

Sewer and Water Strategy



DMS Survey Pty Ltd (DMS) have been engaged by the Aspen Group to review the sewer and water servicing strategy in relation to the Environmental Assessment Report (EAR) pursuant to Part 3A of the Environmental Planning and Assessment Act 1979 (EP & A). The EAR has been prepared to accompany the application for project approval for a residential subdivision consisting of 713 lots called 'Fern Bay Seaside Village'.

While there has been minor changes in the lot structure the overall footprint and layout of the Project Plan has not been altered and the Project Plan application is consistent with the Master Plan approval.

The addendum report has been provided to ensure fulfilment of the requirements of a Part 3A application.

#### Introduction

GHD Pty Ltd was engaged by The Winten Property Group and Continental Venture Capital in 2004 to produce a Sewerage and Water Supply Servicing Strategy for the development of Fern Bay Seaside Village. The Strategy was to address the fully developed requirements of the site, comprising of some 950 dwellings in regard to water supply and sewer servicing. The development required:

- The construction of lead in water mains from the existing Fern Bay Residential Area. The lead in mains were to be located along Nelson Bay Road and consist of a DN250mm diameter pipe,
- (ii) The construction of a DN200mm diameter trunk ring main within the development,
- (iii) The construction of internal servicing of allotments by DN150 and DN100 pipes,
- (iv) Construction of a catchment based, gravity sewerage reticulation system servicing all allotments within the proposed development. Gravity sewerage reticulation would consist of access chambers and graded pipes of 150mm, 225mm and 300mm diameters, type SN8,
- (v) Construction of waste water pump stations within each catchment,
- (vi) Construction of associated rising mains from pump stations to other pump stations within the development,
- (vii) Construction of a rising main from Fern Bay Waste Water Pump Station No.3 to the existing Fern Bay Residential Area.

GHD's Strategy modeled ultimate loadings of equivalent tenements for water supply needs, convential sewer system layout and loadings and water and sewer cost estimates.

The current layout of the residential areas of the Estate proposes to create ultimately 950 allotments consisting of residential and integrated housing. The 950 allotments include the existing 150 allotments created in Stages 1 and 2 of the development and the 33 lots approved, but not constructed in Stage 3. Therefore, the amended layout of the current proposal will have no impact upon the outcomes of GHD's Water and Sewer Servicing Strategy.

#### **Completed Construction**

As of the date of this Report, the following works have been completed:

- The lead in watermains from existing Fern Bay to the access road at Fern Bay Seaside Village consisting of a DN250mm diameter pipe,
- The trunk rising main along the Estate access road and through Stages 1 and 2 consisting of a DN200mm diameter pipe,
- Stages 1 and 2 have been internally serviced by the construction of DN150mm and DN100mm diameter pipes,
- Stages 1 and 2 have been serviced with 150mm diameter SN8 gravity sewer mains,
- Stages 1 and 2 have been serviced by the construction of internal rising mains and;
- Stages 1 and 2 have constructed two waste water pump stations at the low points of each stage.

#### **Conclusion**

Given the original Sewer and Water Servicing Strategy for the creation of 950 residential allotments at Fern Bay Seaside Village is consistent with the current proposal, the Sewer and Water Servicing Strategy prepared by GHD Pty Ltd in November 2004 is still current.

Existing lead in mains, water supply, gravity sewerage networks and waste water pump stations constructed in Stages 1 and 2 will not need to be modified under this proposal.

#### DMS SURVEY PTY LTD

PG matt

PG MATHER Registered Surveyor



# Winten Property Group and CVC Ltd **Fern Bay**

Sewer and Water Servicing Strategy

Report

November 2004



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## 1. Introduction

The Winten Property Group and Continental Venture Capital (CVC) propose to develop an area of land at Fern Bay for residential housing.

The development area fronts onto Nelson Bay Road opposite the intersection with Fullerton Cove Road (Ref Figure 1).

Ultimate development will total approximately 950 dwellings (Ref Figure 2). The actual numbers will vary as the precincts are finalised and will comprise conventional lots, integrated housing, villas and duplexes. The arrangements presented in this report have been based on a total load of 850 ET derived from reduced ET per lot for the housing types other than conventional.

