

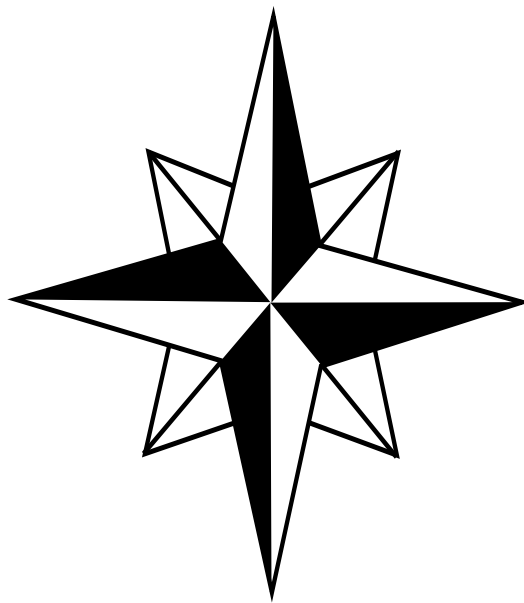
McQUADE MARINE

'beautiful beaches and healthy waterways'



P.O. Box 495, Mudgeeraba Gold Coast
Queensland 4213 Australia

email: office@mcquademarine.com.au



McQuade Marine is a family owned Australian Company with a successful track record in the Marine Industry for over 45+ years; Navigation Channel, River Entrance and Harbour Maintenance Dredging, Reclamation, Beach Restoration and Artificial Reef construction. Under the expertise of John (Jack) McQuade and during the later years he has been partnered by his son Micheal McQuade. Third generation Jack McQuade has joined the crew and a Civil Engineer specializing in Coastal Engineering.

The McQuade family have been residents of the Gold Coast since 1965 and Dredging Contractors since 1969, having completed many significant Projects along with an extensive range of Dredging Contracts for Local and State Governments, Council Authorities and Developers in the Moreton Bay region, along the South East Australian coastline from Port Hacking N.S.W. to Cooktown Nth Qld, including a number of Great Barrier Reef Islands.

There is a very long history of association and understanding of the local waterways and beaches as recreational and commercial users of the Queensland Waterways.

Projects involve working in environmental sensitive areas with active sand transport, specialist engineering and project management support is provided by consulting Coastal Engineers; International Coastal Management.

McQuade Marine believes their Clients are seeking Sustainable and Economical Value solutions to maintain the Quality and Safety of the Beaches and Waterways. Their capability to manage and deliver on quality Projects comes from expertise built on a combination of experience and technology.

McQuade Marine is committed to providing a quality service to achieve our client's objectives and community expectations through the successful and safe completion of Projects.



McQuade Marine successfully wins tenders in competition with Major and International Companies on innovative and difficult Contracts.

Longevity and Commitment for Project success is demonstrated by McQuade Marine's track record for consistent and reliable dredging campaigns.

INOVATIVE AND AWARD WINNING PROJECTS

- * Navigation Channel - Fly River, P.N.G.
OKTEDE MINING
- * Jaramaya River, IRIAN JAYA, access Channel and berthing area
FREEPORT INTERNATIONAL
- * Tweed River Entrance Sand Bypassing Project Stage 1b & Stage 2
Initial & Pre-Commissioning & Maintenance Dredging: 1997 to 2015
N.S.W. DEPT PUBLIC WORKS & SERVICES
Banksia Environmental Award Finalist 2001
- * Filling & Placement of sand filled geotextile containers
Artificial Surfing Reef
GOLD COAST CITY COUNCIL
Case Earth Award 2000
- * Dredging Port Hacking & Nearshore Nourishment Cronulla Beach N.S.W.
1998 / 2003 / 2007 / 2012
NSW DEPARTMENT LAND & WATER CONSERVATION
Case Earth Award 1999

McQuade Marine's Project Team has been working consistently together on Contracts awarded to McQuade Marine during the last 20 years. Our Team's expertise and loyalty has proven to be able to manage and complete quality Projects. The scope of works completed indicates the knowledge and skills gained.

We believe our focused and agile operation is able to provide effective and efficient dredging strategy solutions to often difficult and innovative Projects.

Our priority is to implement low risk methods to ensure each Contract is completed safely and without delays or additional costs to the Principal.

TSHD 'Port Frederick' & 'Faucon' are manned by a full time McQuade Marine crew. The TSHDs are registered ships and managed under the AMSA requirements and qualifications.





2.8 Million cubic meters of sand from the Tweed River Entrance has been dredged by McQuade Marine and TSHD 'Port Frederick' to maintain the safe navigation channel; over a 18 years period completing 11 annual dredging campaigns since 1997. Each maintenance dredging campaign completed within a target 2 to 3 month period annually and with an average quantity of 250,000 m³. The dredged spoil is transported north for nearshore deposition in the active wave zone for the nourishment of the Gold Coast Beaches. The TRESBP is a NSW & Qld Government Project.

The fixed Tweed River Entrance Sand Bypassing Installation is operational and the safe navigation channel is monitored for safe passage by regular Survey. While these works are undertaken as a series of individual contracts, it effectively provides an annual maintenance dredging program on an as-required basis. McQuade Marine liaises with the TRESBP Project Team to co-ordinate activities when the navigation channel is in need of maintenance dredging.





