

## **REPORT OF SURVEY**

**Strategic Regional Coastal Monitoring Programme**

**TSW4 - Lands End to Bude**

**Baseline Survey**

**7A2-6 Hayle Estuary**

Job No:

Date of Survey: 23-24/03/2007

**TSW4**

**7A2-6 Hayle Estuary**

**Baseline Survey**

To: Plymouth Coastal Observatory  
Reynolds Building  
University of Plymouth  
Drake Circus  
Plymouth  
PL4 8AA

From: Land & Sea Survey Company  
Higher Filleigh  
Lapford  
Devon  
EX17 6NA

*Company Ref:* TSW4\_7A2-6

Date of Survey: 23-24/03/2007

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# TSW4

## 7A2-6 Hayle Estuary

### Baseline Survey

#### Report of Survey

Date of Survey: 23-24/03/2007

#### 1.0 Scope

- 1.1 Baseline Survey of Management Unit 7A2-6 Hayle Estuary, to include:  
Accessible frontage profile lines 7a00773 to 7a00817

#### 2.0 Survey Control

- 2.1 Survey control points used: Porth\_Kidney2, Porth\_Kidney2, E211401064 and St Ives
- 2.2 Details of the permanent survey control stations are described in the station description sheets and co-ordinate list are appended separately.
- 2.3 No Start Point Markers were installed in this Management Unit.
- 2.4 Final co-ordinates are given as either ETRS89/WGS84 or transformed to OSGB36 and Ordnance Datum using OSTN02/OSGM02.

#### 3.0 Topography

- 3.1 The topography has been surveyed using 4 x Leica 1230GX (1 x Trailer mounted antennae) and Leica SR530 RTK GPS receivers, processed using LGOv5 and Terramodel v10.2.
- 3.2 The precision of heights on hard surfaces may be taken, to a 95% confidence level, to be within  $\pm 20$ mm relative to the control station height.

## 4.0 Survey Diary

4.1 The survey was conducted by C. Gaskell, A. Russell, C. Fanshawe and A. Garbe and A. Carter between 10:15 and 17:20 on 23/03/2007 and 11:30 and 17:00 on 24/03/2007.

4.2 The following control points were checked using RTK GPS on 23/03/2007:

COORDINATE COMPARISON						
Alignment Name: 23/03/2007						
Check Point: E211401064 E=152094.530 N=40784.582 Elev.=7.552 Desc.=RO						
Pt Number	Code	Dist	dElev.	Easting	Northing	Elev
E211401064-1	RO	0.017	-0.021	152094.516	40784.573	7.531
E211401064-2	RO	0.017	-0.022	152094.513	40784.578	7.530
E211401064-3	RO	0.017	-0.022	152094.514	40784.575	7.530
E211401064-4	RO	0.014	-0.027	152094.521	40784.571	7.525
E211401064-5	RO	0.021	-0.018	152094.510	40784.575	7.534
E211401064-6	RO	0.017	-0.020	152094.523	40784.567	7.532
E211401064-7	RO	0.016	-0.017	152094.518	40784.571	7.535
E211401064-8	RO	0.017	-0.022	152094.513	40784.578	7.530
E211401064-CF	RO	0.013	-0.023	152094.518	40784.577	7.529
E211401064CGAM1	RO	0.011	-0.033	152094.524	40784.573	7.519
E211401064CGAM2	RO	0.011	-0.033	152094.522	40784.574	7.519
E211401064CGAM3	RO	0.014	-0.033	152094.522	40784.571	7.519
E211401064CGAM4	RO	0.008	-0.032	152094.525	40784.576	7.520
E211401064CGAM5	RO	0.009	-0.036	152094.528	40784.573	7.516
E211401064CGAM6	RO	0.014	-0.029	152094.520	40784.572	7.523
E211401064CGAM7	RO	0.009	-0.034	152094.524	40784.575	7.518
E211401064CGAM8	RO	0.011	-0.031	152094.526	40784.572	7.521
E211401064CGAM9	RO	0.011	-0.033	152094.522	40784.574	7.519

COORDINATE COMPARISON						
Alignment Name: Free Pts						
Check Point: St_Ives E=152405.202 N=39868.794 Elev.=30.092 Desc.=RO						
Pt Number	Code	Dist	dElev.	Easting	Northing	Elev
STIVES1CGPM	RO	0.019	-0.028	152405.206	39868.775	30.064
STIVES1PM-1	RO	0.004	-0.006	152405.204	39868.790	30.086
STIVES1PM-2	RO	0.018	-0.009	152405.210	39868.778	30.083
STIVES1PM-3	RO	0.012	-0.003	152405.212	39868.788	30.089
STIVES1PM-4	RO	0.015	0.001	152405.205	39868.779	30.093
STIVES1PM-5	RO	0.011	-0.004	152405.206	39868.784	30.088
STIVES1PM-6	RO	0.009	-0.008	152405.207	39868.787	30.084
STIVES1PM-7	RO	0.011	-0.004	152405.203	39868.783	30.088
STIVES1PM-8	RO	0.012	-0.002	152405.203	39868.782	30.090
stivespm	RO	0.018	-0.034	152405.206	39868.776	30.058
stivespm(2)	RO	0.017	-0.029	152405.207	39868.778	30.063
stivespm(3)	RO	0.019	-0.036	152405.206	39868.775	30.056

