

County KILDARE



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COUNTY KILDARE

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ESB RETAIL SHOP

21 Emily Square, Athy



Date Of Survey: 11th Dec 2003

Surveyors Name: Des Clarke
 Photographer: Des Clarke
 Field Controller: Judith Doherty
 O.S. Ref: 4005/16 + 2618 ESB Ref: KE-SS-4005/16+ 2618

Architectural Heritage Evaluation:		Categories of Special Interest:	
Record Only	<input checked="" type="checkbox"/>	Archaeological (AG)	
Local	<input type="checkbox"/>	Architectural (A)	
District	<input type="checkbox"/>	Artistic (AR)	
Regional	<input type="checkbox"/>	Cultural (C)	
National	<input type="checkbox"/>	Historical (H)	
International	<input type="checkbox"/>	Scientific (SC)	
		Social (SO)	
		Technical (T)	



1

11th Dec 2003



2

11th Dec 2003

Summary

The former ESB retail shop comprises a two-storey, five-bay, pitched roofed mid-terrace building.

Latterly the buildings were used for storage and occasional use as an ESB depot. The building is no longer in use as ESB retail premises and is currently unoccupied.

This well-proportioned southwest facing property is located on the edge of Emily Square, an urban space adjacent to the Court House and Town Hall in the centre of the town of Athy.

The building was built in the 1940s and was extended and altered to the rear in the 1960s.

Description & Materials

A well-proportioned two-storey building of masonry and brickwork construction with a pitched roof incorporating pitched and flat roofed additions to rear.

It is adjoined on one side by a three-storey commercial unit and on the other by a single storey building concealed by a blank screen wall to the street. Access to the rear yard is provided via an alleyway off Meeting Lane.

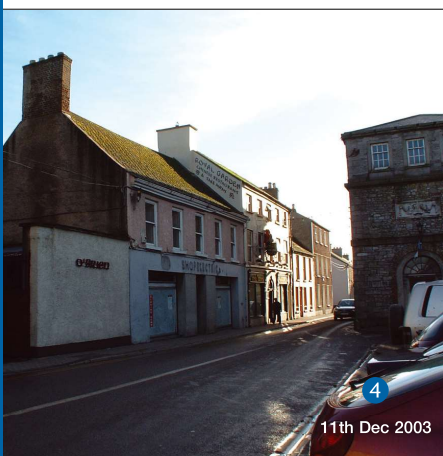
The property can be described as a traditional retail building, built in a vernacular style, with symmetrical composed shop front. The three-bay ground floor shop front incorporates floor to ceiling glazing framed in aluminium surrounded by a smooth plaster render finish. The five-bay first floor façade incorporates painted timber-framed sash windows surrounded by dashed plaster render finish.

The sales area was located to the front of the building with offices, storage and ancillary staff areas to the rear. The first floor contains offices and a radio room.



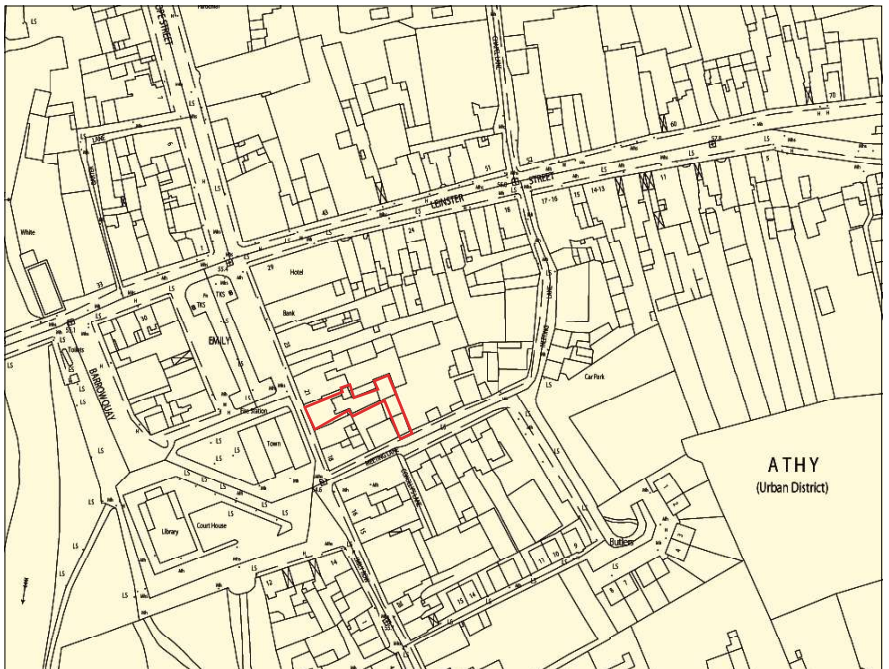
3

11th Dec 2003



4

11th Dec 2003



1. View from Emily Square. 2. Front Elevation. 3. Oblique View. 4. View in Context of Town Hall.



11th Dec 2003

Surveyors Name: Des Clarke
 Photographer: Des Clarke
 Field Controller: Judith Doherty
 O.S. Ref: 2822 ESB Ref: KE-N-2822

Architectural Heritage Evaluation:

Record Only	<input checked="" type="checkbox"/>
Local	<input type="checkbox"/>
District	<input type="checkbox"/>
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International	<input type="checkbox"/>

Categories of Special Interest:

Archaeological (AG)	<input type="checkbox"/>
Architectural (A)	<input type="checkbox"/>
Artistic (AR)	<input type="checkbox"/>
Cultural (C)	<input type="checkbox"/>
Historical (H)	<input type="checkbox"/>
Scientific (SC)	<input type="checkbox"/>
Social (SO)	<input type="checkbox"/>
Technical (T)	<input type="checkbox"/>

ESB POLEFIELD

Kilteel

Date Of Survey: 11th December 2003



Summary

A detached, single storey, flat roofed building built in 1985 on a square plan and of simple construction.

The property is located in an area of combined rural and industrial use in Kilteel on the Kildare/Dublin border near Rathcoole. It consists of an ESB polefield with a small office building and sheds. The site was acquired in 1970. A tarmacadam surfaced area is provided in front of the building and is used for staff car parking.

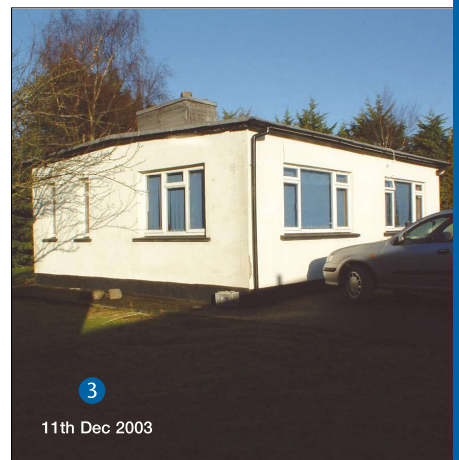
Description & Materials

The building comprises an office, toilets and a small kitchenette. Painted nap plaster render is applied externally to the blockwork which surrounds the PVC framed windows. Glazing is applied to all four sides providing for a bright naturally lit space internally. The cills are of precast concrete.