Sutherland Shire Council and NSW Government has awarded McQuade Marine four maintenance dredging Contracts in 1998, 2003, 2007 & 2012.

Dredging the Navigation Channels of Port Hacking and the Nearshore Nourishment of Cronulla Beach

These works were originally a standard pump ashore dredging contract of the navigation channels, however McQuade Marine originally offered a non-conforming Tender including the bonus for the Nearshore Nourishment of Cronulla Beach. This methodology became the ongoing conforming tender.

The Project is very successful; winning a CASE EARTH AWARD.



The Gold Coast City Council's: Northern Gold Coast Beach Protection Strategy Project incorporated a world-first Artificial Reef.



McQuade Marine constructed the innovative coastal protection off shore Artificial Reef at Narrowneck Beach, Gold Coast. This was a first for McQuade Marine and they worked in conjunction with all the stakeholders to develop and implement the design and construction methodology.

Each of the **410** giant geotextile bags were filled with 300m³ of dredged sand from an off shore sand bar, one by one the bags were then placed by design, forming a v-shaped Reef.

The Reef is designed as protection against beach erosion; to hold the sand in place on the beach and encourage normal sand build-up. The surfing amenity is improved and a thriving underwater marine habitat created.



Above: Giant geotextile bags filled with sand ready to be placed on the sea bed

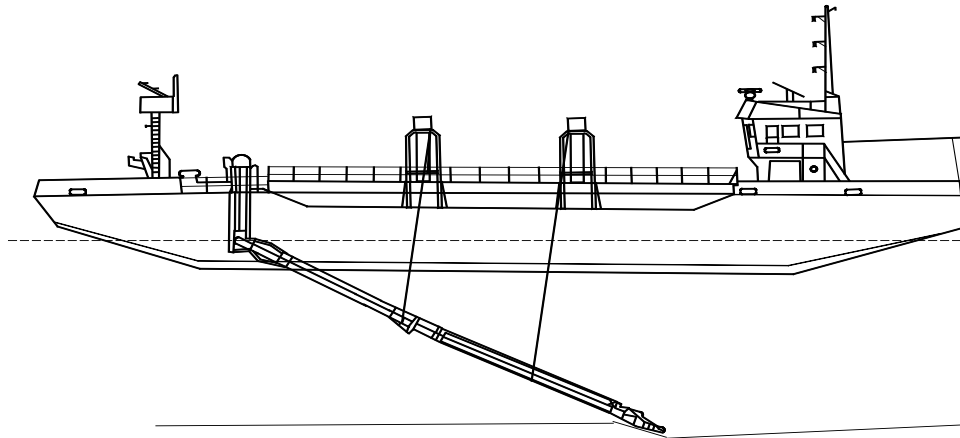
"DESIGNED TO HOLD THE SAND IN PLACE ON THE BEACH AND ENCOURAGE NORMAL SAND BUILD-UP, THE REEF HAD TO BE AS NATURAL A STRUCTURE AS POSSIBLE"



Above: The reef has created a thriving underwater marine habitat

Type: **TSHD Dredger**

Name: **'Port Frederick'**



Vessel Specifications

Length	49.5m
Hopper Length	21.0m
Breadth	10.5m
Draft Empty	0.9m
Draft Loaded	3.15m
Propulsion	AQUAMASTERS
Maneuverable	forward & aft side thrusters
Navigation	DGPS Hydronav Software

Classification Certificates

Beurea Veritas Classification
 Offical No. 8055505
 Class 2C

Operational Dredging

Hopper Capacity	450m ³
Dredging depth	18m
Positioning	Dredge/Deposition DGPS System
Spilling	Hopper Doors bottom dump

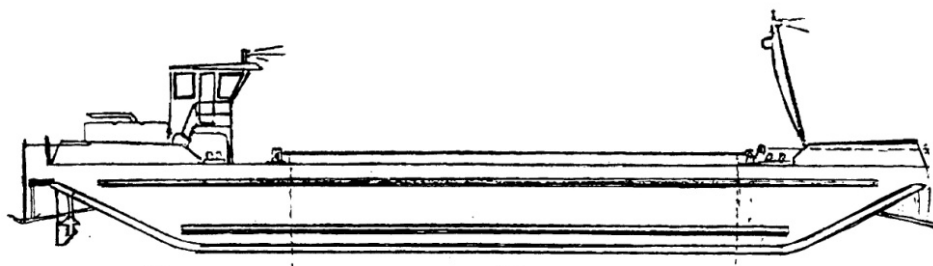
Features

- Self Propelled Ocean going
- Establishment to dredge site by Sea
- Shallow Draft for restricted access
- Onboard Accommodation



Type: **TSHD Dredger**

Name: **'Faucon'**



Vessel Specifications

Length	43.02m
Hopper Length	21.0m
Breadth	8.55m
Draft Empty	0.9m
Draft Loaded	3.15m
Propulsion	SCHOTTELS
Maneuverable	forward & aft side thrusters
Navigation	DGPS Hydronav Software

AMSA Certificates

Certificate of Operation
 Certificate of Survey
 U.I. No. 24402QC
 Class 2C

Operational Dredging

Hopper Capacity	350m ³
Dredging depth	12.0m
Positioning	Dredge/Deposition Area DGPS System
Spoiling	Split Hull bottom dump