Development Application approval has been obtained for 208 lots. Engineering design and bulk earthworks have been commenced for stages 1 and 2 totalling 98 lots. This will be closely followed by the remaining 110 lots. (Ref Figure 2 detailing the 98 lots approved as Stages 1 and 2).

Sewerage and water supply servicing strategies for the development covering initial and ultimate requirements are the subject of the following report.



## 2. Sewer System

#### 2.1 Site

The site (Figure 3) is divided by a ridge rising to RL 15m AHD that runs north-east to southwest with another ridge and higher ground along the eastern edge. Between the ridges and to the west are large flat areas at low level (RL 2 and 3). The higher ground to the east is intersected by gullies down to RL 3.5. Significant portions of the low level area to the west are wet i.e. the ground level is below water table level.

#### 2.2 Existing Services

There are no sewerage services existing at the site. It will be necessary to connect to the proposed Hunter Water Corporation (HWC) system at the corner of Rankin Road and Nelson Bay Road a distance of 2.3 km from the Fullerton Cove Road and Nelson Bay Road intersection.

Hunter Water Corporation has in place a regional wastewater servicing strategy developed to set a framework for the orderly role out of wastewater infrastructure serving the existing Fern Bay community and the broader growth identified in the vicinity. Due to the impacts of changed development timing (that has increased the certainty of development proceeding) and the Roads Traffic Authority requesting a reduction in the number of planned services in Nelson Bay Road, it has become necessary for Hunter Water to review the current wastewater servicing strategy.

In November 2004 Hunter Water completed their review and has confirmed that the connection location shall remain the same but with additional infrastructure and changes in flows and main sizes.

Should connection to sewer services be required prior to the planned completion of the other works being delivered by Hunter Water (mid 2006), it will become necessary for the developer to provide interim tankering services.

Design of the Priority Sewer Programme infrastructure by Hunter Water is programmed for completion in January 2005 and it will be necessary to proceed directly to tender and construction to minimise the need for tankering services.

#### 2.3 Proposed Sewerage System Arrangement

It will be necessary to deliver sewage, via a collection system, to the west side of the development area for a transportation system, running along Nelson Bay Road, to convey it to the HWC connection point. An alternative route running to the east of the golf course was considered but was not investigated in detail due to access, environmental and ground elevation (in regard to the pipeline longitudinal section) issues.

In order to convey sewage to the west side of the development the collection system will need to cross the topographic features that generally run north-south through the site. A number of pumping stations will be required to achieve this (detailed in Section 2.6).



#### 2.4 Options

Due to the site topography the following were considered:

- Conventional system;
- Common effluent pumping (CEP). CEP systems are those where individual houses are served by a septic tank upstream of a small tank that has a pump delivering into a common pumping main network;
- Low pressure sewer system (LPSS) where each house is provided with a grinder sewage pump station delivering into a common street main network; and
- Combination of conventional and LPSS.

CEP systems were not analysed in detail because all their benefits such as lower pumping rates and elimination of major WWPSs are available in the LPSS without the desludging and odour issues with CEP tanks.

#### 2.5 Rate of Development

A lot release rate of approximately 120 per year was assumed based on information provided by the Winten Property Group.

#### 2.6 Conventional System

A conventional system to serve the ultimate project area was developed comprising seven WWPS catchments. Figure 4 describes the probable catchment boundaries, while the schematic shown in Appendix B details the resulting gravity flows and PWWF generated from each of these catchments.

WWPS Nos. 2 to 7 deliver to the main WWPS No. 1 to be known as Fern Bay No. 3 (FB WWPS No. 3) that delivers into the transportation main to the existing HWC system. The rising mains from WWPSs 2 to 8 are all relatively short with commensurately low detention times and deliver into the gravity collection system of the downstream WWPS.

To cater for ultimate development FB WWPS No. 3 needs to be 86L/s capacity and its rising main 3.3km long to form a transportation system to the HWC connection point at Rankin Road. Future Fern Bay WWPS No. 4 will connect into the rising main approximately 2.1 km down stream from FB No. 3.Winten-CVC have commenced discussions with Hunter Water regarding the possible incremental upsizing of selected rising main (and water) assets. Further discussion will need to take place to confirm any possible funding to be offered by Hunter Water. Generally Hunter Water's reimbursement policy will provide a mechanism for other development to connect and contribute to the cost of the transfer scheme.