Structurally, the building comprises a cast in-situ concrete floor slab, cavity blockwork wall supporting a low pitched built up timber flat roof with asphalt covering.



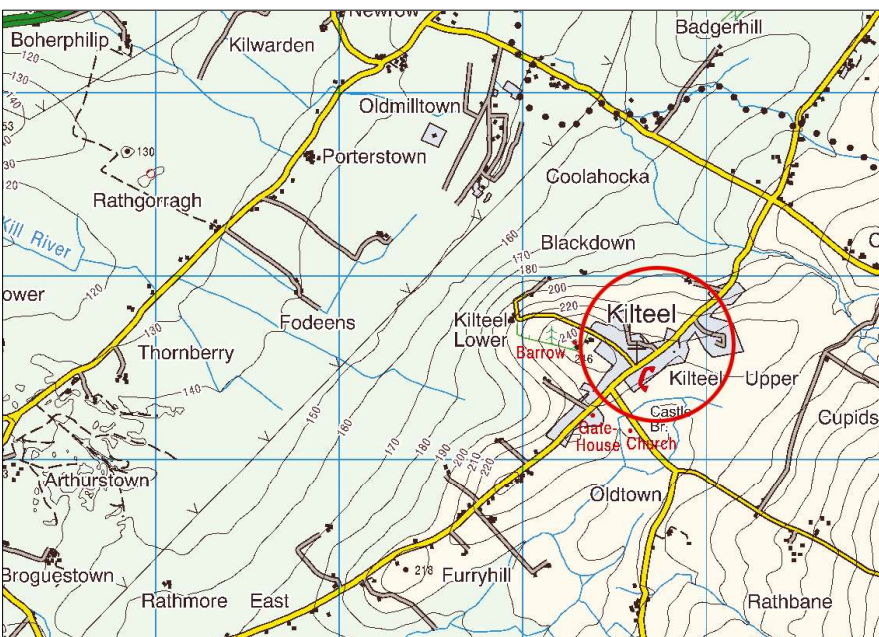
11th Dec 2003



11th Dec 2003



11th Dec 2003



1. Side Elevation. 2. Rear Elevation. 3. Oblique View. 4. Front Elevation.

HYDRO ELECTRIC POWER STATION

Golden Falls



Date Of Survey: 16th March 2003

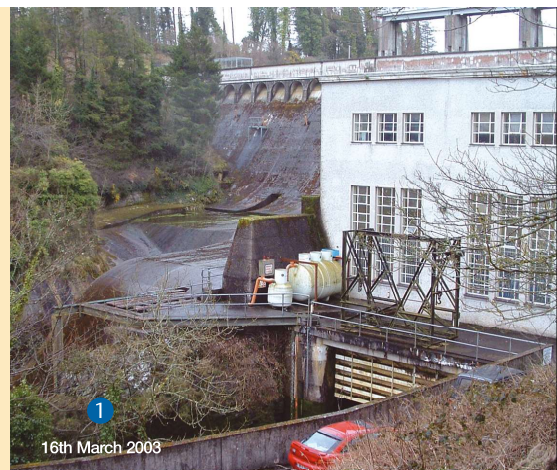
Surveyors Name: Eugene Boyle
 Photographer: Eugene Boyle
 Field Controller: Peter Carroll
 O.S. Ref: 2820 ESB Ref: KE-PG-2820

Architectural Heritage Evaluation:

Record Only	
Local	
District	✓
Regional	
National	
International	

Categories of Special Interest:

Archaeological (AG)	
Architectural (A)	
Artistic (AR)	✓
Cultural (C)	
Historical (H)	✓
Scientific (SC)	✓
Social (SO)	
Technical (T)	✓



1 16th March 2003



2 16th March 2003

Summary

Golden Falls is a hydro electric power station located on the River Liffey to the south of Ballymore Eustace on the R413 road, in County Kildare.

The complex is one of three hydro electric stations that harness the River Liffey. Collectively known as the 'Liffey Scheme', construction of the overall scheme was completed between 1937 and 1949.

Golden Falls Station was commissioned in 1943.

Description & Materials

The hydroelectric development of the River Liffey comprises three stations, Pollaphuca, Golden Falls and Leixlip, each located at a point in the river where the natural falls provided suitable sites for the development of hydro electric power stations.

The primary elements of the complex at Golden Falls comprise the reservoir, dam structure, tailrace structure and power station building.

Reservoir & Dam Structure

Golden Falls dam is located at the mid-level of the three dams on the River Liffey, located 73.5km upstream of the city of Dublin. The mile long stretch of water between Golden Falls and Pollaphuca is used as a compensation reservoir.

The Golden Falls dam, constructed between 1938 and 1941, is a gravity dam structure of the mass concrete type constructed over a grout curtain and concrete core trench. This type of dam design relies on the weight of the dam to resist the forces of the water pressing on it. It is a solid concrete structure 97.5m long and 15.3m high. The dam at Golden Falls develops a 17.4m average head of water to operate a 4MW turbo alternator. The

concrete dam is traversed by a walkway at high level which allows access to the controls of a number of elements.

Crest Gates Spillway & Spillway Reservoir

These gates allows water levels in the river to be maintained and excess water to be released through the dam at times of high flooding.

Scour Intake

This allows debris to be removed from the water preventing damage to the operation of the dam.

Inspection Gallery

Deep within the dam an inspection gallery or tunnel runs through the structure to allow constant monitoring of the structural movement of the dam.

Tailrace Structure

The downstream side of the dam incorporates a man-made concrete tailrace structure which resolves the natural change in level between base of dam and lower level tailrace. This extensive structure takes the visual form of an apron cladding the natural topography.

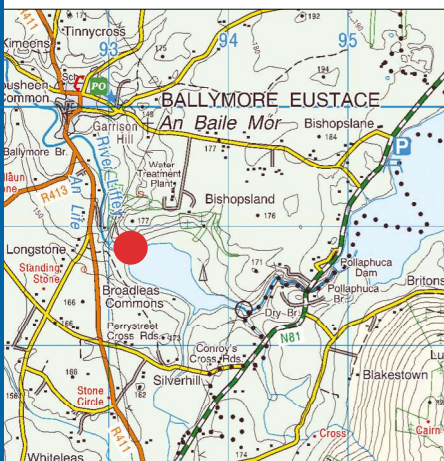
The Power Station Building

The power station building is located downstream of the dam. The building is designed in an austere modern rational style. This building accommodates the generating hall, turbine floor, control room, 10kV switch room, communications room and ancillary services. The end bay of the generating hall volume incorporates a loading bay to the access road.

The cross section of the building reveals a three-storey volume generating hall, with two-storey lean-to ancillary accommodation to the rear.



3 16th March 2003



1. Approach View of Power Station and Spillway/Tailrace Structure. 2. View of G4 Generator, Generating Hall. 3. View of 'House' Set Generator.

HYDRO ELECTRIC POWER STATION

Golden Falls

Date Of Survey: 16th March 2003



The original W20 type steel windows have been retained in the generating hall. A visually dominant gantry crane runs the full length of the generator hall and is supported on deep steel beams and concrete columns which sit proud of the primary structure. The crane facilitates maintenance of the heavy components that make up the generators and ancillary equipment. The low pitched hipped roof is supported by a series of steel lattice trusses bearing on a concrete structure. The end wall panels are braced with steel lattice bracing locally. The low-pitched hipped roof is supported by a series of steel lattice trusses bearing on a concrete structure.