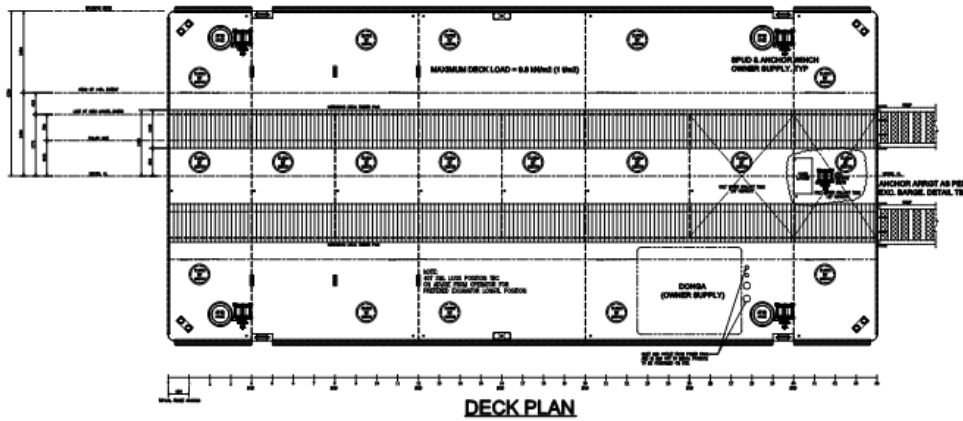
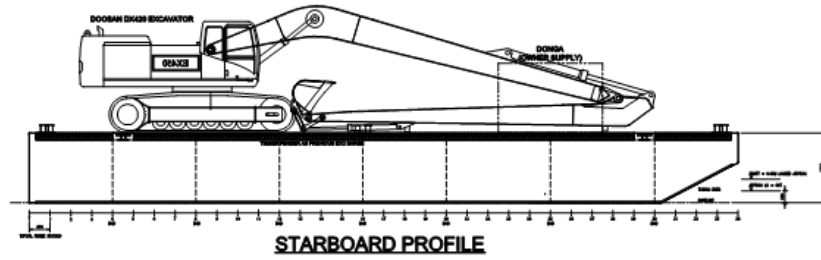
Features

- > Self Propelled Ocean going
- > Establishment to Dredge Site by Sea
- > Very Shallow Draft for restricted access
- > Onboard Accommodation



Type: **Barge**

Name: **'GHT1'**



Vessel Specifications

Length	20.0m
Breadth	9.5m
Moulded Depth	2m
Propulsion	none

Operational

Mooring	4 Spuds
Spuds	Hydraulic

AMSA Certificates

Certificate of Operation
 Certificate of Survey
 Class 2E
 Unique Identifier: 402430QD

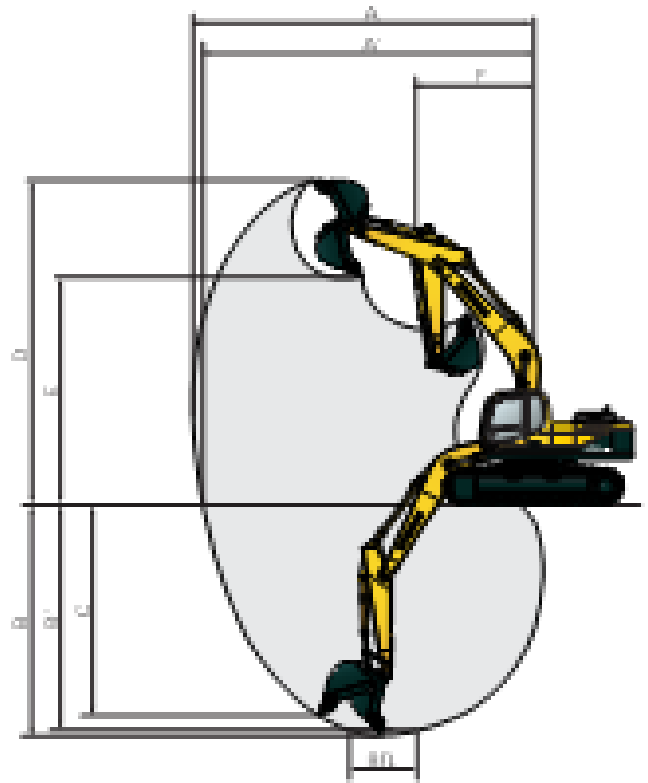
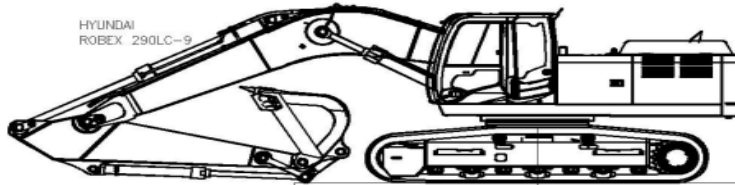
Features

- Establishment to Dredge Site by Sea
- Very Shallow Draft for restricted access
- No Anchors or Cables required to secure
- New Build 2014