The long common rising main associated with this transfer scheme results in significant detention times for the sewage - giving rise to septicity and odour issues. This is further aggravated at initial development when loads are low compared to the ultimate that has to be catered for. The staging of the WWPS No. 1 rising main was therefore investigated.

Staging of the rising main presents a difficulty in accommodating the two smaller mains in the limited space available beside Nelson Bay Road. This together with cost considerations lead to the adoption of a single stage rising main catering for ultimate development.



The rising main detention times will be such that iron salt dosing will be required for sulphide and odour control. This will be considered during the concept design of the station.

#### 2.7 Pressure Sewer Systems

An arrangement based on Eone grinder package pump stations (one for each dwelling) was prepared by consultants Environmental Group (Operations) Pty Ltd (EGL) for the complete development. A preliminary costing prepared for this option using Eone's estimated contract costs indicated that it was viable. Hunter Water is not in a position to approve a scheme of this order and has stated this position. Accordingly servicing of the full development with LPSS will not be investigated further.

The viability of LPSS systems, however, will be considered on a catchment by catchment basis. The adoption of LPSS systems for any of the catchments will result in the development being served by a combined LPSS and conventional system. It should be noted that Hunter Water has not yet considered any LPSS subsystem greater than approximately 50 lots in size and generally only where larger residential lots sizes would result.

Hunter Water is currently developing its design guidelines and associated administrative procedures for LPSS. It is expected these will evolve over the next 12 months to replace the CEP requirements.

#### 2.8 Costs

Cost estimates and NPV analyses have been prepared and are included in Appendix C as follows:

- Conventional with WWPS No. 1 not staged;
- Conventional with WWPS No. 1 staged; and

The gravity sewer and rising main costs have been determined in accordance with HWC procedures for Preliminary Estimates. The WWPS estimates have been factored to be in line with construction costs for similar installations.

An allowance has been made for dewatering and no allowance has been made for rock excavation. Extremely hard ground can be found in the area appearing as cemented sand strata near ground water level. This would slow construction but it could not be classified as rock for excavation purposes.

The NPV analysis is based on the staging in Section 2.5 and for a discount factor of 7%.

A summary of the costs is shown in Table 2.1.



	Ν	ett Present Value	e Cost
Option	Capital	O & M	Total
Conventional – WWPS 1 not staged	\$8,003,000	\$1,400,000	\$9,403,000
Conventional – WWPS 1 staged	\$8,741,000	\$1,400,000	\$10,141,000

#### Table 2.1 Sewer Preliminary Cost Estimates Present Values

The single un-staged option is preferred due to its lower cost and the difficulty in accommodating additional mains in Nelson Bay Road.



## 3. Water System

#### 3.1 Present System

There are no water supply services existing at the site. It will be necessary to connect to the existing Hunter Water Corporation (HWC) system initially at the eastern end of the Stockton Bridge a distance of approximately 3.3 km from the Fullerton Cove Road and Nelson Bay Road intersection. In order to provide security of supply in the form of two feeds to the site a second connection will be eventually required at Williamtown (intersection of Cabbage Tree Road and Nelson Bay Road) a distance of approximately 7.75 km from the Fullerton Cove Road and Nelson Bay Road intersection (Ref Figure 1). This has been confirmed by HWC.

#### 3.2 Proposed System

The system proposed to serve the development as shown on Figure 5 comprises:

DN250 and DN300 lead-in trunk mains from the connection points to the existing HWC system at Stockton and Williamtown. The DN250 from Stockton would be installed initially and the DN300 from Williamtown in 2008. Alternative routes are shown on Figure 1 for the main from Williamtown. The final location will be selected at the design stage of this main.

Hunter Water has expressed interest in up sizing the 250mm trunk main to 300mm in diameter;

- DN200 trunk ring main with in the development;
- DN150 sub loop reticulation mains; and
- DN100 reticulation mains.

