



LP CONSULTING
AUSTRALIA PTY LTD

- DESIGN AND PROJECT MANAGEMENT
- CIVIL ENGINEERING
- WATER AND WASTEWATER ENGINEERING
- BUILDING AND INFRASTRUCTURE
- HYDRAULIC AND FIRE SERVICES
- SYDNEY WATER ACCREDITED
- WATER SERVICING COORDINATOR,
DESIGNER AND PROJECT MANAGER
- EXPERT TECHNICAL ADVICE



CURRICULUM VITAE OF LOUIS PANAGOPOULOS

ACADEMIC QUALIFICATION

- 1975 to 1980 -- Higher School Certificate, Canterbury Boys High School, Sydney
- 1981 to 1987 -- Bachelor of Engineering (Civil), University of Technology, Sydney
- 1997 to 1998 -- Teacher Sydney Institute of Technology, North Sydney / Bankstown
(Hydrology & Stormwater Drainage Disposal Systems)

PROFESSIONAL AFFILIATIONS

- Corporate Member Consult Australia
- Member Institution of Engineers, Australia
- Member Water Association of Australia
- Member Stormwater Industry Association, NSW
- Member Concrete Institute
- Member Cement and Concrete Association
- Member Traffic and Transport Association of Australia

PROFESSIONAL RECORD

- Since August 2013 – Principal Engineer – LP Consulting Australia Pty Ltd
- 2004 to 2013 -- Director – LP Consultants Pty Ltd
- 1994 to 2013- Director Civil & Water Engineering -- Warren Smith & Partners
- 1988 to 1994 -- Senior Water /Wastewater Engineer, Parsons Brinkerhoff
- 1987 to 1988 – Water / Wastewater Engineer – NSW Public Works Department
(Hydraulics Group)
- 1986 to 1987 -- Water / Wastewater Engineer – Eckenfelder and Associates
- 1984 to 1985 – Water / Wastewater Engineer – NSW Public Works Department
(Lithgow Township)
- 1983 to 1984 – P & P Constructions Pty Ltd
- 1981 to 1983 – Water Engineer – NSW Public Works Department

PROFESSIONAL ACCREDITATION AND TRAINING

- 1989 to 1994 -- Sydney Water Registered Design Consultant for Dollar contracts
- 1994 to 2004 -- Sydney Water Designer and Quality Checker
- 2004 to 2013 – Sydney Water Water Servicing Coordinator
- 2004 to 2013 -- Sydney Water Project Manager & Design Consultant
- 2001 to 2013 -- Hunter Water Accredited Design Consultant
- 1994 to 2013 – ACTEW AGL Registered Designer and Project Manager
- 2004 to 2013 -- Accredited in Occupation Health and Safety (Safe Working in Confined & Resuscitation and First Aid)

SYNOPSIS OF PROFESSIONAL EXPERTISE

- Expert advice in the areas of Water and Sewer infrastructure;
- Expert advice on Stormwater drainage and flooding;
- Masterplanning of hydraulic services and civil works;
- Detailed design of Stormwater drainage for homes and complex projects;
- Detailed design of Sydney Water watermains and sewer mains;
- Directing teams of engineers on large complex projects;
- Budgetary advice;
- Steering committee attendance for works of expertise;
- Construction quality control audit;
- Defects reports;
- Work As Executed drawings

MILESTONE PROFESSIONAL ACHIEVEMENTS

- Winning Tender and Director of Riverside Corporate Park, North Ryde - 1994;
- Winning Tender and Director of Eastern Distributor – Sydney Water Infrastructure - 1997;
- Winning Tender and Director of Cross City Tunnel Early works – Sydney Water works – 2001;
- Winning Tender and Director of Centrecourt Optus Headquarters, North Ryde – 2005;
- Winning Tender and Director of Barangaroo Headland Park, Hickson Road Sydney – Civil Hydraulics – 2010.
- Director of Warren Smith and Partners Civil and Water Engineering team for 20 years from 1994 to 2013;
- Establishment of Consultant practice LP Consultants Pty Ltd in 2004
- Establishment of Consultant practice LP Consulting Australia Pty Ltd in 2013.

WARREN SMITH AND PARTNERS PTY LIMITED DIRECTOR CIVIL & WATER ENGINEER – 1994 TO 2013

Director Civil Engineering responsible for company civil and water related infrastructure projects. A summary of large scale projects undertaken is listed hereunder:

CIVIL WORKS

- Proposed UES Research Greenhouse, Lot 107 Cobbitty Road, Cobbitty – June 2012
- Lot 5, Cnr Mamre Road, James Erskine Drive and Sarah Andrews Close, Erskine Park – February 2012;
- Lots 3, 4 and 5 Yarrowa Street, Prestons and Full Road Reconstruction, Yarrowa Street – November 2011;
- Benedict XV1 Retreat Centre, Chapel and Conference Facilities, 347 Grose Wold Road, Grose Vale – October 2011;
- 370 Old Northern Road, Lot 2, DP 135804, Castle Hill – August 2011;
- East Quarter Stage 2 and 3, 95 Forest Road, Hurstville – April 2011;
- Barangaroo Headland Park, Hickson Road, Sydney – February 2011;
- Riverwood North Residential Renewal Project, Riverwood – October 2010;
- University of New South Wales, Chancellery Walk – August 2010;
- Hamaskaine Arsag and Sophie Galstaun College, 5 Chiltern Road, Ingleside – March 2011;
- RSL Anzac Village, Narrabeen, Dardanelles Stage 2 – September 2010;
- Metro Plaza, 61-79 Quay Street, Haymarket, Public Domain – September 2010;
- Australian Technology Park, Locomotive Street, South Eveleigh, Locomotive Workshop Floor Upgrade – June 2010;
- Centrecourt, Paul Street North, North Ryde, Carpark – April 2010;
- Buddhist Monastic Institute, 130 Nardoo Road, Peats Ridge, NSW – March 2010;
- Townson Road and Meadow Road, Schofields, Reconstruction and Intersection Works – October 2009;
- Proposed Materials Handling Facility, Lot 4 and 5, Yarrowa Street, Prestons – February 2009;
- Victoria Cross Redevelopment, 60 Miller Street, North Sydney – September 2008;
- Justinian House, Sydney Melanoma Unit, 18-22 Sinclair Street, Wollstonecraft – May 2008;
- Pinnacle Office Park, 85 Epping Road, 376 Lane Cove Road and 6-8 Giffnock Avenue, North Ryde – November 2007;
- 16 Day Street, Silverwater, Pavement Reconstruction – August 2007;
- Sutherland Trade Union Club, Carpark – June 2007;
- Proposed Industrial Subdivision, 133-149 Beauchamp Road, Matraville – May 2007;
- East Quarter, Stage 1, 95 Forest Road, Hurstville – November 2006;
- Country Road Hatchery, Lot 2, DP 873793, Tamworth – September 2006;
- Proposed Industrial Subdivision, Goulburn Business Precinct, 212 Ducks Lane, Goulburn – August 2006
- Ian Thorpe Aquatic Centre, Harris, Quarry and Pyrmont Streets – September 2005;
- 93 Williamson Road, Ingleburn, Truck Access Driveway – September 2005;