Type: **Excavator**

Name: **'Excavator 1'**



Specifications

Type	Long Reach
Make	Hyundai
Computer	Trimble GPS Software

Operational

Excavation	DGPS positioning
Depth Control	DGPS positioning
Excavation	Toothed Bucket
	Mud Bucket
Ripper	Single Tine

Features

- > Long Reach
- > Positioning & Depth Control
- > Air Conditioned Cab

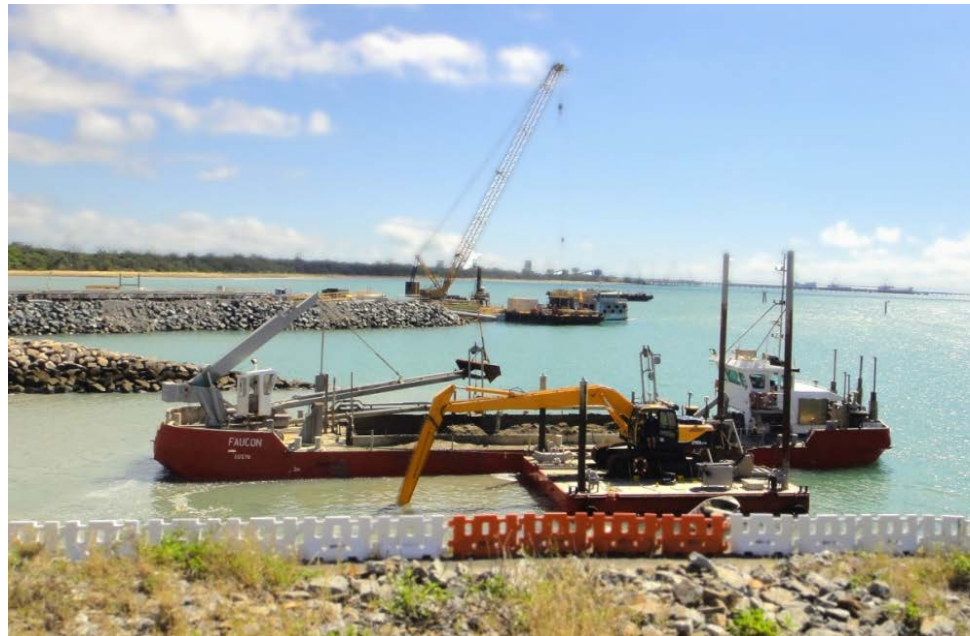




Dredging Mode: Excavator Loading

'Faucon' in conjunction with 'GHT2' Barge mounted with long reach Excavator loading directly into 'Faucon's Hopper.

Pelican Park Boat Ramp Entrance Channel, Moreton Bay Qld



Half Tide Boat Ramp Entrance Channel at Hay Point Nth Qld



Wynnum Creek Entrance Channel, Moreton Bay Qld

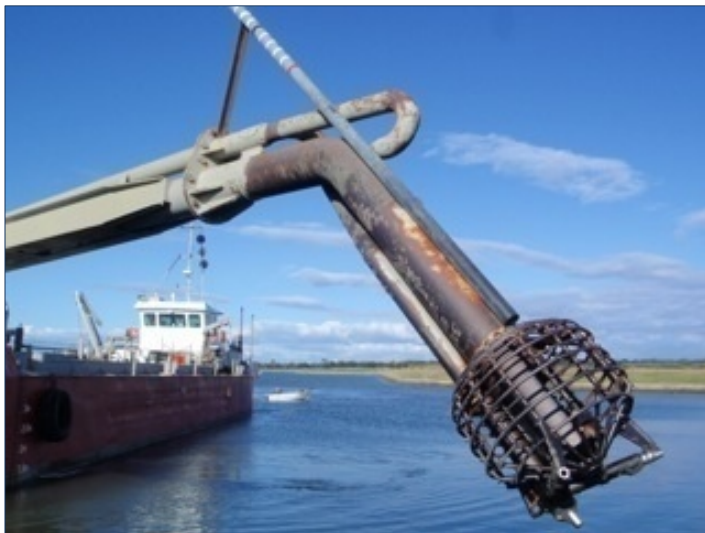


Dredging Mode: Over-bow Suction Head

Faucon dredging in constrained conditions at Gold Coast / Fisherman's Wharf Development for Sunland Construction

Dredging Mode: Side Trail Suction Draghead

'Faucon' maintenance dredging in restricted access site the Redcliffe Boat Marina for Queensland Transport



Dredging Mode: Over-bow Plunge Suction Head 'Crab Pot'

'Faucon' dredging at Jacobs Well giving access to shallow dredge area across from deep water for Queensland Transport.

Dredging Methodology: Transfer Pocket with Pump ashore to Land Reclamation

'Faucon' dredging Coomera River with deposition into Transfer Pocket at Calypso Bay Development canal and Pump Ashore by 8" suction dredge to reclamation area on the Jacobs Well Contract for Queensland Transport.



Dredging Mode: Side Trail Suction Draghead

'Port Frederick' dredging offshore Entrance to the Gold Coast Seaway and deposition of spoil in the active wave zone for Beach Nourishment at Surfers Paradise Beach



Dredging Mode: Deposition in the Nearshore Active Wave Zone

'Port Frederick' & 'Faucon' deposition of spoil in the active wave zone for Beach Nourishment at Cronulla Beach N.S.W.