#### 3.3 Design Criteria

#### 3.3.1 Water Demands

**Diurnal Factors:** 

- Average demand per residential dwelling (ET): 270 kL/annum.
- Average demand per residential flat/unit: 130 kL/annum
- Peak Day Demand (PDD) Factor: 2.25.
- Extreme Day Demand (EDD) Factor: 1.15.
  Unaccounted for Water: 0.15 X ADD.
  - Table 2.4, Appendix B of HWC Design Manual.



Peak Day and Extreme Day Diversity Factor: 1.225 that was determined from a sub system size of 1400 EP (deemed to represent dwellings with significant outdoor water use) made up of 210 existing at Fern Bay plus the 1000 of the development and 200 for the caravan park.
 Fire Flow: 11 L/s.

#### 3.3.2 Population Served

The system analysed extended between the connection points to the existing system at Williamtown and the Stockton Bridge.

Allowance was made for the following demands:

- Nominal allowance for the properties along Fullerton Cove Road: 50ET (at N30);
- Proposed retirement village at the intersection of Fullerton Cove Road and Nelson Bay Road: 200 units (Made up of 57 x 3 bed and 142 x 2 bed) – this is equivalent to 129ET (at N3);
- Caravan Park on Nelsons Bay Road: 200ET (at N4);
- Manufactured Home Village: 165ET (at N4); and
- Winten development: 1016ET (1000 residential, 3 commercial and 13 for school).

#### 3.3.3 Minimum Residual Pressures

#### Table 3.1 Minimum Residual Pressures

Demand	Minimum Pressure (m)
Peak hour flow on a peak day.	20
Peak hour flow on an extreme day.	12
Peak hour flow on a peak day plus fire flow.	3
Peak hour flow on a peak day with a failure in one of the trunk lead-in mains.	12
Maximum pressure at any node.	70

#### 3.4 Analysis

Analysis using Pipes++ modelling was carried out for the following cases:

- PDD;
- EDD;
- PDD + Fire; and
- PDD with one of the lead in trunk mains failed.



For each case the pressures at the connection points to the existing HWC system were as advised by HWC (Refer Appendix E).

The size of the lead-in mains was dictated by the failure analysis. The failure analysis simulated a pipe break discharging to atmosphere for 2 hours from 2:00 pm followed by no supply through the failed pipe for the rest of the day but with the discharge at the break stemmed.

The robustness of the DN200 trunk ring main was confirmed by applying a fire flow of 22L/s (11L/s at two different points) to the system.

Modelling results are shown in Table 3.2.

Modelling Case			Minimu Pressur		Maximu	m Velocity
Demand	Time	Year	Value (m)	Node	Value (m/s)	Location
PDD	20:00	2008	24.7	N17	1.08	Stockton DN250
PDD + Fire at N20	20:00	2008	17.2	N17	1.29	Stockton DN250
PDD	20:00	Ult	34.7	N17	0.68	W'town DN300
PDD + Fire at N20 & N22	20:00	Ult	26.9	N17	0.77	W'town DN300
EDD	20:00	Ult	33.9	N17	0.71	W'town DN300
PDD + Failure of DN250 from Stockton	20:00	Ult	20.5	N17	0.99	W'town DN300
PDD + Failure of DN300	20:00	Ult	7.2	N17	1.48	Stockton DN250
from Williamtown			9.3	N10,N 14		
			9.9	N21		
			10	N20		
			10.2	N7		
			10.5	N22		
			11	N19,N 23,N2 4		
			11.3	N15		

Table 3.2 Results of Modelling



All results meet the criteria set out in Section 3.3.3 except for the failure of the DN300 from Williamtown. The pressure at N17 is derived from a ground level of RL18 that is the existing natural surface. Ground shaping is expected to reduce this level but in any case only one property is affected. The other pressures of 9m and above are considered acceptable for this extreme case. For these reasons the system as proposed is considered satisfactory.

#### 3.5 Rate of Development

A lot release rate of approximately 120 per year was assumed based on information provided by the Winten Property Group.

#### 3.6 Costs

A cost estimate and NPV analysis has been prepared and is included in Appendix D.

The costs have been determined in accordance with HWC procedures for Preliminary Estimates.