The lower operations floor which houses the turbines is accessed from the generating hall via a concrete stairs. The control room at first floor level of the lean-to element overlooks the generating hall and is accessed within the ancillary accommodation at the rear of the building.

The large order scale of the façade of the generating hall in counterpart with the scale of the dam and tailrace structure incorporates elegant fenestration with a human scale which allows a different reading from a more intimate vantage point. The façades are finished in roughcast render. Window reveals and mullions are finished in a smooth render.

The approach and river side elevations of the power station clearly express the structural order of the building. Each structural bay is subdivided by multiple bays of windows with a strong vertical emphasis. The incorporation of an 'attic' storey band of high level windows introduces natural light at high level which reduces the visual weight of the steel trusses.

Special Interest - Artistic

ESB have eight paintings depicting the construction of the Liffey Scheme by artist Sean Keating.

Special Interest - Scientific/Technical

At Golden Falls there are two generating units, one with an output of 4MW, the other with an output of 250kW - designated G3 and G4 of the Liffey System.

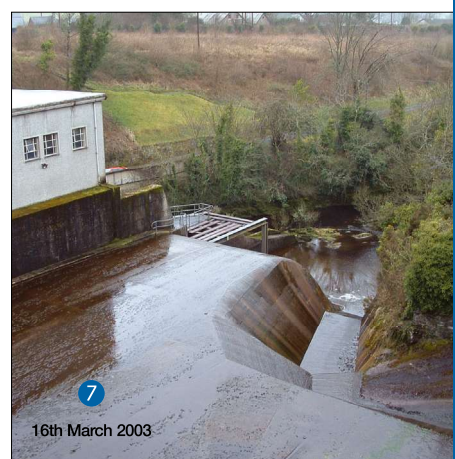
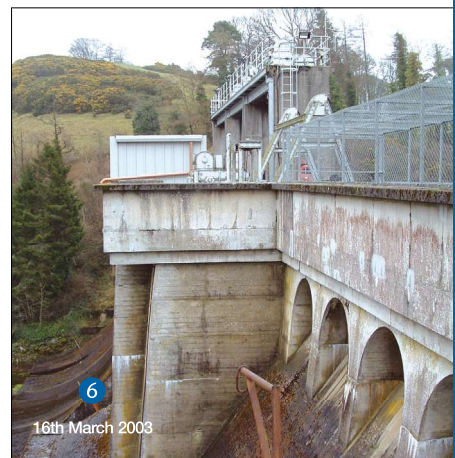
The station is operated by remote control from the pumped storage power station at Turlough Hill.

Special Interest - Historical

In October 1937 the order was placed for the main construction work on the Liffey Scheme at Pollaphuca and Golden Falls. Building began in 1938, but the Second World War compromised the programme since supplies of materials became difficult and uncertain. Because of the War, not all of the equipment had been delivered and by 1943 it was still uncertain when the Liffey station would be commissioned.

Despite the majority of construction at Pollaphuca and Golden Falls being complete by the summer of 1941, the mechanical and electrical plant was not installed and commissioned for a number of years.

In 1943 the reservoirs at Pollaphuca and Leixlip had been filled. Golden Falls was brought into commission in 1943. The first of the Pollaphuca generators was commissioned in 1944 and the second in 1947. Leixlip was commissioned in 1949.



4. View of Penstock. 5. View of Spillway Gates and Spillway/Headrace Structure. 6. View of High Level Dam Walkway. 7. View of Headrace Structure from top of Dam.

HYDRO ELECTRIC POWER STATION

Leixlip



Date Of Survey: 16th March 2004

Surveyors Name: Eugene Boyle
 Photographer: Eugene Boyle
 Field Controller: Judith Doherty
 O.S. Ref: 3022+3196/16, +3196/17,+3196/21,+3196/22
 ESB Ref: KE-PG-3022+3196/16,+3196/17,+3196/21, +3196/22

Architectural Heritage Evaluation:	Categories of Special Interest:
Record Only	Archaeological (AG)
Local	Architectural (A)
District <input checked="" type="checkbox"/>	Artistic (AR) <input checked="" type="checkbox"/>
Regional	Cultural (C)
National	Historical (H) <input checked="" type="checkbox"/>
International	Scientific (SC) <input checked="" type="checkbox"/>
	Social (SO) <input checked="" type="checkbox"/>
	Technical (T) <input checked="" type="checkbox"/>



Summary

Leixlip is a hydro electric power station located on the River Liffey at the edge of the town of Leixlip in Co. Kildare. Leixlip Castle, a prominent building in the area, addresses the generation station and dam from the opposite bank of the Liffey.

The Power Station is one of three hydro electric stations that harness the River Liffey. Collectively known as the Liffey Scheme, the construction was completed between 1937 and 1949.

The River Liffey, which rises in the Dublin Mountains, is 5.5 miles (8.85km) from source to Leixlip and drains an area of over 300 sq. miles (777km²).

Description & Materials

The hydro electric development of the River Liffey comprises three stations, Pollaphuca, Golden Falls and Leixlip, each located at a point in the river where the natural falls provide suitable sites for the stations.

After passing through Pollaphuca and Golden Falls, the river flows 35 miles (56km) through Co. Kildare to Leixlip about 12 miles (19km) from Dublin. At Leixlip a dam impounds the water and forms a reservoir of about 40ha (100 acres) with a capacity of 160 million gallons (727 million litres) and provides a 60ft (18m) head.

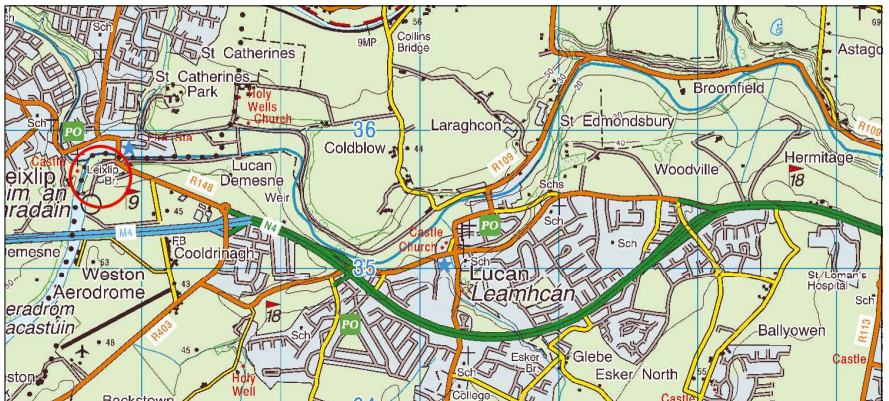
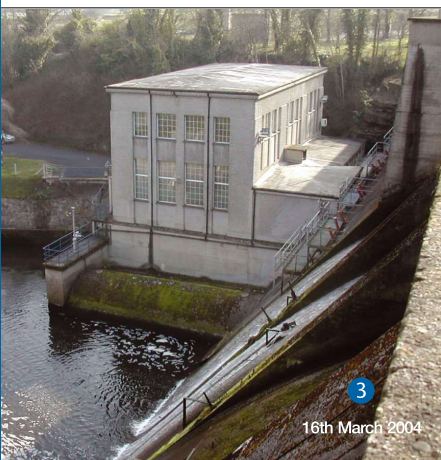
The primary elements of the complex comprise the power station building, dam structure, outdoor transformer compound, and 'temporary' staff room and toilets.