CURRICULUM VITAE OF LOUIS PANAGOPOULOS

- Roche Products Pty Ltd, Dee Why, Northern Carpark, Buildings 9, 10 and 22 – July 2005;
- Yennora Distribution Park, Building 9, Loftus Road, Yennora – July 2005;
- Proposed Industrial Development, 2 Lyn Parade, Hoxton Park – April 2005;
- Centre Court, Lyon Park Road, North Ryde – February 2005;
- Unanderra Depot Consolidation Project, Lot 13, DP813368 Beccia Drive, Unanderra – September 2004;
- Lot 1, 89 Williamson Road, Ingleburn – August 2004;
- 48 Lot Industrial Subdivision, Lot 1, Ducks Lane, Goulburn – October 2003;
- 356 Old Windsor Road, Seven Hills – September 2003;
- Auburn Central Development, Queen Street and Park Road, Auburn – August 2003;
- Liverpool Arena, Woodward Park, Liverpool – May 2003;
- Spicer Axle, Yennora Industrial Development, Cnr Fairfield Road and Foray Street, Yennora – February 2003;
- Paclib Industrial Pty Ltd, 93 – 117 Lenore Lane, Erskine Park – December 2003;
- Riverwood Business Park, 92-100 Belmore Road, Riverwood – October 2002;
- Homebush Business Village, Underwood Road Widening and Associated Works – October 2002;
- Glebe Harbour, Glebe – October 2002;
- Sydney Olympic Park, East/West Link, Stage 2 – February 2002;
- Burger King Australia, Corner Mona Vale and Aumuna Roads, Terrey Hills – May 2001;
- Rouse Hill Anglican College, Stage 1 – April 2001;
- 207 Pacific Highway, St Leonards – November 2000;
- University of Sydney, Veterinary Sciences Precinct – October 2000;
- Eli Lilly, 112 Wharf Road, West Ryde – August 2000;
- Proposed Subdivision, 40-42 Saddington Street, South Turramurra – March 2000;
- Sonic Healthcare Development, 95-99 Epping Road, North Ryde – November 1999;
- Industrial Subdivision, Mars Road, Lane Cove – March 1999;
- Office Warehouse Industrial Development, Corner Walters Road and Great Western Highway, Arndell Park – July 1998;
- Proposed 25 Lot Industrial Development, Baker and Moore Streets, Botany
- 180 Hume Street, Goulburn
- Elf Kapooka, Department of Defence, Wagga Wagga
- Darling Walk Redevelopment, 1-25 Harbour Street, Sydney
- Griffin Legacy Infrastructure, Canberra
- 6A Huntley Street, Alexandria
- Middlemount Mining Accommodation, Mackay, Queensland
- Proposed Monastery, Peats Ridge

CURRICULUM VITAE OF LOUIS PANAGOPOULOS

- Coppabella Accommodation Centre, Stages 7, 9, 10 and Roads, Queensland
- Hunter Economic Zone (HEZ)
- Justinian House Redevelopment, Wollstonecraft
- Douglas Road, Mossvale
- Art Gallery, New South Wales, Art Storage Facility, Lilyfield
- Baiada Hatchery, Tamworth
- 93-115 Lisbon Street, Fairfield
- 3-33 Glossop Street, St Marys
- Seniors Resort, Tamworth
- Sansara Residential Development, Agnes Water, Queensland
- 27 Mars Road, Lane Cove

STORMWATER DRAINAGE PROJECTS

Provision of Stormwater Drainage including the following specific services:-

- ✓ *Design of Site Stormwater Drainage;*
- ✓ *Construction Quality Control;*
- ✓ *Certification and Work As Executed drawings.*

A select list of projects is outlined below:-

- University of Sydney, Charles Perkins Centre, Orphan School Creek Drain – February 2012;
- Proposed Residential Development, 20 Shepherd Street, Liverpool – February 2012;
- Riverwood North Residential Renewal Project, Riverwood – November 2011;
- 11 Bell Street, Vaucluse, Residence – August 2011;
- 54 Waterloo Road, North Ryde – July 2011;
- Silverwater Industrial Estate, Rainwater Reuse Project – July 2011;
- 68 Chesterfield Parade, Bronte, Residence – June 2011;
- 40 Manning Road, Double Bay, Residential Development – April 2011;
- Marrickville Subdivision, 91 Fitzroy Street, Marrickville – December 2010;
- 45-51 Juliett Street, Marrickville – December 2010;
- Merrylands Bowling Club, 2 Oxford Street, Merrylands – April 2010;
- 21 Kalau Street, North Balgowlah, Residence – June 2010;
- ELF Stage 2, Firing Range, Singleton – June 2010;
- Mixed Development, Pemberton and Wilson Streets, Botany – December 2009;
- Lot 1, 91 Fitzroy Street, Marrickville – August 2009;
- 141 Mount Street, Coogee – July 2009;
- 83 Egerton Street, Silverwater – June 2009;
- 15 Nancy Street, North Bondi – May 2009;
- 100 Mount Street, North Sydney – May 2009;
- Central Railway Station Viaduct – April 2009;
- Proposed Industrial Development, 23 Mars Road, Lane Cove – March 2009;
- Proposed Industrial Development, Lots 50, 341 and 365 Clay Place, Eastern Creek – March 2009;
- Penrith Valley Regional Sports Centre, Herbert Street, Cambridge Park – February 2009;
- 10 and 12 Williamson Road, Ingleburn – December 2008;
- 1 Nancy Street, North Bondi, Residential Development – November 2008;
- Balmoral Grange Independent Living, 10-14 Fairway Drive, Kellyville – August 2008;

CURRICULUM VITAE OF LOUIS PANAGOPOULOS

- 272 Woollooware Road, Woollooware – August 2008;
- Van Leeuwen Pipe and Tube, Lee Holm Road, Dunheved – June 2008;
- 1 Rivett Road, Riverside, Stage 2, North Ryde – June 2008;
- 566 -568 Military Road, Mosman – April 2008;
- Proposed Nursing Home, 71-83 Samantha Riley Drive, Kellyville – April 2008;
- Proposed Industrial Retail Centre, West Dapto Road, Kembla Grange – February 2008;
- Unit R, 10-16 South Street, Rydalmere – February 2008;
- Top Ryde Shopping Centre Redevelopment, Ryde – December 2007;
- Summer Hill Village Redevelopment, 1-11 Hardie Avenue, Summer Hill – December 2007;
- Proposed Residential Development, 30, 32 and 34 Stanley Street, St Ives – October 2007;
- New College Post Graduate Village, Anzac Parade and Day Avenue, Randwick – July 2007;
- Lot 19, 20 and 21 Somerville Circuit, Emu Plains – April 2007;
- 5 Stanton Road, Seven Hills, Waterproofing, Stormwater and Subsoil Drainage Works – April 2007;
- 2B West Street, Lewisham – April 2007;
- Heart Research Institute, 7-21 Eliza Street, Newtown – February 2007;
- 29 Davis Road, Wetherill Park – January 2007;
- 36 Alfred Street, Bronte, Residence – March 2007;
- Proposed Industrial Development, Lot 285 Lisbon Street, Fairfield, Stage 4 – November 2006;
- D&J Waterhouse, 97 Elizabeth Bay Road, Elizabeth Road, Tidal Pool – September 2006;
- 101 Birriga Road, Bellevue Hill, Residential Development – May 2006;
- Proposed Housing Development, 3-11 Royston Street, Paddington – December 2005;
- Proposed Industrial Subdivision, 27 (Lot 272) Mars Road, Lane Cove – September 2005;
- 41 Craigholm Street, Sylvania Heights, Residence – September 2005;
- 27-33 Roberts Road, Chullora – April 2005;
- Lifestyle Working, 117 Old Pittwater Road, Brookvale – February 2005;
- Residential Development, Newhaven Place, St Ives – December 2004;
- 145 Arthur Street, Flemington – June 2004;
- Proposed Townhouse Development, Lot 561 Eskdale Street, Minchinbury – April 2004;
- Centennial, Lot 201 King Street, Randwick – January 2004;
- Proposed Industrial Development, 69 Middleton Road, Cromer – September 2003;
- Proposed Industrial Development, 32 Campbell Avenue, Cromer – September 2003;
- Lot 1, 89 Williamson Road, Ingleburn – August 2003;