The NPV analysis is based on the staging in Figure 2 and for a discount factor of 7%. It was assumed that the DN300 connection to Williamtown was installed in year 2008.

A summary of the costs is shown in Table 3.3.

#### Table 3.3 Water Preliminary Cost Estimates Present Values

	Nett Present Value	Costs
Capital	O & M	Total
\$6,567,000	\$163,000	\$6,730,000

The two lead in mains will benefit existing and future users in addition to the Winten - CVC development. Joint funding will be sought for these mains.



## 4. Conclusions and Recommendations

#### 4.1 Sewerage

Preliminary concept designs have been prepared for conventional and low pressure sewerage systems to serve the proposed Winten – CVC development. The arrangement includes a transportation system delivering to the connection to the HWC system at the corner of Rankin and Nelson Bay Roads in Fern Bay.

Preliminary cost estimates for the LPSS showed it to be viable but because the system is the subject of ongoing discussion between HWC and EGL in respect of design criteria these costs are not presented here. Costs of the alternative conventional systems have produced the following NPVs when staging of the system to suit the assumed rate of development shown in Section 2.5 is taken into account:

#### Table 4.1 Sewer Preliminary Cost Estimates Present Values

	N	ett Present Value	e Cost
Option	Capital	O & M	Total
Conventional – WWPS. 1 not staged	\$8,003,000	\$1,400,000	\$9,403,000
Conventional – WWPS. 1 staged	\$8,741,000	\$1,424,000	\$10,165,000

#### Recommendation

- A conventional gravity sewerage system be adopted for the development. This means proceeding immediately with the design and construction of WWPS No.1 with a single un-staged rising main with a capacity of 86L/s.
- The gravity scheme shall be optimally arranged to facilitate its logical extension to upstream sub catchments within the development, minimising life cycle costs while maximising opportunity for the efficient expansion of the gravity scheme.
- Proceed with further investigation of the use of LPSS on a catchment by catchment basis with due regard to Hunter Water's evolving LPSS design requirements.
- Further discussion will be required with Hunter Water to confirm what funding may be offered for selected rising main upsizing. Reimbursements may be payable to the lead developer if other development utilise this infrastructure.

#### 4.2 Water Supply

Preliminary concept designs have been prepared for a water supply system to serve the proposed Winten – CVC development. The arrangement includes lead-in mains from the existing HWC mains at Williamtown and Stockton Bridge (Ref Figure 1).

Costs of the alternative systems have produced the following NPVs when staging of the system to suit a lot release rate of approximately 120 per year:



#### Table 4.2 Water Preliminary Cost Estimates Present Values

	Nett Present Value Costs	
Capital	O & M	Total
\$6,567,000	\$163,000	\$6,730,000

Points to note are:

- The lead-in mains comprise a DN250 from Stockton Bridge and a DN300 from Williamtown. It is assumed that the DN250 would be installed initially with the DN300 to follow in 2008, based on the assumed development rate.
- The lead-in mains will benefit users other than Winten-CVC and so their provision should be on a joint funding basis.

#### Recommendation

- The water supply system arrangement shown on Figure 5 be adopted.
- Design and construction proceed for the DN250 lead-in main from Stockton Bridge as well as the DN200 trunk ring main and reticulation sufficient to serve development stages 1 and 2.
- The DN250 is to be upgraded to DN 300, subject to the prior agreement of Hunter Water to contribute an appropriate funding contribution to Winten – CVC.



Appendix A Figures



#### LOCATION OF PROPOSED WATER AND SEWER INFRASTRUCTURE FERNBAY









GHD NEWCASTLE PLOTEd 15:58 11/18/04 G:\22\11631/CAD\22-11631-FIG008.dwg



# Appendix B Sewer Loadings

B1. Conventional Sewer System Layout and Loads - Stage 1

B2. Conventional Sewer System Layout and Loads – Ultimate

B3. Load Determination for Conventional System

22-11031-FIG018 FERN BAY SEWER SERVICING STRATEGY







FERN BAY SEWER SERVICING STRATEGY



22-11631-FIG017

#### CONVENTIONAL SEWER SYSTEM LAYOUT & LOADS ULTIMATE WITH FUTURE FERN BAY REGIONAL WWPS'S SING MAIN. FERN BAY

1. 7.5 L/S IS MINIMUM FLOW FOR DN100 RISING MAIN.