The Power Station Building

This accommodates the generating hall, turbine floor, control room, 10kV switch room, the communications room and ancillary services. The approach and river side elevations of the power station clearly express the structural order of the building. The buildings are designed in an austere modern style.

The façades are finished in a combination of roughcast and smooth renders which subtly differentiate between load and non-load bearing elements. The low-pitched hipped roof is supported by a series of steel lattice trusses bearing on a concrete structure. The end wall panels are braced with steel lattice bracing locally.

The primary vertical structural zones within the load bearing walls are further expressed as raised pilasters on the façades framing the multiple bays of windows. The pilasters terminate in line with the underside of roof trusses suggesting the presence of a concrete ring beam to which the trusses are fixed.



1. View of Spillway Gates, Spillway Dam Basin. 2. Entrance Elevation to Generating Hall . 3. View of Powerstation from High Level Dam Walkway. 4. View of 38kV Station Compound.

HYDRO ELECTRIC POWER STATION

Leixlip

Date Of Survey: 16th March 2004



16th March 2004

16th March 2004

Each structural bay is subdivided by multiple bays of windows with a strong vertical emphasis. The vertical openings contain high and low level windows separated by smooth render finished spandrel panels.

The large order façade of the generating hall engages harmoniously with the monumental scale of the dam structure, but is counterpointed with elegant fenestration of a human scale which allows a different reading from a more intimate vantage point.

Generating Hall

The generating hall is approximately 13m in height and incorporates a split level section. The entrance level accommodates a loading bay which is entered directly from the front of the building. The lower operations floor is accessed dramatically from the loading bay level via a terrazzo finished concrete stairs. A visually dominant gantry crane runs the full length of the generating hall and is supported on deep steel beams and concrete columns which sit proud of the primary structure. The crane facilitates maintenance of the heavy components that make up the generators and ancillary equipment.

The operating floor accommodates the 'Brown Boveri' generator. The Leixlip plant comprises a 4MW turbo alternator. The turbine floor is immediately below the operations floor accessed from a number of stairs and a ladder via a 'keyhole' opening in the operations floor. The control room which overlooks the generating hall is accessed via a series of level changes.

Dam Structure

Leixlip Dam is the lowermost dam on the River Liffey, located immediately upstream of Dublin City. The three Liffey dams are of the gravity design type.

The Leixlip dam was constructed during the 1940s, and incorporates a fishpass lift.

Special Interest - Artistic

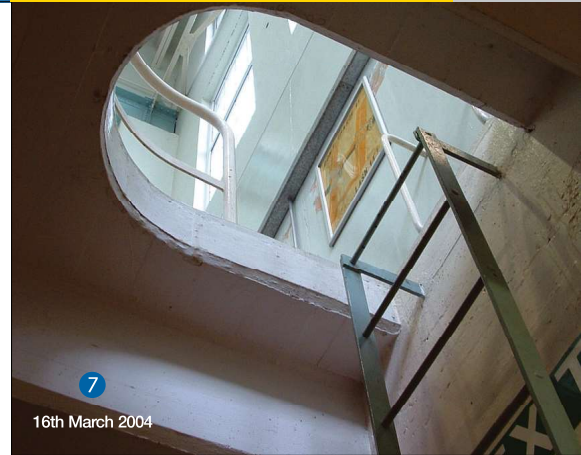
ESB have eight paintings depicting the construction of the Liffey Scheme by artist Sean Keating.

Special Interest - Scientific/Technical

ESB International have carried out major investigations into dam safety and flood control. A significant finding of geological investigations carried out at the site is the presence of weak seams of mylonite/gouge material in the foundation. As a result of this finding, extensive stability studies were undertaken to ensure that Leixlip Dam is capable of resisting both static and seismic loadings. The three Liffey stations are operated by remote control from the pumped storage power station at Turlough Hill.

Special Interest - Historical

Between 1937 and 1949 the harnessing of the Liffey was completed. In October 1937 the order was placed for the main construction work on the Liffey scheme at Pollaphuca and Golden Falls. Building began in 1938, but was delayed due to the Second World War. In 1943 the reservoirs at Pollaphuca and Leixlip were filled. Golden Falls was brought into commission in 1943.



16th March 2004



16th March 2004



16th March 2004

5. Façade Detail. 6. View of G5 Generator, Operations Floor. 7. Access Ladder Detail. 8. Detail of Ancillary Equipment. 9. View of High Level Dam Walkway.

ESB RETAIL SHOP

Main Street, Leixlip



Date Of Survey: 25th March 2003

Surveyors Name: David Naughton
 Photographer: David Naughton
 Field Controller: Judith Doherty
 O.S. Ref: 3194/17 ESB Ref: KE-SS-3194/17

Architectural Heritage Evaluation:		Categories of Special Interest:	
Record Only	<input checked="" type="checkbox"/>	Archaeological (AG)	
Local	<input type="checkbox"/>	Architectural (A)	
District	<input type="checkbox"/>	Artistic (AR)	
Regional	<input type="checkbox"/>	Cultural (C)	
National	<input type="checkbox"/>	Historical (H)	
International	<input type="checkbox"/>	Scientific (SC)	
		Social (SO)	
		Technical (T)	



Summary

A two-storey detached pitched roofed building constructed in 1975 on a rectangular plan located on a bend in the road on Main Street in Leixlip.

The building is located at the front of the site screening a rear yard which is used for deliveries and staff car parking. The yard is accessed from Main Street through steel framed gates. A steel telecommunications mast is also located in the yard behind the building.

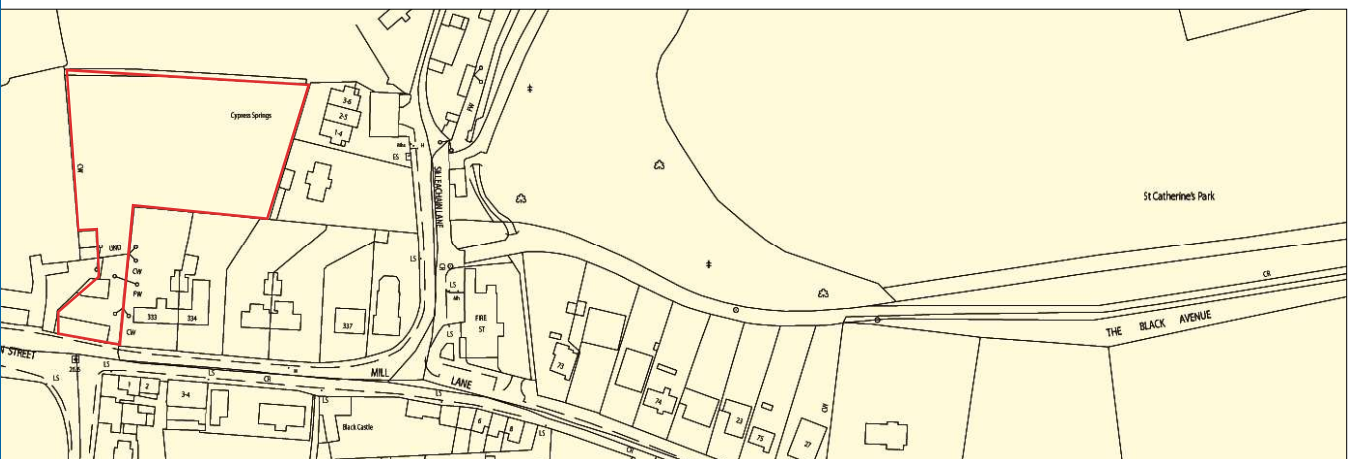
Description & Materials

The building comprises a shop, stores and offices. The front of the building forms the edge of the property boundary to Main Street. The shop is accessed directly from the street.