Project Name Title	Contract	Principal	Period
Runaway Bay Marina, Gold Coast	contract	Maggiore Pty Ltd	2006
Palm Beach Protection Strategy	LG314/254/03/076	Gold Coast City Council	2006
Tweed River Entrance	TRSBP	TRESBP: NSW&QldGov&McConnell Dowell	2006
Tweed River Entrance	TRSBP	in conjunction with Palm Beach Project	2006
Rosslyn Bay Boat Harbour	QT12-100	Qld Government/Dept of Transport	2006
Scarborough Boat Harbour	QT12-97	Qld Government/Dept of Transport	2007
Pelican Park, Moreton Bay	QT12-96	Qld Government/Dept of Transport	2007
Port Hacking & Cronulla Beach	E318/08	NSW Gov & Sutherland Council	2007
Coffs Harbour	titled	Coffs Shire Council	2008
North Channel, Gold Coast	QT12-115	Qld Government/Dept of Transport	2008
Toondah Harbour, Moreton Bay	QT12-10 8	Qld Government & Redland Council	2008
Mooloolah River Entrance	QT12-120	Qld Government/Dept of Transport	2008
Mooloolah River Entrance	QT12-121	Qld Government/Dept of Transport	2008
Tweed River Entrance	2639	TRESBP:NSW&QldGov& McConnell Dowell	2008
Cabbage Tree Creek, Moreton Bay	QT12-104	Qld Government/Dept of Transport	2008
Wynnum Creek, Moreton Bay	QT12-107	Qld Government/Dept of Transport	2008
West Crab Island & North Channel	QT12-125	Qld Government/Dept of Transport	2009
Rosslyn Bay Boat Harbour	QT12-124	Qld Government/Dept of Transport	2009
Yamba Port, NSW	0901007	Maritime NSW	2009
West Crab Island Broadwater	QT12-128	Qld Government/Dept of Transport	2010
Jacobs Well	Q12-128	Qld Government/Dept of Transport	2011
Seaway to Surfers Paradise Beach	QT12-129A	Qld Government/Dept of Transport	2011/12
Port Hacking & Cronulla Beach	ENG-341-2010	NSW Gov & Sutherland Council	2012
Half Tide Boat Ramp Hay Point	QT12-136	Qld Government/Dept of Transport	2013
Coomera River Dredging	QT12-133	Qld Government/Dept of Transport	2013
Coochiemudlo I s.Jetty Dredging	PDG-70044-2	Redland City Council	2013
Wynnum Creek Entrance	TMR12-146B	Qld Government/Dept of Transport	2015
Pelican Park Dredging	TMR12-147A	Qld Government/Dept of Transport	2015
Cabbage Tree Creek	TRM12-151	Qld Government/Dept of Transport	2016
Tipplers Channel Dredging	2016	Hall Contracting Pty Ltd	2016
Tweed River Entrance	2639	TRESBP:NSW&QldGov& McConnell Dowell	2016
Tweed River Entrance	2639	TRESBP:NSW&QldGov& McConnell Dowell	2017



Project Name Title	Contract	Principal	Period
Cooktown, Nth Qld	MT12-21	Qld Government/Dept of Transport	1996/97
Pt Freeport, Indonesia	TPRA 96271	Pt Freeport	1996/97
Tweed River Entrance / Stage 1	9700181	NSW Government	1997/98/99
Port Hacking & Cronulla Beach	E24/98	NSW Gov & Sutherland Council	1998/99
Toondah Harbour, Moreton Bay	MT12-32	Qld Government/Dept of Transport	1999
Wynnum Creek, Moreton Bay	MT12-28	Qld Government/Dept of Transport	1999
Coffs Harbour	9901682	Coffs Shire Council	1999
Narrowneck Artificial Reef, Gold Coast	171/99/03	Gold Coast City Council	1998/00
Coffs Harbour	titled	NSW Public Works & Services	1999/00
Tweed River Entrance / Initial Dredging	TRSBP	TRESBP: NSW&QldGov&McConnell Dowell	2000
Fishermans Wharf, Gold Coast	titled	Sunland	2000
Tweed River Entrance	TRSBP	TRESBP:NSW&QldGov&McConnell Dowell	2001
Rosslyn Bay Boat Harbour	QT12-65A	Qld Government/Dept of Transport	2002
Tweed River Entrance	TRSBP	McConnell & NSW Government	2002
Terranora Inlet, Tweed River	titled	NSW Depart of Commerce	2003
Port Hacking & Cronulla Beach	12./2002	NSW Gov & Sutherland Council	2003
Tweed River Entrance	2639-sc-03	TRESBP:NSW&QldGov&McConnell Dowell	2003
Mooloolah River Entrance	Qt12-79	Qld Government/Dept of Transport	2003 / 04
Evans River	titled	NSW Depart of Commerce	2004
Tweed River Entrance	2639-SC-010	TRESBP:NSW&QldGov&McConnell Dowell	2004
Coffs Harbour Approach Ch.	400238	NSW Depart of Commerce	2004
Coffs Harbour Sea Alliance	C444203M	Barclay Mowlem	2004
Palm Beach Protection Strategy	LG314/254/03/076	Gold Coast City Council	2004
Coffs Harbour Approach Ch.	400237	NSW Dept of Commerce	2004
Coomera R. To Seaway, Gold Coast	QT12-83	Qld Government/Dept of Transport	2005
Tweed River Entrance	26392639014	TRESBP:NSW&QldGov&McConnell Dowell	2005
Coomera River, Gold Coast	QT12-83	Qld Government/Dept of Transport	2005