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Appendix B3



# Appendix C Sewer Preliminary Cost Estimate

NPV Analysis																									
Conventional Sewer System WWPS	No. 1 Staged DISCOUNT	FACTOR	7%	2002					1 HOC			apuc			6606			2026	2000			2034			INTOT
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WWPS No. 2 WWPS No. 3	1 7.5 \$14.301 1 3 \$10.896	\$14,301 \$10.896			\$14,301	01 \$10.896										\$14,301	510.896								\$28,602 \$21,792
WWPS No. 4 WWPS No. 5					\$10,8	36	\$10,896									\$10,8	896	\$10.896							\$21,792 \$21,792
WWPS No. 6 WWPS No. 7	1 1 \$10,896 1 2.2 \$10,896				\$10,896		\$10,896	96								10,896			\$10,896						\$21,792 \$21,792
	7.5 Rate	\$14,301	\$14,301											\$14,301											\$28,602
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WWPS No. 2	1 15 \$50,394	\$50,394 645 657			\$14,301											\$14,301									
WWP5 NO. 3 WWPS No. 4	\$45	\$45,627			\$10,896	96 \$10,850										\$10,896	\$10,850								\$21,792
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WWPS No. 1	3500		13	8	\$551,250																				\$484,313
WWPS No. 2	300				\$34,088	88 613 AEE																			\$34,088
WWP5 N0: 3 WWPS No. 4	140				\$14,490			+																	\$14,490
WWPS No. 5 Rising Main WWPS No. 5 Carrier	120						\$11,363 \$26,775																		\$11,363 \$26,775
WWPS No. 6	150						\$15,525	25																	\$15,525
	150	\$58,995 \$44,314	\$44,314		\$58,995																				\$58,995 \$44,314
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WWPS No. 1 Stage 2 WWPS No. 2	\$204,098 \$374,614	098 614		~	\$204,098 \$374.614	4																			\$204,098 \$374,614
WWPS No. 3	\$362,008	\$362,008			000 101 0	\$362,008																			\$362,008
WWPS No. 4 WWPS No. 5 Stage 1	\$101,829 \$540,405	\$101,829 \$540,405			3,101&	62	\$540,405																		\$540,405
WWPS No. 5 Stage 2 WWPS No. 6	\$261,191 \$60,244	\$261,191 \$60,244	+				\$261,191 \$60,244	91 44				+	+												\$261,191 \$60,244
WWPS No. 7 WWPS No. 8 State 1	\$215,606 \$447 289	\$215,606 \$447 289	\$447.289	5	\$215,606																				\$215,606
WWPS No. 8 Stage 2	\$378,293	\$378,293	003	\$378,293																					\$378,293
Miscellaneous																									
Iron salt dosing. RC slab at WWPS No. 1 House connections	150 15 56	\$5,000 \$5,000 \$840,000 \$84,000	00 30 \$105,000	\$87,360 \$1	109,200 \$123,4	80 \$92,400	\$114,240 \$124,320	20																	\$5,000 \$1,680,000
Estimated Contract Value Sub Total		173			\$1.055.			84					\$77.6					\$21.792	\$21.792						
Establishment & Disestablishment		8			\$20			00					\$40					\$2,000	\$2,000						
Estimated Contract Award 1 otal Design Costs		2 8			\$107,			689					\$12,2					\$3,569	\$3,569						
Design Management Pre construction contingency	20%	812			\$23,			23					\$1,5					\$357	\$785						