CURRICULUM VITAE OF LOUIS PANAGOPOULOS

- 101 George Street, Parramatta – July 2003;
- Australian Technology Park, Henderson Street, Eveleigh – June 2003;
- Fairfield RSL Carpark – April 2003;
- John Whiteway Drive, Gosford – March 2003;
- 106-108 Belmore Road, Riverwood – February 2003;
- St Leonards Apartments, Lots 2-16 Duntroon Avenue, St Leonards – February 2003;
- 86 Cascade Street, Paddington, Residence – February 2003;
- Lot 603, Greystanes Business Park, Greystanes – February 2003;
- 4-5 Eden Park, North Ryde – February 2003;
- 2 Normurra Avenue, North Turramurra – December 2002;
- 18-28 Romsey Street, Waitara – October 2002;
- 2 Adams Avenue, Little Bay – October 2002;
- Blacktown Central Library, Blacktown – September 2002;
- 4571 Buckets Way, Gloucester River Run, Housing Development – September 2002;
- Darley Road, Forestville – September 2002;
- 354 Edgar Street, Condell Park – August 2002;
- 2-16 Bellevue Road, Bellevue Hill – May 2002;
- 294-296 Coward Street, Mascot – May 2002;
- 1A Chiltern Parade, Warrawee – April 2002;
- Auburn Central Development, Queen Street and Park Road, Auburn – March 2002;
- 2/2A Edbaston Road, Beverly Hills – March 2002;
- Bathurst Street, Development, Liverpool – February 2002;
- Lot 41, 27-31 Waterloo Road, North Ryde – December 2001;
- Second Hand Building Centre, 1 Stoney Batter Road, Minto – July 2001;
- Proposed Business Park, 110 Narabang Way, Austlink – May 2001;
- 10 Boden Road, Seven Hills – May 2001;
- 5 Talavera Road, North Ryde – April 2001;
- 13 – 18 Condamine Street, Manly Vale – March 2001;
- 477 Pittwater Road, Brookvale – March 2001;
- Upgrade of University Avenue, Sydney University – February 2001;
- Proposed Industrial Unit Development, Cnr Military Road and Bryon Road, Guildford – December 2000;
- 145 Lilyfield Road, Lilyfield – December 2000;

CURRICULUM VITAE OF LOUIS PANAGOPOULOS

- Greenwich Catholic Church, Greenwich – December 2000;
- Residential Development, 343 Mona Vale Road, St Ives – November 2000;
- 28 Smart Street, Fairfield, Commercial and Residential Development – November 2000;
- Proposed Subdivision, Lot 22 and 23, 71 Milperra Road, Revesby – October 2000;
- Corner Coronation and Jersey Streets, Hornsby – October 2000;
- 394 Lane Cove Road, North Ryde – July 2000;
- Cordina Chickens, Mandoon Road, Girraween – July 2000;
- New Data Centre and Office, 27 Waterloo Road, North Ryde – May 2000;
- Industrial Development, Lots 19, 20, 23 and 24, Stage 1, Chaplin Drive, Lane Cove – March 2000;
- Waratah Mills, Dulwich Hill, Residential Development – February 2000;
- Light Industrial Development, Lot 21, Chaplin Oval, Mars Road, Lane Cove – November 1999;
- University of Sydney, Eastern Avenue, Gatehouse – November 1999;
- 12 Lentara Road, Bayview, Residence – November 1999;
- 587 Princes Highway, Blakehurst – October 1999;
- Residential Units, 16 Fairfax Road, Bellevue Hill – August 1999;
- Residential Development, 15 Dick Street, Henley – May 1999;
- Hills Christian Life Centre – May 1999;
- Parklands Estate, 13-23 South Street, Rydalmere – March 1999;
- Proposed Bus Depot, 49 Percival Road, Smithfield – December 1998;
- Residential Development, 641 Pittwater Road, Dee Why – December 1998
- Lot 14, Riverside Corporate Park, North Ryde – November 1998;
- Marshall Motors, 312-316 Church Street, Parramatta – November 1998;
- Prince Alfred Private Hospital Carpark, Cnr Church and Grose Streets, Camperdown – October 1998;
- Industrial Redevelopment, 2-6 Rodborough Road, Frenchs Forest – September 1998;
- Sand Castles, Pacific and Sturdee Parades, Dee Why – August 1998;
- Liberty Grove, Stage 4C, 1 Oulton Avenue, Concord West – July 1998;

SYDNEY WATER - WATER INFRASTRUCTURE PROJECTS (WATER SERVICING COORDINATION, DESIGN AND PROJECT MANAGEMENT)

Water Servicing Coordinator, Project Manager and Senior Designer accredited with Sydney Water to provide the following services:-

- ✓ *Water Servicing Coordination*
- ✓ *Main to meter services;*
- ✓ *Design of Water mains;*
- ✓ *Construction Quality Control;*
- ✓ *Certification and Work As Executed drawings.*

A select list of projects is outlined below:-

- Royal North Shore Hospital, Westbourne Street, St Leonards – DN500mm and DN 200mm Watermain Adjustment – June 2012
- Abercrombie Street Development for University of Sydney –DN150mm Watermain Disuse – May 2012;
- 95 Forest Road, Hurstville – DN300mm, 250mm, 200mm and 150mm Watermain Amplification and Extension – May 2011;
- 39 Heath Street, Mona Vale – DN100mm Watermain Deviation – July 2010;
- Darling Walk Development, Harbour Street, Darling Harbour – DN219mm and DN200 Watermain Extensions – February 2010
- Chatswood Civic Place, Ferguson Lane, Chatswood – DN150mm Watermain Disuse – July 2009;
- Chatswood Civic Place, Chatswood – DN150mm Watermain Extension – June 2009;
- 37-41 Alleyne Street, Chatswood – DN150mm and 100mm Watermain Extension – April 2009;
- Bath Road, Kirrawee – DN250mm, 150mm and 100mm Watermain Amplification – March 2009;
- 14 Artarmon Road, Willoughby for Channel Nine – DN150mm Watermain Extension – October 2008;
- Art Gallery NSW, Lilyfield Road and Canal Road, Leichhardt, DN150mm Watermain Extension – September 2008;
- 74-76 Blair Street, North Bondi – DN100mm Watermain Extension – May 2008;
- Pemberton Street, Parramatta – DN150mm Watermain Amplification – April 2008;
- Liverpool and Elizabeth Streets, Sydney – DN200mm Watermain Adjustment – April 2008;
- 133-149 Beachamp Road, Matraville – DN150mm Watermain Extension – March 2008;
- Old Windsor Road, Toongabbie – DN150mm and 200mm Watermain Extension – July 2007;
- 92 Parramatta Road, Lidcombe – DN375mm Watermain Adjustment – October 2006;
- 24 Hunter Street, Parramatta – DN200mm Watermain Amplification – July 2006;
- 27 Mars Road, Lane Cove – DN150mm Watermain Extension – April 2006;
- Bishopscourt, Greenoaks Avenue, Darling Point – DN150mm Watermain Extension – February 2006;
- Glebe Harbour, Forsythe Street, Glebe – DN150mm Watermain Amplification – November 2005;
- 1-11 Broderick Street, Camperdown – DN150mm Watermain Amplification – June 2005;
- Sydney Opera House, Bennelong Point, Sydney – DN200mm Watermain Deviation – June 2005;
- 4 Lot 3 Telak Close, Willoughby – DN100mm Watermain Extension – June 2005;
- Centrecourt, Lyon Park Road, North Ryde – DN1200mm and 750mm Watermain Adjustments – April 2005;
- Brandling Lane, Alexandria – DN100mm Watermain Extension – February 2005;
- Macarthur Square Shopping Centre, Menangle Road, Macarthur – DN375 Watermain Adjustment – December 2004;