- * DREDGING ENTRANCE AND BASIN AT HERON IS., *GREAT BARRIER REEF*
- * DEVELOPMENT DREDGING OF CHANNEL HAMILTON IS., *GREAT BARRIER REEF*
- * DREDGING UNDER MAIN WHARF, *WEIPA*
- * DREDGING OF NAVIGATION CHANNEL FLY RIVER, FOR OKTEDE MINING, *P.N.G.*
- * RIVER ENTRANCE RE-LOCATION DREDGING NOOSA RIVER, *SUNSHINE COAST*
- * SUBMARINE PIPELINE TRENCH DREDGING ACROSS THE TWEED RIVER AT CHINDERA, *NSW*
- * SUBMARINE PIPELINE ACROSS TERRANORA INLET TRENCH, *NSW*
- * DREDGE BARGE CHANNEL FOR *FRASER ISLAND, QLD*
- * DREDGING TWEED CITY SITE RECLAMATION FROM TWEED RIVER, 450,000m³
- * TREDGEN ESTATE RECLAMATION FROM TWEED RIVER 300,000m³
- * CRYSTAL WATERS ESTATE RECLAMATION FROM TERRANORA INLET 450,000m³
- * GREENBANK ISLAND RECLAMATION 250,000m³
- * CURRUMBIN CK ENTRANCE FLOOD MITIGATION & BEACH RESTORATION ANNUALLY-15 YR
- * DEVELOPMENT DREDGING IN MACKAY HARBOUR, *NTH QLD*
- * RECLAMATION OF PACIFIC HIGHWAY SITE OVER CURRUMBIN CREEK 130,000m³
- * RECLAMATION CYPRUS GARDENS ESTATE 450,000m³
- * SURFERS PARADISE RECLAMATION PROJECT 300,000m³
- * DREDGING OF BOOBYGAN CREEK, *QLD*
- * DREDGING OF THE UPPER REACHES OF THE NERANG RIVER, *GOLD COAST*
- * MAINTENANCE DREDGING OF GOLD COAST CANALS:GOLD COAST CITY COUNCIL > 20 YRS
- * DREDGING BROADWATER NAVIGATION CHANNEL: BIGGERA CREEK / GOLD COAST BRIDGE.
- * DREDGING LOWER REACHES OF COOMERA RIVER, *QLD*
- * SEWERAGE OCEAN OUTFALL, *SOUTHPORT*
- * DREDGING EAST WEST GRAND CHANNEL, *GOLD COAST*
- * DREDGING JACOBS WELL CHANNEL (SEVERAL TIMES), *QLD*
- * DREDGING RUNAWAY BAY MARINA CHANNEL, *GOLD COAST*
- * DREDGING MARINA MIRAGE MARINA, *THE SPIT*
- * DREDGING FISHERMAN'S WHARF, *SOUTHPORT*
- * DREDGING SOUTHPORT YACHT CLUB APPROACH CHANNEL
- * RECLAMATION OF DEPARTMENT OF TRANSPORT SITE, *MAIN BEACH*
- * RECLAMATION OF MARINA MIRAGE SITE AT THE SPIT, *SOUTHPORT*
- * SUBMARINE PIPELINE TRENCH, TSS TO SPIT, *SOUTHPORT*
- * MARINA DREDGING AT EVANDALE, *SOUTHPORT*
- * MAINTENANCE DREDGING OATS CANAL, *RUNAWAY BAY*
- * MAINTENANCE DREDGING BIGGERA CREEK SEVERAL TIMES
- * BROADWATER BEACH RESTORATION FROM GOLD COAST BRIDGE TO PARADISE POINT, *QLD*
- * RESTORATION OF SEAWORLD BEACH EASTERN SIDE OF THE BROADWATER, *GOLD COAST*
- * MAIN BEACH BEACH RESTORATION, *GOLD COAST*
- * MAINTENANCE DREDGING SEAWAY TO SEAWORLD SOUTHERN CHANNEL, *GOLD COAST*
- * TEMPORARY SEWERAGE PIPELINE LANDS END TO *STRADBROKE ISLAND*
- * NAVIGATION CHANNELS BETWEEN SOUTHPORT AND MORETON BAY
- * DEVELOPMENT DREDGING HORIZON SHORES MARINA, *QLD*
- * DEVELOPMENT DREDGING WEIMAN CREEK MARINA AND ENTRANCE CHANNEL
- * DEVELOPMENT AND MAINTENANCE DREDGING MANLY BOAT HARBOUR
- * DEVELOPMENT DREDGING CHANNEL, *VICTORIA POINT*
- * DEVELOPMENT DREDGING VARIOUS SLIPWAYS *BRISBANE RIVER*
- * DREDGING ENTRANCE CHANNEL NEWPORT WATERS, *REDCLIFFE*
- * DREDGING SNAPPER CREEK, *TIN CAN BAY*
- * DREDGING NAVIGATION CHANNEL RAINBOW BAY BACK WATER, *QLD*
- * MAINTENANCE DREDGING URANGAN BOAT HARBOUR ON A NUMBER OF OCCASIONS
- * DREDGING BURNETT HEADS BOAT HARBOUR (3 TIMES)
- * DREDGING ROSLIN BAY BOAT HARBOUR (3 TIMES)
- * DEVELOPMENT AND MAINTENANCE DREDGING BOWEN BOAT HARBOUR (3 TIMES)
- * SHIPPING CHANNEL DREDGING LUCINDA, *NTH QLD*
- * MAINTENANCE DREDGING OF BERTH AND UNDER WHARF AT MOURILIAN HARBOUR. X 3
- * DREDGING OF YORKIES KNOB MARINA, *NTH QLD*
- * FILLING OF LARGE (20M LONG X 3M DIA - 220T) SANDBAG OFF KIRRA, *QLD*
- * ENTRANCE CHANNEL & ARTIFICIAL GROUYNE /GREEN ISLAND, *QLD GREAT BARRIER REEF*



