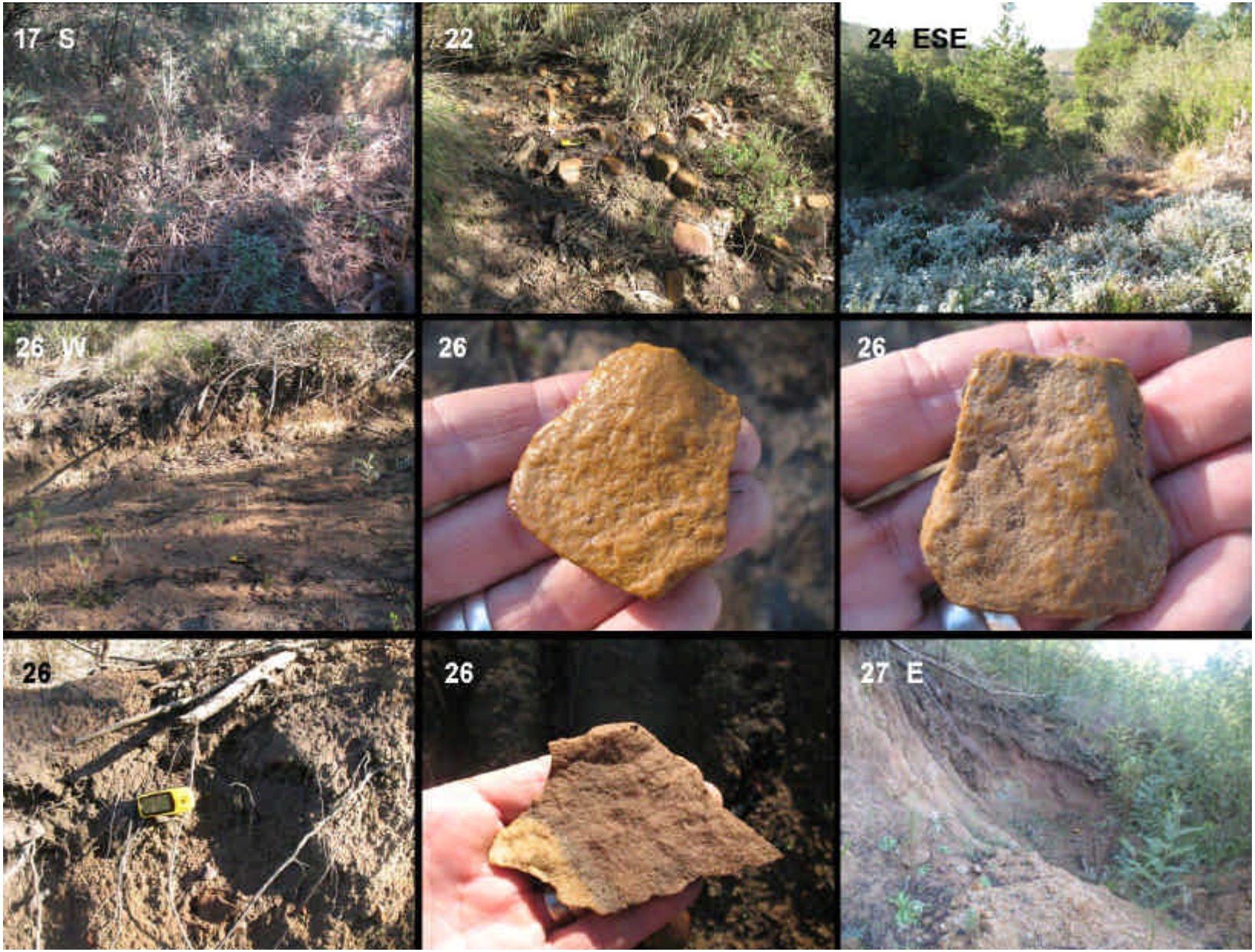


Plate 5. Examples of the surrounding environment, vegetation cover, disturbances and archaeological occurrences (see Figures 5 & 6 and Table 2).