CURRICULUM VITAE OF LOUIS PANAGOPOULOS

- Lot 201 King Street, Randwick – DN250mm Watermain Amplification – November 2004;
- Double Bay Development, Double Bay – DN150mm Watermain Adjustment – September 2004;
- 5-13 Northcliff Street, Milsons Point – DN200mm Watermain Amplification – July 2004;
- Inner West Health Centre, Croydon Road, Croydon – DN150mm Watermain Adjustment – June 2004;
- 391 Park Road, Regents Park Estate – April 2003 and May 2004;
- 31-37 Hassall Street, Parramatta – DN200mm Watermain Amplification – March 2004;
- Baiada Poultry Hatchery, 54 Vine Street, Marsden Park – March 2004;
- 12 Hume Highway, Chullora – DN1067mm and 1200mm Watermain Deviation – November 2003;
- Wentworthville Leagues Club, Wentworthville – DN150mm Watermain Amplification – October 2003;
- 4-5 Eden Park Drive, Eden Park Estate, North Ryde – DN200mm Watermain Amplification – September 2003;
- 22-24A Parkside Lane, Mays Hill – DN200mm Watermain Amplification – August 2003;
- Lot 603, Greystanes Business Park, Greystanes – DN1200 Watermain Adjustment – August 2003;
- Auburn Central Development, Auburn – DN290mm, 250mm and 150mm Watermain Extensions – August 2003;
- 1-16 Duntroon Avenue, St Leonards – DN150mm Watermain Amplification – July 2003;
- Casula Powerhouse Refurbishment, Casula – DN150 and DN168mm Watermain Amplification – June 2003;
- 29-33 Carter Street, Lidcombe – DN150mm Watermain Deviation – April 2003;
- Waratah Mills Residential Development, Dulwich Hill – DN150mm Watermain Extension – September 2002;
- St Patricks College, Sutherland – DN 150mm and 160mm Watermain Extension – March 2002;
- Baxter Healthcare, Flemington – DN1200mm Watermain Adjustment – November 2001;
- Cross City Tunnel, Sydney – DN300mm, DN250mm and 150mm Watermain Adjustment, Druitt Street, August 2001;
- Cross City Tunnel, Sydney – DN250mm Watermain Adjustment, Kent Street, August 2001;
- 207 Pacific Highway, St Leonards – DN 200mm and 250mm Watermain Extension – June 2001;
- 253 Pitt Town Road, Kenthurst – DN100mm Watermain Extension – June 2000;
- Proposed Industrial Development, Baker and Moore Streets, Botany – DN150mm Watermain Extension – June 2000;
- St Patrick's College, Sutherland – DN150mm Watermain Extension – 2000;
- Alfred Street Redevelopment, Sydney – DN250mm Watermain Deviation – 1999;
- Eastern Distributor Motorway, East Sydney – December 1998
 - DN1200mm Adjustment – South Dowling Street at Dacey Avenue;
 - DN900mm Adjustment – South Dowling Street in Moore Park;
 - DN900mm Adjustment – South Dowling Street, north of Dowling Street;
 - DN900mm Adjustment – South Dowling Street, opposite Crescent Street;
 - DN900mm Adjustment – Moore Park Road;
 - DN750mm Adjustment – South Dowling Street at Maddison Street;
 - DN750mm Adjustment – South Dowling Street, north of Dowling Street;
 - DN750mm Adjustment – South Dowling Street, south of Dowling Street;
 - DN600mm Adjustment – South Dowling Street at Dacey Avenue;
 - DN500mm Adjustment – Moore Park Road;
 - DN450mm Adjustment – Cathedral Street;
 - DN375mm Adjustment – Cathedral Street;
 - DN375mm Adjustment – South Dowling Street at Chelsea Street;
 - DN375mm Adjustment – South Dowling Street at Todman Avenue;

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- DN300mm Adjustment – South Dowling Street, Todman Avenue to Link Road;
- DN250mm Adjustment – South Dowling Street, Todman Avenue to Milroy Avenue;
- DN150mm Adjustment – Cahill Expressway;
- DN150mm Adjustment – Palmer Street;
- DN150mm Adjustment – Plunkett Street;
- DN150mm Adjustment – Sir John Young Crescent;
- DN150mm Adjustment – Lincoln Crescent;
- DN150mm Adjustment – Hutchinson Street;
- DN100mm Adjustment – Sir John Young Crescent;
- DN100mm Adjustment – Harmer Street;
- DN100mm Adjustment – Junction Lane;
- DN100mm Adjustment – Griffith Street;
- DN100mm Adjustment – Sir John Young Crescent;
- Arthur Street, Lidcombe – DN150mm and 168mm Watermain Deviation – 1998;
- Cook and Phillip Park, Sydney – DN150mm Watermain Deviation -- 1997
- Hawkesbury District Hospital Development - DN150mm Watermain Adjustment – 1994;
- Redevelopment of C.S.I.R.O.land at the Riverside Corporate Park - provision of 2100m of 200mm watermains for a future technology park – 1994;
- Redevelopment of S.R.A. land at Chullora - 380m of 200mm watermain extension to serve industrial subdivision (Lot 3B) including 2 bored crossings across major RTA roads incorporating steel encasing and carrier pipes –1994;
- Redevelopment of S.R.A. land at Chullora - 450m of 250mm watermain extension to serve industrial subdivision of 6 large lots – 1994;
- Redevelopment of S.R.A. land at Chullora - 700m of 450mm and 20m of 900mm steel watermain extension and direct connections to the Wattle Hill Sydney Water supply to serve the Fairfax Ltd development – 1994;
- Redevelopment of S.R.A. land at Chullora - 530m of 250mm and 450mm watermain extension to serve industrial subdivision of including the proposed Franklins and News Limited developments – 1994;
- Liverpool Hospital -- DN300mm Watermain Adjustment – 1991;

SYDNEY WATER - SEWERAGE INFRASTRUCTURE PROJECTS (WATER SERVICING COORDINATION, DESIGN AND PROJECT MANAGEMENT)

Water Servicing Coordinator, Project Manager and Senior Designer accredited with Sydney Water to provide the following services:-

- ✓ *Water Servicing Coordination*
- ✓ *Building Plan approval;*
- ✓ *Design of Sewer mains;*
- ✓ *Design of Wastewater Pumping Stations;*
- ✓ *Construction Quality Control;*
- ✓ *Certification and Work As Executed drawings.*