Construction management Construction contingency	20%	\$628,974 \$147,673 \$1,572,435 \$295,347	73 \$85,312 47 \$170,625	\$47,565 \$1 \$95,131 \$2	\$173,459 \$107,57 \$346,919 \$215,14	574 \$69,306 148 \$138,612	\$183,596 \$132,937	37					\$12,245 \$16,327	45 \$4,590 27 \$6,120		\$3,569 \$8,159 \$4,758 \$10,879	9 \$3,569 9 \$4,758	\$3,569 \$4,758	\$3,569 \$4,758						\$1,630,672
TOTAL CAPITAL COSTS		265	ŝ		\$1,540,			827				+	\$126,3					\$36,830	\$36,830						\$9,769,767
OPERATION & MAINTENANCE COSTS Pump Station Maintenance	Number Rate																								
WWPS No. 1 WWPS No. 2		\$6,000 \$6,000	\$6,000	\$6,000	\$6,000 \$6,000		000											\$6,000							\$150,000
WWPS No. 3		\$6,000				000 39	\$6,000 \$6,000											\$6,000							\$144,000
WWPS No. 5		\$6,000				000	8											\$6,000							\$138,000
WWPS No. 6 WWPS No. 7	\$4,000 1 \$2,000 \$4,000 1 \$2,000	\$6,000 \$6,000					\$6,000 \$6,000	56,000 56,000	\$6,000 \$6,000	\$6,000 \$6,000 \$6,000 \$6,000	00 \$6,000		\$6,000 \$6,000 \$6,000 \$6,000	000 <sup>'98'</sup> 000	\$6,000 \$6,000	\$6,000 \$6,000 \$6,000 \$6,000	0 \$6,000	\$6,000	\$6,000 \$ \$6,000 \$	\$6,000 \$6,000 \$6,000 \$6,000	0 \$6,000 0 \$6,000	\$6,000	\$6,000 \$6,000 \$6,000 \$6,000	00 \$6,000 00 \$6,000	\$132,000 \$156,000
	Pump Rate ADWF Cost/kWh			\$6,000	\$6,000 \$6,000													\$6,000							\$168,000
	105 103.5 102 		\$2,230	\$4,460	\$6,690 \$8,92													\$16,316							\$421,358
WWPS No. 2 WWPS No. 3						\$1,130	\$1,130 \$1,1 \$548 \$5											\$1,130 \$548							\$28,251 \$13,146
WWPS No. 4	0.35					\$74												\$74							\$1,840 \$8.035
WWPS No. 6	7.5 0.29																	\$61							\$1,341
	10 17.5 2.12		+	\$1,910	\$1,910 \$1,910													\$1,910							\$53,485
	Length Rate 3.500.0	\$2.520	\$2.520	\$2.520														\$2.520							\$73.080
C ON SQMM	300.0	\$2,559			\$2,559	59 \$2,559 \$2,559	\$2,559 \$2,5 \$2,5						\$2,559 \$2,559 \$213 \$2,559	59 \$2,559 13 \$2,559			3 \$2,559	\$2,559		2,559 \$2,559 \$213 \$2,559	9 \$2,559 3 \$2,559			59 \$2,559 13 \$2,559	\$66,544 \$6,334
WWPS No. 3	130.0	\$92																\$92							\$2,200
WWPS No. 5 Rising Main	100.0	\$71				RR®												\$71							\$1,636
WWPS No. 5 Carrier WWPS No. 6	150.0	\$106			\$106	06 \$106	\$106 \$											\$106							\$2,750
WWPS No. 7 WWPS No. 8		\$402		\$402	\$402 \$40							\$402		02 \$402	\$402			\$402	\$402						\$11,252
	Length Rate			100 10					noo aq													100 10			
2005	2,100.0	\$5,687 \$421	\$5,687 \$421	\$5,687					\$5,687 \$421						\$5,687 \$421			\$5,687 \$421				\$5,687 \$421			\$11,782 \$11,782
	190.0	\$485	\$485	\$485					\$485						\$485			\$485				\$485			\$14,076
2006	1,565.0	\$4,238	1176	\$4,238					\$4,238						\$4,238			\$4,238				\$4,238			\$118,660