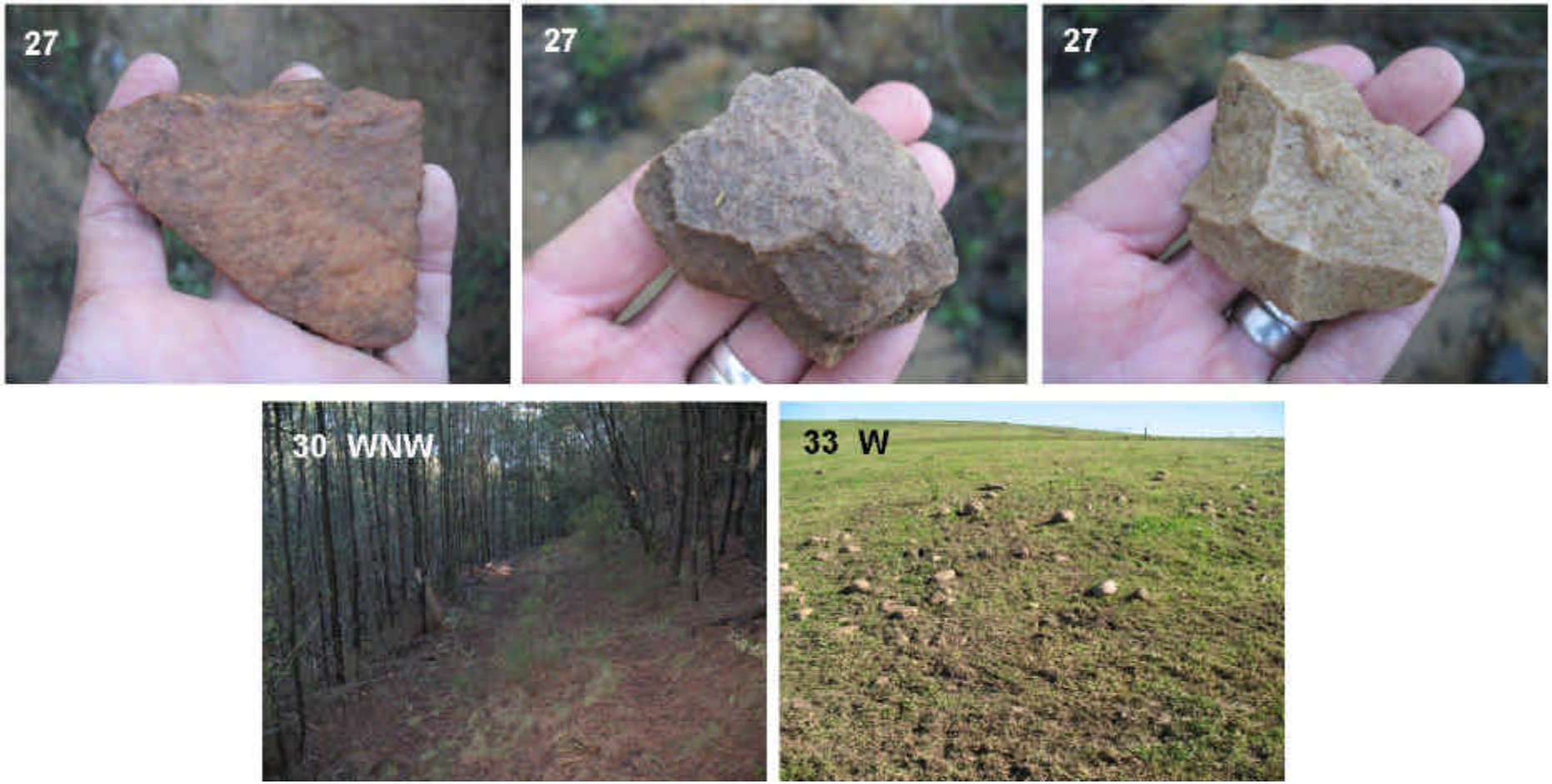


Plate 6. Examples of archaeological occurrences, vegetation and an exposure of water worn cobbles (see Figure 6 and Table 2).

## Comment on Palaeontology by Dr John Almond

According to the 1: 250 000 Oudtshoorn geology sheet the dam is situated above granite whose palaeontological sensitivity is zero. A Palaeontological Impact Assessment (PIA) will therefore not be necessary for this project. I am forwarding this comment to Nic Wiltshire who will doubtless follow up on the earlier HWC decision.

The following is a response from Mr Nick Wiltshire of Heritage Western Cape:

Hi Peter - PIA doesn't seem necessary. Just the AIA on this one. Just attach John's email to your report so that the RoD can reflect the conditions have been met once we've assessed the AIA.

Kind regards,

Nic