The building comprises a three-bay concrete framed structure. The showroom occupies the left-hand side bay incorporating an aluminium framed floor to ceiling glazed shop front. A security roller shutter is applied to the front of the shop front. The central bay is divided into four vertical sub-bays incorporating four small aluminium framed windows. The right-hand side bay is without openings and a public seat and signpost are located directly in front of it.

The structural elements are rendered with a smooth plaster with the infill bays expressed in a dashed plaster.

The steeply pitched roofed is clad with concrete roof tiles.



1. View from Main Street. 2. Front Elevation. 3. Detail of Shop Front.



19th Nov 2003

Surveyors Name: Caroline O'Riordan
 Photographer: Caroline O'Riordan
 Field Controller: Judith Doherty
 O.S. Ref: Ref. 7-2 D ESB Ref: C-N-7-2D

Architectural Heritage Evaluation:

Record Only	<input checked="" type="checkbox"/>
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District	<input type="checkbox"/>
Regional	<input type="checkbox"/>
National	<input type="checkbox"/>
International	<input type="checkbox"/>

Categories of Special Interest:

Archaeological (AG)	<input type="checkbox"/>
Architectural (A)	<input type="checkbox"/>
Artistic (AR)	<input type="checkbox"/>
Cultural (C)	<input type="checkbox"/>
Historical (H)	<input type="checkbox"/>
Scientific (SC)	<input type="checkbox"/>
Social (SO)	<input type="checkbox"/>
Technical (T)	<input type="checkbox"/>

ESB DEPOT

Naas Industrial Estate,
Maudlins

Date Of Survey: 19th November 2003



Summary

The depot consists of an administration building, additional office building, store building and associated yard areas. The complex was built in 1978. The property is located in an industrial estate adjacent to other industrial buildings. The present use of the entire property is as an ESB Depot and administration quarters.

Description & Materials

The depot consists of a single storey, detached, flat roofed administration building built in 1978 on a rectangular site with office and store buildings and car park at the rear.

Administration Building

The administration building is rectangular in plan and has a gross floor area of 265.29m². It is located to the front of the site. The administration building comprises offices, toilets and stores located off a central corridor. Structurally the building comprises blockwork cavity wall construction faced with fair faced coloured concrete masonry block system. The building's roof is of flat in-situ cast roof slab and parapet is expressed as an unpainted render finished band which has the effect of visually capping the building.

Floor to ceiling glazing framed in brown coloured aluminium is used throughout the building. A suspended ceiling system is applied throughout the interior of the building.

Office & Stores

The office building and stores adjoin each other and are located to the back of the site behind the car park.

The store building comprises a six-bay structure of concrete blockwork walls and piers supporting steel lattice trusses and a flat roof. It is accessed through roller shutters. Externally the block work is rendered with a pebbledash finish.

The office building is of concrete block work construction supporting a flat slab to the roof. The office accommodation is independently accessed from the depot yard.

The site is enclosed by chain link fence and reinforced concrete piers. A telecommunications mast, 'portacabin' and boiler house are located near the rear boundary. External storage is provided at the opposite side of the site and is finished with coarse gravel surface.

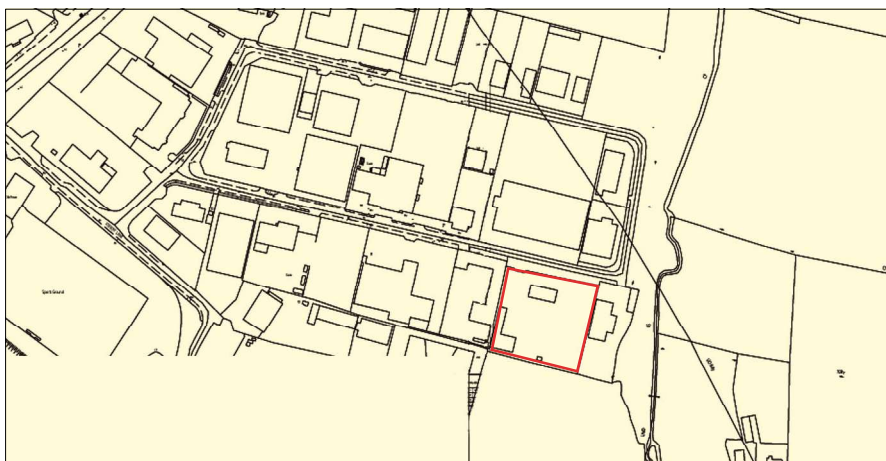
The total site area is 0.74ha (7480m²).



19th Nov 2003



19th Nov 2003



19th Nov 2003

1. View of Administration Building. 2. View of Offices and Stores. 3. Interior of Stores. 4. View of Depot Yard.

ESB RETAIL SHOP

The Moat Mall, Naas



Date Of Survey: 25th November 2003

Surveyors Name: Des Clarke
 Photographer: Des Clarke
 Field Controller: Judith Doherty
 O.S. Ref: 3107-18, 19+2820 ESB Ref: KE-SS-3107/18,19+2820

Architectural Heritage Evaluation:		Categories of Special Interest:
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Local	<input type="checkbox"/>	Architectural (A)
District	<input type="checkbox"/>	Artistic (AR)
Regional	<input type="checkbox"/>	Cultural (C)
National	<input type="checkbox"/>	Historical (H)
International	<input type="checkbox"/>	Scientific (SC)
		Social (SO)
		Technical (T)



25th Nov 2003



25th Nov 2003



25th Nov 2003



25th Nov 2003

Summary

A ground floor retail unit and first floor apartment constructed in 1992 as part of a two-storey terrace of shops located in a pedestrianised shopping mall in the centre of Naas town.

The property is located near the end of a pedestrianised cul-de-sac shopping area known as Moat Mall which is situated off Main Street in the centre of Naas. Surrounding buildings are generally two-storey. The retail unit occupies the ground floor of the building with storage and staff facilities overhead. The unit is adjoined on the ground floor by another retail unit, the Art and Hobby Shop.

Description & Materials

The present use of the entire property is as an ESB retail unit and store. The property consists of two units, a ground floor retail shop and a first floor apartment which is used as a store.