A select list of projects is outlined below:-

- Stormwater Adjustments at Paddington and Moore Park for City of Sydney Council – July 2012;
- Abercrombie Street Development for University of Sydney – DN300mm and 225mm Sewer Extensions – May 2012;
- Proposed Sports and Aquatic Centre for University of Sydney – DN400mm and 225mm Disuse and Deviation – March 2012;
- 8-40 Euston Road, Alexandria – DN225mm Sewer Deviation – September 2011;
- Lots 3 and 4 Yarrowa Street, Prestons – DN225mm Sewer Extension – September 2011;
- 24 – 52 Argyle Place, Millers Point – DN150mm Sewer Extension – September 2011;
- 39-55 and 59-63 Kent Street, Sydney – DN150mm Sewer Extension – September 2011;
- 18-22, 28-48, 52-62, 82-94 Kent Street, Sydney – DN150mm Sewer Extension – September 2011;
- 115 – 125 Kent Street, Sydney – DN150mm Sewer Extension – August 2011;
- Wentworthville Leagues Club, Great Western Highway, Wentworthville – DN150mm Sewer Deviation – July 2011;
- 65 – 71 Windmill Street, Millers Point – DN150mm Sewer Extension – June 2011;
- 71-83 Kent Street, Sydney – DN150mm Sewer Extension – December 2010;
- 1-16 Duntroon Avenue, St Leonards – DN225mm Sewer Deviation – January 2009;
- College of Fine Arts, Paddington – DN225mm Sewer Deviation – September 2009;
- Royal North Shore Hospital, Westbourne Street, St Leonards – July 2009;
- 178 Campbell Parade, Bondi Beach – DN225mm Sewer Adjustments – July 2009;
- 75-99 Victoria Street, Potts Point – DN150mm Sewer Extension – June 2009;
- Proposed Industrial Units, Excell Street, Banksmeadow – DN150mm Sewer Extension – April 2009;
- Biomedical Research Facility, Australia Technology Park, Redfern -- DN225mm Sewer Adjustments – November 2008;
- Justinian House Redevelopment, Crows Nest – DN150mm Sewer Deviation and Extension – October 2008;
- Surry Hills Library and Community Centre, Crown Street, Surry Hills – DN150mm Sewer Extension – September 2008;
- University of Western Sydney, Campus Housing – DN225mm Sewer Extension – July 2008;
- 133-149 Beauchamp Road, Matraville – DN225mm Sewer Extension – May 2008;
- Lot 24, West Street, Petersham – DN225mm Sewer Extensions – January 2008;
- 20-28 Turrumurra Avenue, Turrumurra – DN150mm Sewer Extension – January 2008;
- 57 to 69 Victoria Street, Potts Point -- DN150mm Sewer Extension – June 2007;
- 19 Kensington Street, Kogarah – DN150mm Sewer Disuse and Adjustments – June 2007;
- Top Ryde Shopping Centre, Ryde – DN225mm Sewer Disuse and Extension – May 2007;

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- Old Windsor Road, Toongabbie – DN225mm Sewer Extension – January 2007;
- Western Suburbs Leagues Club, 10 Old Leumeah Road, Leumeah – DN150mm Sewer Extension – January 2007;
- 127-141 Bath Road, Kirrawee – DN225mm Sewer Extension – 1997;
- Building 9, Yennora Distribution Park – DN225mm Sewer Extension – September 2006;
- 117 Old Pittwater Road, Brookvale – DN225mm Sewer Disuse and Extension – September 2006;
- Eveleigh Carriageworks Development, Redfern – DN225mm Sewer Extension – August 2006;
- 27 Mars Road, Lane Cove – DN225mm Sewer Extension – August 2006;
- 16 Gower Street, Summer Hill – DN150mm Sewer Extension – August 2006;
- 117 Old Pittwater Road, Brookvale -- DN225mm Sewer Deviation – June 2006;
- 93 Williamson Road, Ingleburn – DN225mm Sewer Extension – March 2006
- Bishops Courts, Greenoaks Avenue, Darling Point – DN150mm Sewer Extension – February 2006;
- 219 Boyce Road, Maroubra – DN150mm Sewer Extension – November 2005;
- 140 Denison Street / 25 Smith Street, Hillsdale – DN300mm Sewer Extension – October 2005;
- 92 Parramatta Road, Lidcombe – DN225mm Sewer Extension – August 2005;
- Bonfiglioli, AW Edwards Site, Glendenning – DN225mm Sewer Extension – May 2005;
- Lot 3 Telok Close, Willoughby – DN225mm and 150mm Sewer Extensions – April 2005;
- 19 Lockley Parade, Roseville Chase – DN150mm Sewer Extension – October 2004
- 8 Giffnock Avenue, North Ryde – DN225mm Sewer Extension – 2004;
- 207 Pacific Highway, St Leonards – DN355 and 225mm Sewer Extension – 2004;
- 31-37 Hassell Street, Parramatta – DN150mm Sewer Deviation – April 2003;
- Cross City Tunnel, Sydney – Sewer Adjustments – Druiitt Street, Sussex Street and Day Street – March 2003;
- Auburn Central Development, Queen Street, Auburn – DN225mm Sewer Extensions – February 2003;
- Campbell Street, Substation, Sydney – DN225mm Sewer Deviation – October 2002;
- Woodward Park, Liverpool – DN225mm Sewer Adjustments – August 2002;
- Shell Engineering Pty Ltd, Skarrat Street North and Millennium Court, Clyde – December 2001;
- Citadel Apartments, cnr Phillip Street and Parramatta Road, Petersham – May 2001;
- 419-427 Parramatta Road & 4-16 Jarrett Street, Leichhardt – DN225mm Sewer Deviation – March 2001;
- 40-42 Saddington Street, South Turramurra – DN 150mm Sewer Adjustment -- 2000
- 15 Dick Street, Henley – DN225mm and 150mm Sewer Disuse and Extension – September 1999
- 15 Carlisle Street, Tamarama – DN150mm Sewer Extension – July 1999;
- 11A Dumaresq Road, Rose Bay – DN225mm Sewer Deviation – June 1999;
- Marshall Motors, Church Street, Parramatta – DN150mm Sewer Adjustments – May 1999;
- Balmain Shores, Terry Road, Rozelle – DN450mm Sewer Extension – 1998;
- 25 Moruben Street, Mosman – DN150mm Sewer Deviation – 1998;
- Eastern Distributor Motorway, Chelsea Street and Nobbs Street Sewer Adjustment Works – 1997;
- Eden Park Estate, Waterloo Road, North Ryde – DN225mm Sewer Deviation – 1997;
- Redevelopment of C.S.I.R.O. land at the Riverside Corporate Park - provision of 1000m of 225 and 300mm of gravity sewers for a future technology park – 1997;
- Redevelopment of S.R.A. land at Chullora - 221m of 225mm sewer to serve Lot 3B Hume Highway; excavation depths to 7 metres – 1997;

CURRICULUM VITAE OF LOUIS PANAGOPOULOS

- Redevelopment of S.R.A. land at Chullora - 480m of 225mm upto 450mm sewer of varying depths to 7metres to serve an industrial subdivision of 6 large lots – 1997;
- Redevelopment of S.R.A. land at Chullora - 590m of 225mm sewer to serve an 8 industrial lot subdivision including the Fairfax Ltd development --1997
- Redevelopment of S.R.A. land at Chullora - 350m of 300mm sewer to serve a large industrial subdivision – 1997;
- Riverside Corporate Park, North Ryde – DN225mm Sewer Extension – 1995;
- 45 Francis Street, Fairlight
- 55-59 Victoria Street, Potts Point
- Lot 24, West Street, Petersham
- 20-28 Turramurra Avenue, Turramurra
- Sydney Slipways, Rozelle
- Redevelopment of Fairfield Hospital - 40m of 225mm sewer to serve Fairfield and Braeside Hospitals including a temporary 24 hour controlled pompous system.
- Dual occupancy development at 55 Cambridge Avenue Bankstown.
- Dual occupancy development at 137 Ernest Street Crows Nest.
- Dual occupancy development at 169 The Grand Parade Monterey.
- Redevelopment at 17 Vivian Street, Bellevue Hill to serve a residential subdivision of 12 lots.
- 5 Lot industrial subdivision at corner Derby and Wetherill Streets, Silverwater.