\$4.5m dredge contract awarded

A GOLD Coast company has been awarded the \$4.5 million contract to dredge the Tweed River entrance.

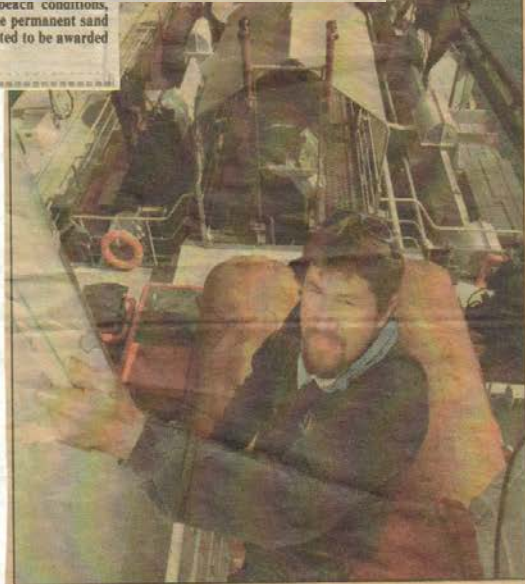
The contract, which makes up Stage 1 of the controversial Tweed River sand bypass, will mean sand from the dredging operation will be used to nourish southern Gold Coast beaches.

NSW Land and Water Conservation Minister Kim Yeadon said the contract awarded to McQuade Marine will build on previous dredging and nourishment projects in better navigation and beach conditions, with the contract for the permanent sand bypassing system expected to be awarded in late 1998.

Queensland Environment Minister Brian Littleproud said work was expected to start on the project within weeks.

He said the dredging would result in better navigation and beach conditions, with the contract for the permanent sand bypassing system expected to be awarded in late 1998.

NSW Land and Water Conservation Minister Kim Yeadon said the contract awarded to McQuade Marine will build on previous dredging and nourishment projects in better navigation and beach conditions, with the contract for the permanent sand bypassing system expected to be awarded in late 1998.



MICHAEL McQuade from McQuade Marine inspects the Port Frederick before she begins work dredging at the mouth of the Tweed River.

Port Frederick gets official welcome

PREPARATION for the final stage of sand dredging at the mouth of the Tweed River prior to the installation of a permanent sand bypass system took a major step forward yesterday.

This, Mr Jackson said, would enable the ship to cope with strong currents and wave action near the mouth of the river as well as more accurately dredge sand in defined areas.

Frederick docks for \$4.5m job

by SCOTT DOWNMAN

A DREDGE called Frederick arrived in the Tweed yesterday to begin a \$4.5 million operation to relieve the sand-clogged Tweed River mouth.

But Frederick almost had to start work ahead of schedule after his bright red hull hit a sand bank on his voyage up the Tweed River.

Project manager Tom Connor said the dredge was not damaged in the hiccup.

But Mr Connor said the incident highlighted the urgency of the latest stage of the dredging project.

Mr Connor said the Port Frederick would be working up the Tweed River for the next 17 weeks with the sand to be used to replenish southern Gold Coast beaches.

But Frederick had had a colourful career and recently had returned to Australian shores after a lengthy campaign in Brian Java and a brief refit in Indonesia, before coming to the Tweed.

"The project team will be undertaking navigation surveys and getting the whole project set-up during the next couple of weeks, with dredging to start later this month," said Mr Connor.

The Port Frederick and a smaller dredge will place the sand off the beaches and leave the movement of it to nature, he said.

Mr Connor said there were concerns about the effect the permanent Tweed River sand bypass could have on the future of surf at the southern Gold Coast beaches.



PORT OF CALL: Tweed river dredging operation project manager Tom Connor and Port Frederick which arrived in the Tweed yesterday.

But he said efforts were being made to minimise the effects.

"I think most surfers would agree the work that's already been done has made way for some of the best surfing conditions in years," said Mr Connor.

"But because of the nature of a beach like Duranbah certain kinds of waves will be lost if you move the bar and that's what you've got to do if you're to make the Tweed River safe for navigation.

Bar busters beat best

LD Coast group has taken on the world's biggest specialist jobs in one of the most exciting jobs on the east coast — titing them hands down.

At the same time, the company, the McQuade Marine Group, is giving Gold Coast Tweed Heads boaters a safer run.