Shop

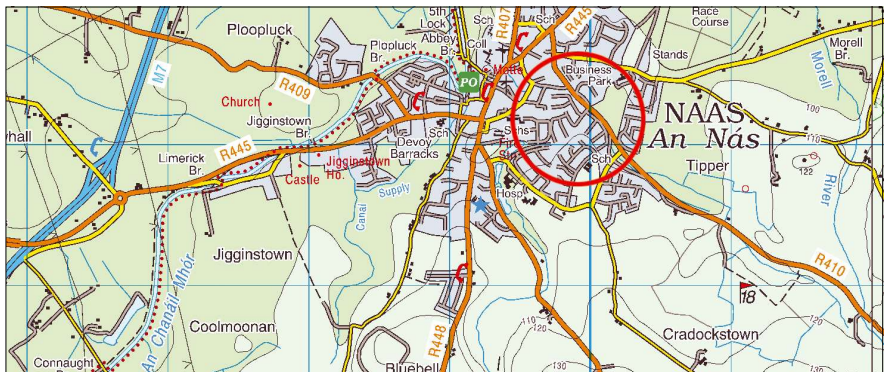
The ESB retail unit comprises a showroom, store, toilet and kitchenette to ground floor level. The unit is entered on the corner under an overhead corner balcony. The cash desk, store and staff rooms are located diagonally across from the entrance at the far side of the plan. The gross floor area of the retail unit is 120m².

Store

The apartment to first floor is used as a store and is accessed from the street via a separate door at the side of a neighbouring shop on the ground floor. The stairs are shared with a neighbouring unit on the first floor. The first floor unit partly overlaps the neighbouring ground floor level shop. The unit comprises three rooms and a bathroom. The corner balcony over the shop entrance is accessed from this unit. The gross floor area of the first floor apartment is 50m².

The property is constructed of cavity wall construction faced with buff coloured brickwork and reconstituted stone quoins. The pitched roof is clad in blue/black roof tiles. A suspended ceiling is applied to the interior of the retail unit. The shop front to the street interprets a traditional style with blue painted timber framed windows and doors. The first floor opens consist of PVC window frames and PVC soffits and fascias. Wall mounted street lanterns are located along the first floor level façade.

A public external staircase which accesses a car park to the rear of the mall is located along the façade of the building.



1. View from Moat Mall. 2. View of Entrance. 3. Shop Front Elevation. 4. View of Shop Interior.



1
12th Jan 2004

Surveyors Name: Des Clarke
 Photographer: Des Clarke
 Field Controller: Judith Doherty
 O.S. Ref: 3606/16+2820+2620
 ESB Ref: KE-SS-3606/16+2820+2620

Architectural Heritage Evaluation:	Categories of Special Interest:
Record Only	Archaeological (AG)
Local <input checked="" type="checkbox"/>	Architectural (A)
District	Artistic (AR)
Regional	Cultural (C)
National	Historical (H)
International	Scientific (SC)
	Social (SO)
	Technical (T)

ESB RETAIL SHOP & DEPOT

Edward Street, Newbridge

Date Of Survey: 12th January 2004



Summary

A detached, single storey, flat roofed retail unit, L-shaped in plan, located on a corner site, adjoining a rear yard containing lock-up sheds and a store/ office building. The site was acquired in 1960 and since then construction has been carried out in 1988, 1992 and 1996.

This corner property is in an urban location on a main shopping street in Newbridge town. The surrounding streetscape is mainly two-storey in scale. The property consists of two buildings, a shop and staff area at the front of the site and a store and offices in the rear yard, with storage sheds located on the back perimeter wall. The yard also provides for staff and machinery parking.

Description & Materials

The Retail Building

Located at the front of the site, on a corner, this is a flat roofed, single storey unit containing the large open-plan salesroom, offices and staff accommodation. The original rectangular plan was later added to at the side and rear, creating more storage space and staff areas.

The L-shaped yard to the rear is accessed from the side street via steel framed main entrance gates with steel square mesh cladding. The rear yard houses a store and offices as well as storage sheds and parking bays.

The building is of solid concrete block wall construction supporting a solid concrete cast in-situ roof slab with felt roof finish. The external treatment of the building consists of dashed rendered walls with timber framed windows and timber fascia to junction of walls and roof plane.

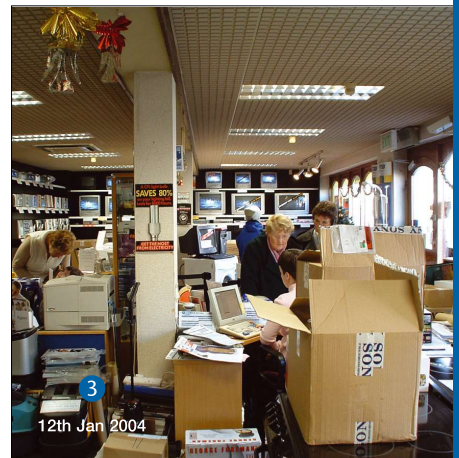
Store Building

The single storey store building is of solid, concrete block wall construction supporting a pitched roof supported on timber trusses. The roof covering consists of fibre cement slate finish. Accommodation consists of offices, canteen and staff rooms located off a central corridor. The elevational treatment consists of rendered nap plaster band to corners and all structural openings. Windows are PVC double-glazed with precast concrete cills.

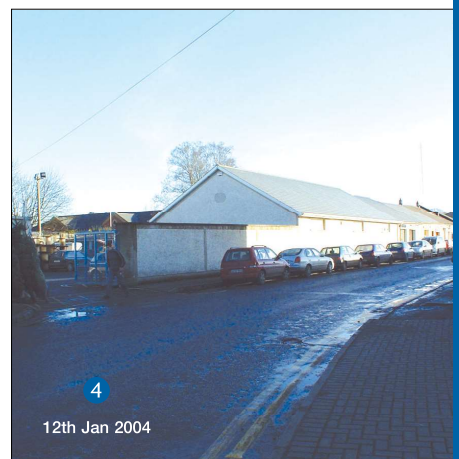
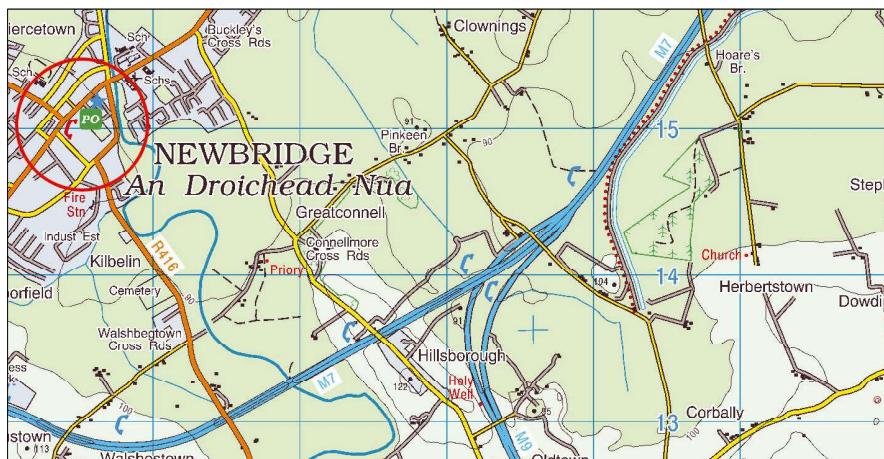
The single storey storage and sheds are located next to the rear perimeter and are of concrete block construction supporting a corrugated metal roof.