and 24/03/2007

COORDINATE COMPARISON

Alignment Name: 24/03/2007

Check Point: Porth\_Kidney1 E=153505.665 N=38760.025 Elev.=17.436 Desc.=RO

Pt Number	Code	Dist	dElev.	Easting	Northing	Elev
PKSANDS1CFAM	RO	0.036	-0.006	153505.642	38759.997	17.430
PORTHKIDPM1	RO	0.043	-0.008	153505.638	38759.992	17.428
PORTHKIDPM10	RO	0.047	-0.020	153505.634	38759.990	17.416
PORTHKIDPM11	RO	0.040	0.004	153505.637	38759.996	17.440
PORTHKIDPM12	RO	0.043	-0.014	153505.634	38759.995	17.422
PORTHKIDPM13	RO	0.038	0.021	153505.641	38759.996	17.457
PORTHKIDPM2	RO	0.038	0.021	153505.641	38759.996	17.457
PORTHKIDPM3	RO	0.051	-0.024	153505.641	38759.980	17.412
PORTHKIDPM4	RO	0.032	0.014	153505.647	38759.999	17.450
PORTHKIDPM5	RO	0.044	-0.007	153505.639	38759.990	17.429
PORTHKIDPM6	RO	0.040	-0.001	153505.643	38759.992	17.435
PORTHKIDPM7	RO	0.055	-0.023	153505.626	38759.986	17.413
PORTHKIDPM8	RO	0.038	-0.021	153505.641	38759.996	17.415
PORTHKIDPM9	RO	0.043	-0.010	153505.637	38759.992	17.426

COORDINATE COMPARISON

Alignment Name: Free Pts

Check Point: E211401064 E=152094.530 N=40784.582 Elev.=7.552 Desc.=RO

Pt Number	Code	Dist	dElev.	Easting	Northing	Elev
E211401064AGPM-10	RO	0.014	-0.015	152094.522	40784.571	7.537
E211401064AGPM-11	RO	0.002	-0.032	152094.528	40784.581	7.520
E211401064AGPM-1	RO	0.009	-0.021	152094.524	40784.575	7.531
E211401064AGPM-2	RO	0.002	-0.032	152094.528	40784.581	7.520
E211401064AGPM-3	RO	0.016	-0.038	152094.516	40784.575	7.514
E211401064AGPM-4	RO	0.013	-0.035	152094.523	40784.571	7.517
E211401064AGPM-5	RO	0.012	-0.029	152094.524	40784.572	7.523
E211401064AGPM-6	RO	0.003	-0.018	152094.529	40784.585	7.534
E211401064AGPM-7	RO	0.014	-0.012	152094.522	40784.570	7.540
E211401064AGPM-8	RO	0.004	-0.012	152094.528	40784.579	7.540
E211401064AGPM-9	RO	0.014	-0.011	152094.521	40784.571	7.541
E211401064AR-1	RO	0.010	-0.027	152094.528	40784.572	7.525
E211401064AR-10	RO	0.012	-0.023	152094.527	40784.570	7.529
E211401064AR-11	RO	0.011	-0.019	152094.528	40784.571	7.533
E211401064AR-12	RO	0.009	-0.027	152094.527	40784.573	7.525
E211401064AR-13	RO	0.004	-0.024	152094.528	40784.579	7.528
E211401064AR-14	RO	0.008	-0.032	152094.532	40784.574	7.520
E211401064AR-2	RO	0.008	-0.032	152094.532	40784.574	7.520
E211401064AR-3	RO	0.005	-0.036	152094.527	40784.578	7.516
E211401064AR-4	RO	0.015	-0.033	152094.520	40784.571	7.519
E211401064AR-5	RO	0.009	-0.038	152094.527	40784.574	7.514
E211401064AR-6	RO	0.009	-0.037	152094.533	40784.574	7.515
E211401064AR-7	RO	0.011	-0.026	152094.527	40784.571	7.526
E211401064AR-8	RO	0.011	-0.021	152094.528	40784.571	7.531
E211401064AR-9	RO	0.014	-0.014	152094.526	40784.569	7.538
E211401064CF-1	RO	0.007	-0.027	152094.529	40784.575	7.525
E211401064CF-10	RO	0.011	-0.039	152094.535	40784.572	7.513
E211401064CF-2	RO	0.011	-0.039	152094.535	40784.572	7.513
E211401064CF-3	RO	0.008	-0.034	152094.531	40784.574	7.518
E211401064CF-4	RO	0.011	-0.043	152094.539	40784.576	7.509
E211401064CF-5	RO	0.009	-0.014	152094.526	40784.574	7.538
E211401064CF-6	RO	0.006	-0.018	152094.530	40784.576	7.534
E211401064CF-7	RO	0.007	-0.022	152094.525	40784.577	7.530
E211401064CF-8	RO	0.015	-0.020	152094.520	40784.571	7.532
E211401064CF-9	RO	0.007	-0.019	152094.536	40784.577	7.533