NSW NATIONAL PARK AND WILDLIFE SERVICE PROJECTS - WSP

GOVETT'S LEAP LOOKOUT, BLACKHEATH – SEWERAGE UPGRADE – FEB. 2002

Design coordination and detailed design for the provision of sewerage transportation system from the Lookout to the Sydney Water system.

- Detailed Design of Sewerage Pumping Station for a duty of 3.5L/sec @ 63m Head;
- Detailed coordination of survey and design of 580 metres of 75mm polyethylene rising main;
- Erosion and Sedimentation Management;
- Electrical switchboard and Pumping Station design.

REEF BEACH – SEWERAGE UPGRADE WORKS – DECEMBER 2001

Design coordination and detailed design for the provision of sewerage transportation system from Reef Beach in the Sydney Harbour National Park to the Sydney Water system within Beatty Street, Balgowlah.

- Detailed Design of Sewerage Pumping Station for a duty of 2.7L/sec @ 48m Head;
- Detailed coordination of survey and design of 370 metres of 75mm polyethylene rising main;
- Installation of the crossing by directional drilling technique;
- Erosion and Sedimentation Management;
- Electrical switchboard and Pumping Station design.

RODD ISLAND – SEWERAGE UPGRADE WORKS – NOVEMBER 2001

Design coordination and detailed design for the provision of sewerage transportation system from Rodd Island in the Sydney Harbour National Park to the Sydney Water system within Abbotsford.

- Detailed Design of Sewerage Pumping Station for a duty of 1.7L/sec @ 10m Head;
- Detailed coordination of survey and design of 430 metres of 75mm polyethylene rising main;
- Installation of the crossing by directional drilling technique;
- Erosion and Sedimentation Management;
- Electrical switchboard and Pumping Station design.

CLARK ISLAND – SEWERAGE UPGRADE WORKS – OCTOBER 2001

Design coordination and detailed design for the provision of sewerage transportation system from Clark Island in the Sydney Harbour National Park to the Sydney Water system within Darling Point.

- Detailed Design of Sewerage Pumping Station for a duty of 2.5L/sec @ 200m Head;
- Detailed coordination of survey and design of 520 metres of 75mm polyethylene rising main;
- Installation of the crossing by directional drilling technique;
- Erosion and Sedimentation Management;
- Electrical switchboard and Pumping Station design.

KU RING GAI CHASE NATIONAL PARK, SEWERAGE UPGRADE WORKS – OCT 2001

Design and Construct contact for the detailed design and coordination for the provision of sewerage transportation system from the recreation areas of Bobbin Head and Apple Tree Bay to the Sydney Water system at Mount Colah.

- Detailed Design of thirteen (11) Submersible Sewerage Pumping Stations for various duties;
- Detailed design of three Mutrator Pumping Stations with duties varying up to 10.2 L/sec and 122m Head;
- Detailed coordination of survey and design of 12kms of varying pipeline diameter up to 110mm polyethylene rising main;
- Installation through environmentally sensitive and difficult terrain crossings by directional drilling technique;
- Erosion and Sedimentation Management;
- Electrical switchboard and Pumping Station design;
- Operation and Maintenance Manuals

LANE COVE NATIONAL PARK, SEWERAGE UPGRADE WORKS – MAY 2001

Design and Construct contact for the detailed design and coordination for the provision of sewerage transportation system from the fifteen separate recreation areas.

- Detailed Design of fifteen (15) Submersible Sewerage Pumping Stations using the 'E – One' technology for various duties;
- Detailed design of water services up to 150mm diameter to all the above recreation areas;
- Detailed coordination of survey and design of 8kms of varying pipeline diameter up to 110mm polyethylene rising main;
- Installation through environmentally sensitive and difficult terrain crossings by directional drilling technique;
- Erosion and Sedimentation Management;
- Electrical switchboard and Pumping Station design;
- Operation and Maintenance Manuals

GOAT ISLAND SEWER UPGRADE SCHEME – SYDNEY HARBOUR NATIONAL PARK 1999 TO 2000

Investigation, Review of Environmental Factors Report and detailed design of sewerage scheme including 5 pumping stations and rising mains, gravity reticulation and submarine crossing of Sydney Harbour and connection to Balmain.

FLOOD STUDIES, OVERLAND FLOW ASSESSMENTS, EMERGENCY RESPONSE PLANS – WSP

- Pittwater Office Park, Warriewood – Flood Assessment for flows to 6 cumecs -- May 2001;
- Eastern Suburbs Memorial Park Flood Study -- Flows to 43 cumecs – February 2002;
- Moriah College Redevelopment, King Street Randwick – March 1999;
- Ryde Gateway, North Ryde – Flows to 7 cumecs – October 2001;
- James Erskine Business Park, Mamre Road Erskine Park --- Flood Assessment for Flow to 8 cumecs – January 2001;
- Oasis Redevelopment and Bulldogs Basketball Stadium, Liverpool – 3.1 cumecs – July 2001;
- 374-382 New South Head Road, Double Bay – Flows to 7.7 cumecs – December 2002;
- Underwood Road and Great Western Highway, Homebush – Flows to 28 cumecs – October 2002;
- Tapps Land Redevelopment, Liverpool – PMF flow to 265 cumecs – March 2002;
- Beverley Hills Cinema Complex, 443 King Georges Road, Beverly Hills – Flows to 103 cumecs – March 2002;
- 104 Lethbridge Street Penrith – Flood Study – Flows to 20 cumecs – February 2002;
- Lot 201 King Street Randwick – Flood Assessment -- Flows to 3.8 cumecs – October 2003;
- Commercial Development, Rutherford Road, Muswellbrook – Flows to 12 cumecs – January 2003;
- Summer Hill Fresco Redevelopment – Flood Study – Flow to 15 cumecs – October 2004;
- Customs House, Circular Quay – Overland Flow Assessment – January 2004;
- Ducks Lane, Goulburn – Flood Study – Flows to 2.7 cumecs – October 2004;
- 183 to 185 Rodd Street, Sefton – Flood Study – Flows to 11.7 cumecs -- August 2004
- 117 Old Pittwater Road Brookvale – Flood Study to 9.5 cumecs – October 2004;
- 342 – 350 New South Head Road, Double Bay – Flood Study for Flows to 69 cumecs – May 2006;
- 93 – 115 Lisbon Street, East Sydney –Overland Floodway Study – October 2006;
- NSW Art Gallery Storage Facility, Lilyfield – Flood Study – November 2007;
- Orphan School Creek Flood Study and Mitigation works -- Sydney University – December 2012;
- Barangaroo Headland Park, Hickson Road, Sydney – May 2012