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1. Entrance Façade. 2. Detail of Shop front. 3. View of interior. 4. View of Store Building.

HYDRO ELECTRIC POWER STATION

Pollaphuca



Date Of Survey: 12th February 2004

Surveyors Name: Eugene Boyle
 Photographer: Eugene Boyle
 Field Controller: Peter Carroll
 O.S. Ref: 2820 ESB Ref: KE-PG-2820

Architectural Heritage Evaluation:	Categories of Special Interest:
Record Only	Archaeological (AG)
Local	Architectural (A)
District <input checked="" type="checkbox"/>	Artistic (AR) <input checked="" type="checkbox"/>
Regional	Cultural (C)
National	Historical (H)
International	Scientific (SC) <input checked="" type="checkbox"/>
	Social (SO) <input checked="" type="checkbox"/>
	Technical (T) <input checked="" type="checkbox"/>



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Summary

Pollaphuca is a hydro electric Power Station located on the River Liffey in Co. Kildare on the border of Co. Wicklow. The complex is adjacent to the N81 Road between Blessington and Baltinglass in Co. Wicklow.

The Pollaphuca complex is the largest of the three hydro electric stations that harness the River Liffey. Collectively known as the 'Liffey Scheme', the construction was undertaken between 1937 and 1949.

Despite the majority of construction at Pollaphuca being complete by the summer of 1941, the mechanical and electrical plant was not installed and commissioned for a number of years due to delays in the supply of materials and equipment as a result of the Second World War.

The first of the Pollaphuca generators was commissioned in 1944 and the second in 1947.

Description & Materials

The hydro electric development of the River Liffey comprises three stations, Pollaphuca, Golden Falls and Leixlip, each located at a point in the river

where the natural falls provided suitable sites for the development of hydro electric power stations.

After passing through Pollaphuca and Golden Falls, the river flows 56km through Co. Kildare to Leixlip, 19km from Dublin.

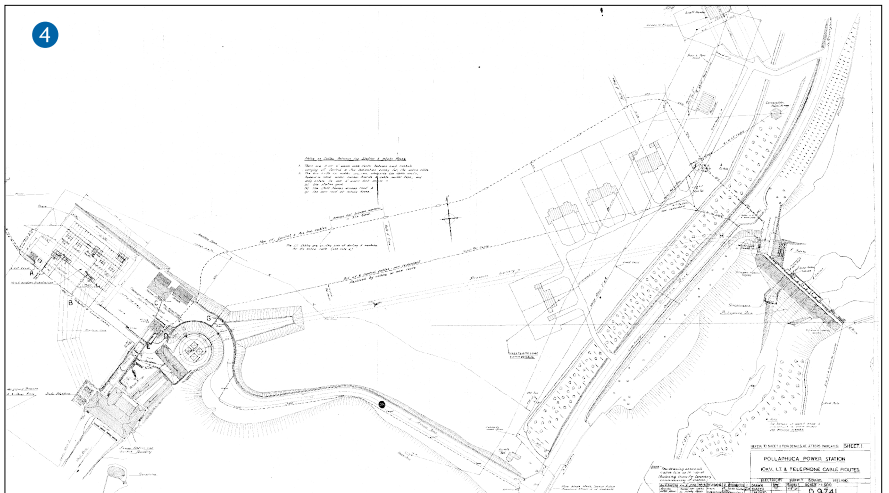
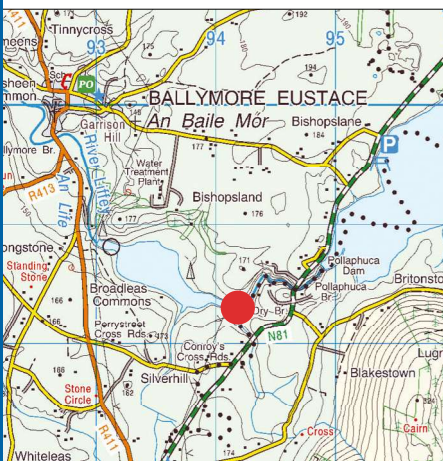
The primary elements of the complex at Pollaphuca comprise the reservoir, dam structure, pressure tunnel, surge tank, winch house & inclined elevator, valve house, power station building and outdoor transformer compound.

Reservoir & Dam Structure

Pollaphuca dam is the uppermost of the three dams on the River Liffey, located 75km upstream of the city of Dublin. The dam is approximately 78m long, 31.5m high and impounds a reservoir with an area of over 20km². Pollaphuca is exceptional in having such a large reservoir above it compared to other dams in Ireland. It is also unusual in that its reservoir has a storage area large enough to hold 50% of the annual flow. The dam is the only element of the scheme visible from the public road.



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1. Winch House, Surge Tank and Stores. 2. View over Inclined Elevator and Power Station. 3. View of Penstocks, Valve House and Surge Tank. 4. Site Plan.

HYDRO ELECTRIC POWER STATION

Pollaphuca

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The mile long stretch of water between the powerhouse at Pollaphuca and the smaller station at Golden Falls is used as a compensation reservoir.

In addition to providing water for electricity generation, the reservoir provides a major amenity for the capital city and its hinterland.

The Pollaphuca dam is a gravity dam structure of the mass concrete type constructed over a grout curtain and concrete core trench. This type of dam design relies on the weight of the dam to resist the forces of the water pressing on it. It is a solid concrete structure. The concrete dam is traversed by a walkway at high level which allows access to the controls of a number of elements.

Intake House

The intake house is the point of intake of water from the reservoir to the pressure tunnel. The axis of the intake house is rotated at 45° to the dam's axis to facilitate connection to the 400m long pressure tunnel. This results in a dynamic play of geometry and form with the intake house appearing to anchor the end of the dam. The

architectural language and structural logic of the dam as a whole is redolent of the 'Teutonic' expression employed on the Shannon Scheme.

Crest Gates & Spillway

These gates allow water levels in the river to be maintained and excess water to be released through the dam at times of high flooding.

Scour Intake

This allows debris to be removed from the water preventing damage to the operation of the dam.

Dublin City Council Water Supply Intake.

In addition to providing water for electricity generation, the reservoir provides a major source of water supply for Dublin. Dam safety is of major importance at Pollaphuca due to the proximity of a major city and the potential for loss of water supply to a significant population.

Inspection Gallery

Deep within the dam, an inspection gallery or tunnel runs through the structure to allow constant monitoring of the structural movement of the dam.