McQuade has taken on the challenge of the Tweed bar in preparation for a permanent sand bypassing system to follow in the next year.

Project manager for McQuade, Angus Jackson said the dredging job was the second largest in Australia at the moment.

The bar was the toughest one by far, due to the conditions on the bar, he said.

McQuade group is using two dredges, the Port Frederick and the Faucon, on the bar.

Mr Jackson said the trick to doing the job successfully was having dredges big enough to do the job and not be sunk, small enough to get in and dredge close and able to dump sand exactly where it was needed.

The dredges are taking sand from in the river mouth and dumping it at Kirra.

At Kirra, the sand makes its way to the Gold Coast's beaches.

The contract is for 700,000 cubic metres of sand to be removed from the bar area.

About two-thirds has been shifted, Mr Jackson said the dredging should be completed by the end of May.

McQuade company is hoping the New South Wales and Queensland governments and the Tweed Heads City Council, which are jointly funding the project, will consider further sand bypassing until the permanent system is installed.

Options being considered for the permanent system include dredging or a pumping system similar to that at the Gold Coast.

Proposals have been put out for the full-time bypassing of the bar.

The Tweed bar has long been a problem for boaters and is considered as dangerous by NSW boating authorities.

Commercial skippers operating over the bar are required by law to have a special permit and special safety equipment on board.

Commercially operated vessels carrying passengers are not allowed to operate in the bar.

The bar claims a lot of amateur boaters and has been lost in the past.

Most of the Tweed's fishing boats have been relocated to other parts of the main commercial fishing area in the bar now is charter fishing and day fishing.

Earlier this month the Port Frederick shifted its 1236th load and began work in September.

Each load is about 400 cubic metres.

The project includes removal of the wreck of the 11-metre Idahou, a steel-hulled fishing vessel that sank on the bar in December.

The Idahou will be used as a breakwater to reduce the power of waves reaching the foreshore.

The sand comes from a point out from Granite Bay and will be dumped in 250 loads.

Experts say normal sea conditions should steadily wash the sand in.

Mr Jackson said the project was a "good one" and had been well planned.

"We've done a lot of computer modelling so we know where the currents go and where to put the sand," he said.

"The challenge is to make the most of it (the sand)."

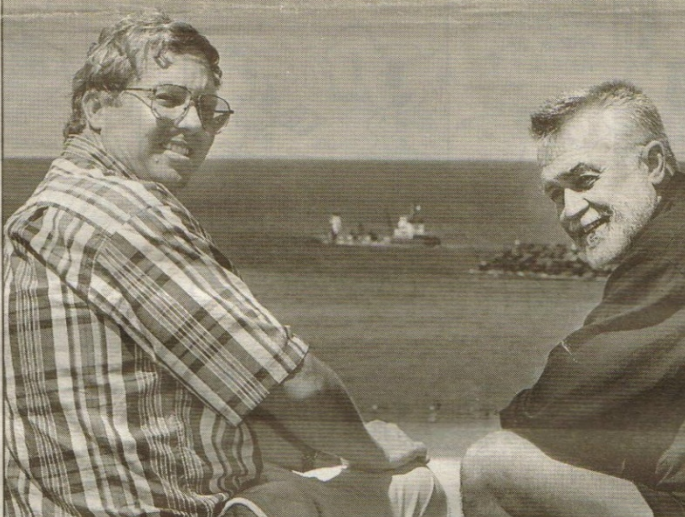
Eventually the Port Frederick, the vessel used in the Noosa operation, will operate around the clock — provided the Environment Protection Agency passes the first trial dump of 10,000 cubic metres.

Noosa Council works director Rod Williams said permits to carry out the further 70,000 square metres dump was expected to be ready for signing after a 10.30am inspection today.



Move along: The Port Frederick takes on another load of sand destined for the Gold Coast's beaches.

Below: Project manager Angus Jackson (left) and McQuade Marine Group head John McQuade check out the dredging from Point Danger.



The other dredge, the Faucon, is a split-hopper barge which has been converted specifically for this work to include a bow water where it's safer, it has not done much good for the boaters using the bar," he said.

"We are trying to dredge in the spots that are the most difficult to reach."

Dredge begins beach restoration

by Peter Gardiner

THE long-awaited operation to save Noosa's Main Beach has begun.

The first load of ocean sand was dropped about 2pm on Wednesday near First Point.

And, after months of debate, the council's \$557,000 protection program began smoothly under the watchful eye of beach restoration expert Angus Jackson, of International Coastal Management.

Mr Jackson and his team had earlier identified the best spot to drop the sand and could have the job completed in less than four weeks.

Under the replenishment program, sand is being dumped in a line with First Point and parallel with the beach to form a berm, or barrier, to reduce the power of waves reaching the foreshore.

The sand comes from a point out from Granite Bay and will be dumped in 250 loads.

Experts say normal sea conditions should steadily wash the sand in.

Mr Jackson said the project was a "good one" and had been well planned.



JUST ADD SAND: Beachgoers watch as the dredge Port Frederick begins depositing sand on Noosa's Main Beach.

Mr Williams said the barge would dump 300 cubic metres to 400 cubic metres at a time, depending on tide heights.

Each dump would be "about two-thirds the size of a house block and a metre deep".