COORDINATE COMPARISON

Alignment Name: Free Pts

Check Point: St\_Ives E=152405.202 N=39868.794 Elev.=30.092 Desc.=RO

Pt Number	Code	Dist	dElev.	Easting	Northing	Elev
ST_IVES1CGPM1	RO	0.019	-0.027	152405.213	39868.779	30.064
ST_IVES1CGPM2	RO	0.026	-0.028	152405.214	39868.771	30.064
ST_IVES1CGPM3	RO	0.022	-0.034	152405.217	39868.779	30.058
ST_IVES1CGPM4	RO	0.019	-0.028	152405.209	39868.777	30.064
ST_IVES1CGPM5	RO	0.017	-0.025	152405.210	39868.779	30.067
ST_IVES1CGPM6	RO	0.016	-0.022	152405.215	39868.785	30.070
ST_IVES1CGPM7	RO	0.026	-0.028	152405.214	39868.771	30.064
STIVESAGAM-1	RO	0.015	-0.031	152405.195	39868.781	30.061
STIVESAGAM-2	RO	0.015	-0.031	152405.197	39868.780	30.061
STIVESAGAM-3	RO	0.013	-0.034	152405.191	39868.788	30.058
STIVESAGAM-4	RO	0.024	-0.024	152405.194	39868.771	30.068
STIVESAGAM-5	RO	0.014	-0.030	152405.198	39868.781	30.062
STIVESAGAM-6	RO	0.013	-0.033	152405.194	39868.784	30.059
STIVESAGAM-7	RO	0.015	-0.031	152405.197	39868.780	30.061
STIVESARPM1	RO	0.018	-0.030	152405.208	39868.777	30.062
STIVESARPM2	RO	0.016	-0.035	152405.207	39868.779	30.057
STIVESARPM3	RO	0.018	-0.035	152405.211	39868.778	30.057
STIVESARPM4	RO	0.024	-0.037	152405.218	39868.776	30.055
STIVESARPM5	RO	0.015	-0.019	152405.203	39868.779	30.073
STIVESARPM6	RO	0.022	-0.027	152405.204	39868.772	30.065
STIVESARPM7	RO	0.021	-0.027	152405.203	39868.773	30.065
STIVESARPM8	RO	0.018	-0.025	152405.206	39868.776	30.067
STIVESARPM9	RO	0.016	-0.035	152405.207	39868.779	30.057
STIVESCFPM-1	RO	0.015	-0.032	152405.204	39868.779	30.060
STIVESCFPM-2	RO	0.018	-0.033	152405.203	39868.776	30.059
STIVESCFPM-3	RO	0.022	-0.041	152405.206	39868.772	30.051
STIVESCFPM-4	RO	0.011	-0.030	152405.202	39868.783	30.062
STIVESCFPM-5	RO	0.011	-0.027	152405.203	39868.783	30.064
STIVESCFPM-6	RO	0.016	-0.028	152405.209	39868.779	30.064
STIVESCFPM-7	RO	0.018	-0.033	152405.203	39868.776	30.059

4.3 Low Water was predicted to occur at 14:20 0.9m CD on 23/03/2007 and at 15:04 1.4m CD on 24/03/2007

4.4 Wind: NE 2-3 Sea state: Slight

## 5.0 Comments

5.1 Hayle Estuary is flanked by Porth Kidney Sands to the West and Hayle Towans to the East. Both beaches, backed by vegetated dunes and cliffs, are predominantly sand and had been subject to the effects of northerly storms over several days prior to the survey. The survey team were cautioned away from moving water at the edge of the estuary and data gaps may be evident here for this reason.

5.2 All RTK GPS checks show St Ives station appearing lower than as-given from PorthKidney2 by approx 25-35mm on separate days. Whilst the elevation check at PorthKidney1 returned reasonable elevation values the horizontal position was out of spec. At the end of survey on 24/03/2007 two 1200 units were checked at E211301064 and two at St Ives, both returning lower heights.

5.3 The survey as a whole has been quality checked by C Gaskell.