NSW LAND AND HOUSING DEPARTMENT PROJECTS

- Millers Point, The Rocks, Sydney -- Sewerage and Water Supply Upgrade works 2009 to 2010;
- 102 to 104 Phyllis Avenue, Kanwal, NSW -- Civil works – August 2009;
- 8 to 12 Myall Street, Windale, NSW – Civil works – August 2009;
- 40 to 44 Cherry Street Windale, NSW – Civil works – August 2009;
- 23 to 25 Livingstone Street, Belmont NSW – Civil works – August 2009;
- 2 to 6 Roto Street Windale, NSW – Civil works – August 2013;
- 176 – 180 Moore Street, Liverpool, Hydraulic Services – October 2007;
- 7 to 11 Pearce Street and 61 to 63 Glover Street Peakhurst – Stormwater Drainage – July 2006;
- 61 to 63 Glover Street, Botany – Stormwater Drainage – July 2006;
- 17 to 25 Dover Street Botany – Stormwater Drainage – June 2004;
- 85 to 89 Melvin Street, Beverley Hills – Hydraulic Services – July 2005;
- 126 to 128 Smart Street, Fairfield – Hydraulic Services – July 2005;
- 85 to 89 Melvin Street, Beverley Hills – Stormwater Drainage – July 2003;
- 183 to 185 Rodd Street Sefton, Stormwater Drainage – November 2003;
- Lot 101 Mallacoota Street Wakeley, NSW – April 1998;
- Cumberland Street, Cabramatta – February 1998;
- Ligar and Evans Streets Fairfield Heights – December 1997;
- Brenan and Morris Streets, Smithfield – October 1997.

PARSONS BRINKERHOFF , CONSULTING ENGINEERS – SENIOR WATER AND WASTEWATER ENGINEER – 1988 TO 1994

- *Hornsby Watermain Renewals Programme, (Sydney Water), 1994* - Superintendent's Representative for 8kms of 100mm and 150mm DICL watermains involving the design documentation of separable portions contracts, scheduling, field supervision and contract administration for Sydney Water Northern Region.
- *Allawah / Wiley Park Watermain Renewals Programme (Sydney Water), 1994*. Superintendent's Representative Assistant- Separable Parts contracts for 13kms of 100mm and 150mm, 500m of 300mm and 2kms of 750mm watermains and miscellaneous connections and disconnections of 500mm CACL AND SCL watermains. The scope of the consultancy involved the design documentation of Separable Parts contracts, scheduling, field supervision and contract administration for Sydney Water Central Region.
- *Dora Creek Sewerage Scheme, (NSW Public Works) - Lake Macquarie, NSW, 1993*. Senior Project Engineer/Manager responsible for the planning and design of a cost effective sewerage system with allowance for ultimate development for numerous foreshore subcatchments to serve residential and commercial occupants. The nature of the first topography and floodplain characteristic of the catchment meant that an economic system could be developed using both conventional means and relatively new or vacuum type systems. The project involved details survey, conceptual and detail design, documentation, co-ordination of multiple design disciplines for up to 10km of 150 and 300mm reticulation mains, 5kms of rising mains, 12 pumping stations and two submerged creek crossings.
- *Dora Creek Effluent Main, NSW Public Works - Lake Macquarie, NSW, March 1993*. Senior Project Engineer responsible for detail design, documentation and construction control advice for 17kms of 375mm dia, effluent main to transfer treated sewerage from Dora Creek STW to the Western foreshore of Lake Macquarie. The design incorporated 3 major creek crossings, multiple submerged creek crossings and numerous culvert crossings. Detail design review of one major pumping station incorporating three submersible borehole pumps with flows up to 260 f/s.
- *Wallerawang Power Station Sewerage System Upgrade* - Conceptual layout and detailed design in accordance with NSW Government Sewerage Standards of sewer carriers, rising mains and pumping stations, ancillary structures, to collect waste from contractors accommodation areas for up to 1000 EP.
- *SRA Chullora Workshops* - Redevelopment of surplus land. Preliminary sizing of street and interallotment drainage (375 dia. to 1500 dia.) using the IIsax program; sizing of 40,000m³ detention basin; detailed design of drainage and structures using hydraulic grade line analysis by computer programme; analysis and design of box culverts, channel sections and transition structures along the Rookwood and Greenacre branches of the Cooks River within the Chullora Site.
- *Detailed design, documentation and supervision of Toronto/Belmont Effluent Transportation System for PWD, NSW* comprising 900 mm steel pipeline, 750 mm and 600 mm ductile iron pipeline for a total length of approx. 5kms from the eastern foreshore of Lake Macquarie to the Belmont Sewerage Treatment Works. The design involved design of specialist pipe jacking beneath the Pacific Highway, head control device and compressed air supply, and electrical switchroom.
- *Detailed design, documentation and supervision of a 5 m diameter, 10.5 m deep submersible pumping station in the Tomaree Peninsula Sewerage Scheme, Port Stephens, NSW* to transfer approximately 200 L/s of raw sewerage. The design comprises 450 mm gravity inlet, 3 x 300 mm diameter pressures pipelines, ventilation equipment, 3 submersible pumps, overflow structure and electrical switchroom building.

CURRICULUM VITAE OF LOUIS PANAGOPOULOS

- ***Tamworth Floodplain Management Study*** - A comprehensive study in accordance with the NSW Government Floodplain Development Manual to address the flooding problems in Tamworth township. Data collection, interpretation of flood modelling results and critically defining flood affected properties and setting an appropriate flood standard. A range of structural and non-structural measures were devised and assessed against social, economic engineering and environmental criteria. These measures included various community sponsored levee schemes, private levees, bridge crossings, house relocation/voluntary purchase, rezoning and flood zoning.
- ***SRA/Chullora Workshops*** - Development of 62ha of surplus lands for prime light to median industrial use. Investigation of water, sewerage, natural gas, telecommunication and electricity services contained on the site and liaison and coordination for the provision of these services with the approving Authorities. Design development, detailed design and documentation of water supply sewerage reticulation for the development subdivision.
- ***Granville TAFE College - Development of Stage 7 Buildings***. Preliminary sizing of drainage and investigation using IIsax program of options for on-site detention to accommodate 1000m³ storage on a sub catchment at 6-7% grade. The options considered for detention storage were car-park areas, landscaped area and underground storage.
- ***Bloomfield Hospital Stage 8 (Orange, NSW) Building Service for the Public Works Department NSW***. Detailed design in accordance with AS 3500 and documentation of sewer drainage and sanitary plumbing, stormwater drainage and on-site detention, pumped fire hose reel services, cold and hot water and recirculation systems for ward areas and commercial facilities.
- ***BHP Whyalla Utilities Building*** - Design and documentation of hydraulic services for a multi-storey commercial class control and amenities structure. The design incorporated a single stack sanitary plumbing system and venting, sewer drainage, cold and hot water supply and sanitary disposal by incineration. The design was based on the latest national hydraulic services code provision Australia Standard AS 3500.
- ***Nepean Dam Water Treatment Plant*** - Design and documentation of hydraulic services for extension and refurbishment of an existing control and administration building. The design incorporated single stack sanitary plumbing systems and venting, sewerage, water supply, laboratory fume cardboard forced ventilation system for two storey building.
- ***Glebe Island Container Terminal - Bulk storage Facilities, NSW***. Preparation of contract specification documents based on the Natspec format for the proposed access road, site modification work, earthworks and drainage.
- ***Silverwater Prison Development*** - Investigation of existing site services for the overall complex of prisons, design development and detailed design of water supply, sewerage and drainage systems on a 10 ha for the construction of a Minimum Security Prison and Periodic Detention Centre to contain some 450 prisoners and personnel. The drainage works was for permanent and temporary collection systems incorporating on-site detention structures for the purpose of attenuating peak flow, erosion and siltation control.
- ***Silverwater Prison Development - Energy Study on Natural Gas and Electricity Supply***. Investigation of energy requirements and economic analysis to establish the most economic energy source for various existing and future operations at the Silverwater complex of prisons. These included the Silverwater Mens Prison, Mulawa and Dawn De Laus Womens Prisons and future Minimum Security Prison, Periodic Detention Centre and Remand Prison for a total projected population of 1,800 prisoners.