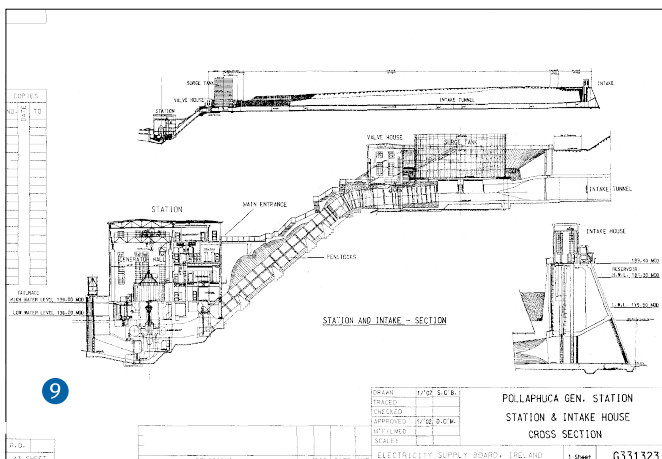
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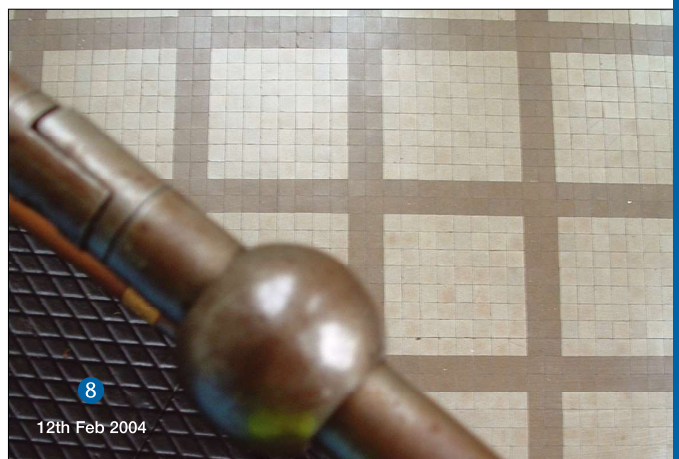


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5. Interior of Valve House. 6. Interior of Generating Hall. 7. Detail of Handrail to Generator. 8. Detail of Flooring Materials to Generating Hall. 9. Cross Section.

HYDRO ELECTRIC POWER STATION

Pollaphuca
(Continued)



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Pressure Tunnel

From the dam a pressure tunnel 400m long and 4.8m in diameter conveys water from the reservoir to the penstocks and down to turbines in the power station.

The pressure tunnel is partially formed in rock and partially as a cut and cover tunnel.

Surge Tank

The surge tank is 35m high and 20m in diameter. It provides safety control to the flow of water through the twin penstocks to the two 15MW generators in the power house below. The surge tank is clad in metal panels and is cylindrical in form.

Valve House & Penstocks

Water flows to the power station through 60m long twin steel penstocks of 3.7m diameter. The water flow from the pressure tunnel to the penstocks is controlled by the turbine inlet valves in the valve house. The valve house is a concrete framed structure, two storeys in scale and of single volume. The building is finished in unpainted render and is capped with a flat roof. The architectural language is similar to the main power station building.

Winch House & Inclined Elevator.

As a result of the topography of the site, the access to and maintenance of the power station building is constrained. An inclined elevator was constructed which facilitates movement of heavy plant up and down the steeply sloping site.

Power Station Building

The power station building is located downstream of the dam structure on a steeply sloping site. Access from the car park is via a series of concrete steps and a winch operated inclined elevator system.

The cross section of the building reveals

four storeys of densely planned cellular accommodation addressing the entrance side of the building back to back with the four-storey volume of the generating hall facing the river, all of which is capped with a unified roof volume.

The front element consists of the administration offices, drawing office, original control room, permanent exhibition space, 10kV switch room, communications room and ancillary services. The end bay of the generating hall volume overlaps the northwest end of the building facilitating access to the loading bay and inclined elevator landing platform.

The architectural expression of this side of the building is domestic in style and its full scale is concealed by the topography of the site.

The generating hall is a four-storey volume, approximately 13m in height and incorporates a split-level section to facilitate access to the loading bay.

A visually dominant gantry crane runs the full length of the generating hall and is supported on deep steel beams and concrete columns which sit proud of the primary structure. The crane facilitates maintenance of the heavy components that make up the generators and ancillary equipment. The low-pitched hipped roof is supported by a series of steel lattice trusses bearing on a concrete structure. The flooring materials have been co-ordinated with the setting out of structural elements and generator locations.

The architectural expression of this side of the building is heroic in scale reflecting the scale and function of the space within and responds to the River Liffey and landscape beyond.

The large order façade of the generating hall engages with scale of the gorge, and incorporates elegant fenestration

10. Downstream View of Dam. 11. View of Original Control Room. 12. Detail of Synchroscope Instrumentation. 13. Mechanical Plant on Turbine Floor.

HYDRO ELECTRIC POWER STATION

Pollaphuca
(Continued)

Date Of Survey: 12th February 2004



of a human scale which allows a different reading from a more intimate vantage point. The façades are finished in roughcast render. Window reveals and mullions are finished in a smooth render.

The river side elevations of the power station clearly express the structural order of the building. Each structural bay is subdivided by multiple bays of windows with a strong vertical emphasis. The incorporation of an 'attic' storey band of square punched windows poetically introduces natural light at high level reducing the visual weight of the steel trusses and allowing light to fall into the space throughout the day. The original W20 type steel windows have been retained in the generating hall.

Networks

The power generated at 10/11kV is raised to 110kV at the outdoor transformer station being fed into the national network.

Special Interest - Social

Pollaphuca Reservoir provides a major amenity for the people of Dublin as a mixed fishery and a popular location for activities such as dinghy sailing, canoeing, hill walking and golf.

Special Interest - Artistic

ESB have eight paintings depicting the construction of the Liffey Scheme by artist Sean Keating.

Special Interest - Scientific/Technical

At Pollaphuca there are two generating units, each with an output of 15.7MW at 300 rpm designated G1 and G2 of the Liffey System. They are designed for a gross head of 47m and have a combined consumption at full load of approximately 80m³ per second.

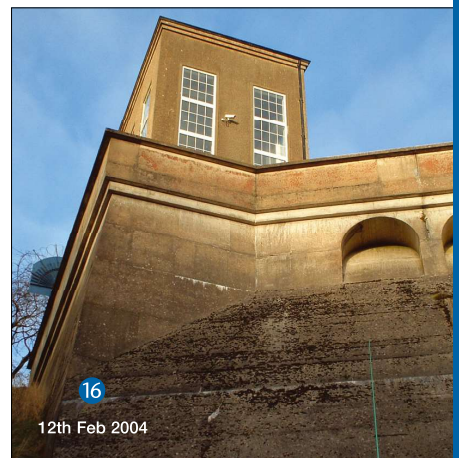
The three Liffey stations are operated by remote control from the pumped storage power station at Turlough Hill.

Special Interest - Historical

In October 1937 the order was placed for the main construction work on the Liffey Scheme at Pollaphuca and Golden Falls. Building began in 1938, but the Second World War compromised the program since supplies of materials became difficult and uncertain. Because of the War, not all of the equipment had been delivered and by 1943 it was still uncertain when the Liffey station would be commissioned.

Despite the majority of construction at Pollaphuca being complete by the summer of 1941, the mechanical and electrical plant was not installed and commissioned for a number of years.

In 1943 the reservoirs at Pollaphuca and Leixlip had been filled. Golden Falls was brought into commission in 1943. The first of the Pollaphuca generators was commissioned in 1944 and the second in 1947. Leixlip was commissioned in 1949.



14. Detail of Dam Spillway Gates. 15. Oblique View of Dam. 16. Detail of Dam Intake House. 17. Elevated view of Complex.