CURRICULUM VITAE OF LOUIS PANAGOPOULOS

- ***Killbride Retirement Village*** - Detailed design and documentation of water supply, fire services and building hydraulics for 70 rooms, two level hostel buildings, community centre complex, and 44 self contained units. Internal services included cold and hot water, hot water recirculation, boiler room service, fire hose reels, fire hydrant and fire pump installations.
- ***Parramatta Prison Redevelopment*** - Site hydraulic services investigation and conceptual design including preparation of report outlining existing site water supply, fire protection, sewer and stormwater drainage to cater for refurbishment works and new buildings.
- ***Muswellbrook Medium Security Prison and Periodic Detention Centre*** - Investigation and preparation of strategy report for water supply, on-site sewerage treatment and disposal, stormwater drainage and detention for a total 800 prisoner complex of prisons.
- ***Preliminary tender design of hydraulic service for Mount Piper Power Station N.S.W.*** in association with John Holland Engineering. Work included design and equipment specification documentation of fire fighting and process water systems, cooling water for unit air and chemical control equipment systems. Equipment specified were cooling towers, flow measurement and strainer equipment, pump sets and pipelines ranging from 50 mm upto 250 mm diameter.
- ***Design and documentation of site service for the Camberwell Coal Project, NSW*** including urban drainage design, water supply pipelines in 150 mm and 200 mm diameter for potable and industrial process water for washeries and fire protection.
- ***Conceptual design of hydraulic services for a new development at Radiata Plateau, Katoomba***, to accommodate up to 400 persons. The water supply and fire protection services comprise storage tanks, pressure vessel and pump sets. The sewerage system comprises septic-tank storage and effluent disposal via holding wells, pumping station and 3½ kms of pipeline for connection to the Authority's main.
- ***Design of hydraulic services for the James Cook Motel Conference Facility (Bathurst, N.S.W.)*** consisting of restaurant, kitchen, and sanitary facilities for 100 guests.
- Design and documentation of fire protection system with hydrants, hose reels, booster connection and suction point for the ***Bathurst Library/Art Gallery (Bathurst, NSW)***.
- Design and documentation of fire protection hydraulics for separate fire hydrant and hose reels services for 15 buildings at ***St. Patrick's College (Goulburn, NSW)***. Fire hose reel booster pumping system was incorporated in the design.
- Design of hydraulic services including fire protection hydraulics for ***Dubbo Tavern, (Dubbo, NSW), McLaren Conservatorium and Restaurant (Cowra, NSW) and Carrington Retirement Village, (Camden, NSW)***.
- Leakage Detection and Control Strategy Studies involving leakage detection, assessment and analysis of leakage levels, and design of leakage control programme, for ***Tamworth and Northern Shoalhaven Water Supply Schemes (N.S.W.)***.
- Leakage Detention and Control Program Studies for the ***Darwin and Alice Water Supply Schemes (N.T.)*** involving setting up detailed leakage districts to monitor and control leakage in reticulation mains.

CURRICULUM VITAE OF LOUIS PANAGOPOULOS

NSW PUBLIC WORKS DEPARTMENT, ORDINANCES AND PIPELINE GROUP – WATER ENGINEER – 1987 – 1988

Investigation, detailed design and documentation and site supervision of hydraulic services for some 20 PWD site development projects including such projects at the new Moruya TAFE College, NSW. Professional duties undertaken have included:

- Field investigation of existing and proposed building and engineering works;
- Preparation of budget estimates and reports on investigations of existing site *services for the Architect Branch*;
- *Preparation of detailed design drawings and specification documents for various client groups:-*
 - ✓ *checking of plans and supervision of drafting staff;*
 - ✓ *preliminary examination of detailed design drawings submitted by*
 - ✓ *Consultants;*
 - ✓ Attendance at meetings and providing advice to various disciplines;
 - ✓ Liaison with other professional groups including Architects, Mechanical,
 - ✓ Electrical and Structural Engineers, other Client groups and servicing
 - ✓ authorities.

ECKENFELDER AND ASSOCIATES – CIVIL ENGINEER 1986 TO 1987

Eckenfelder and Associates was a small boutique Environmental consulting firm. My duties included :-

- Earthworks and retaining wall design;
- Structural design of light industrial buildings;
- Urban drainage design; open channel hydraulics; hydraulic services design;
- Preparation of civil, mechanical and hydraulic services specifications;
- Site supervision of construction projects;
- Field research and monitoring;
- Checking civil and process drawings; drafting supervision.

Some of the projects included the Egg Corporation Wastewater treatment plant design and construction and an extensive pilot treatment plant monitoring project associated with the Shell Corporation and treatment of wash bay runoff to a high treatment quality.

CURRICULUM VITAE OF LOUIS PANAGOPOULOS

NSW PUBLIC WORKS DEPARTMENT – LITHGOW WATER SUPPLY AND SEWERAGE SCHEME – WATER / WASTEWATER ENGINEER – 1984 TO 1985

This role was on site within the township of Lithgow and involved working in the local office and specifically on site on the following specific works and duties:-

- Site inspection and record keeping at the Sewerage Treatment works including expansion of the clarifiers, digestors and maturation ponds;
- Daily inspection of 5kms of DN450mm water transfer pipeline construction and including quality assurance record keeping;
- Quality control inspections of the new 20ML water reservoir in steel plate construction;
- On site daily monitoring of all aspects of the new proposed water treatment plant including site survey of the setout of all structures, concrete sampling and testing and steel reinforcement inspections;
- Contract administration.

In summary, duties included site survey, building set-out, materials quality control and concrete testing programme; supervision of earthworks, drainage, concrete and steelwork construction; trunk main construction supervision. The role gave me an in depth understanding of NSW Government specification content and a clear understanding of drawing interpretation.

P & P CONSTRUCTIONS & ASSOCIATES – CIVIL ENGINEER – 1983 TO 1984

Duties included the following items of work on various industrial sites mainly in Sydney's western suburbs:-

- Assistance with measurement of quantities for procurement of materials;
- Site attendance to check setout and material deliveries;
- Performing checks on Sub - Contractor works;
- Cost and quantity estimating;
- Assistance with Contract administration;
- Design drafting.

NSW PUBLIC WORKS DEPARTMENT – WATER ENGINEER – 1981 – 1983

Duties included the following items of work:-

- Assistance to Engineers and Senior Engineers across a wide range of office and field duties;
- Site Inspection of the Tumut Water Supply scheme and assistance with the preparation of design calculations for watermain pipeline and pump sizing and preparation of the Review of Environmental Factors report;
- Site Inspection of the Cootumdra Water Supply scheme and provision of design assistance with numerical modeling using the Watsys and Watham programmes;
- Site Inspection of the Singleton Water Supply scheme and design assistance with the river inlet works and preparation of the Review of Environmental Factors report;
- Preparation of design calculations, assessment and documentation of options and various reports for the Bulladelah and Leeton Water supply schemes and associated water treatment sites;
- Data collation and numerical analysis for Tamworth Water Supply Distribution Scheme augmentation;
- Drafting and assistance in assessment of options and report preparation for water supply projects generally.