2007	1.415.0	\$473 \$3.832		\$473	\$473 \$473 \$3.832 \$3.832				\$473 \$3.832						\$473 \$3.832	\$473 \$4 \$3.832 \$3.8		\$473 \$3.832		\$473 \$47 \$3.832 \$3.83		\$473 \$3.832	\$473 \$473 \$3.832 \$3.832	73 \$473 32 \$3.832	\$13,255 \$103.455
2008	1,790.0	\$4,847	+	+	\$4.8 \$1.2:				\$4,847 \$1.236						\$4,847 \$1,236			\$4,847 \$1.236				\$4,847 \$1.236			\$126,026
2009	2,365.0	\$6,404				\$6,404 \$1,210	\$6,404 \$6,404	\$6,404 \$6,404 \$1,210 \$1,210	\$6,404 \$1 210	\$6,404 \$6,404 \$1,210 \$1,210	104 \$6,404 210 \$1,210		\$6,404 \$6,404 \$1,210 \$1,210	04 \$6,404 10 \$1,210	\$6,404 \$1,210	\$6,404 \$6,404 \$1,210 \$1,210	14 \$6,404	\$6,404	\$6,404 \$	\$6,404 \$6,404 \$1,210 \$1,210	4 \$6,404	\$6,404	\$6,404 \$6,404 \$1,210 \$1,210	04 \$6,404 10 \$1,210	\$160,105
2010	2,120.0	\$5,741				21412			\$5,741						\$5,741			\$5,741				\$5,741			\$137,778
2011	2.440.0	\$6.607		+					\$6.607						\$6.607			\$6.607							\$151.967
2012	225 410.0 \$2.63 150 2.170.0 \$2.71	\$1,078 \$5.876					\$1,	\$1,078 \$1,078 \$5,876	\$1,078 \$5.876	\$1,078 \$1,078 \$5,876 \$5,876	178 \$1,078 176 \$5,876	\$1,078 \$ \$5,876 \$	\$1,078 \$1,078 \$5,876 \$5,876	78 \$1,078 76 \$5.876	\$1,078	\$1,078 \$1,078 \$5,876 \$5,876	8 \$1,078 6 \$5,876	\$1,078 \$5.876	\$1,078 \$ \$5.876 \$	\$1,078 \$1,078 \$5,876 \$5,876	8 \$1,078 6 \$5.876	\$1,078 \$5,876	\$1,078 \$1,078 \$5,876 \$5,876	78 \$1,078 76 \$5,876	\$24,800 \$129.275
	60.09	\$158						\$158	\$158						\$158			\$158							\$3,471
WWPS No. 1 iron salt dosing	30000	\$30,000	\$30,000	\$30,000	\$30,000 \$30,000	00 \$30,000	\$30,000 \$30,000	330,000		\$30,000 \$30,000	000 \$30,000		\$30,000 \$30,000	000 \$30,000	\$30,000	\$30,000 \$30,000	000'000	\$30,000		\$30,000 \$30,000	000'000	\$30,000 \$	\$30,000 \$30,000	00 \$30,000	\$870,000
TOTAL OPERATING COSTS		\$153.190	\$47.554				65	65	6			06	06	65	03	03				03			03	S	\$4.008.911
TOTAL CAPITAL + OPERATING COSTS		\$10,839,455 \$2,114,68	81 \$1,269,228	\$743,521 \$2,5	,552,807 \$1,626,5	541 \$1,101,903	\$1,438,564 \$1,092,2		\$153,190 \$	\$153,190 \$153,190	\$153,190		153,190 \$279,559	\$200,561	\$153,190 \$	\$190,020 \$237,391	1 \$190,020	\$190,020	\$190,020 \$15	\$153,190 \$153,190	0 \$153,190	\$153,190 \$1	\$153,190 \$153,190	90 \$153,190	\$13,778,678
DDESENT VALUE of CADITAL COSTS		64 076 23	120	8	61 OD0		6229 662							142		5	8	010	037.75						60 741 3E0
PRESENT VALUE of CAPITAL COSTS PRESENT VALUE of 0&M COSTS		\$1,976,3	37 \$1,067,058 \$41,535	\$556(009 \$1,8 \$50,926 \$	\$1,894,985 \$1,098,32 \$52,540 \$61,37	376 \$72,926	\$77,233 \$553; \$77,233 \$81,1	,972 ,707 \$83,325	\$77,874	\$72,779 \$68,018	\$63,568	\$59,410 \$5	\$55,523 \$51,80	891 \$48,496	\$45,323	\$10,184 \$21,7 \$42,358 \$39,5	759 \$8,895	\$8,313 \$34,577	\$7,769 \$32,315 \$3	\$30,201 \$28,225	5 \$26,379	\$24,653 \$	\$23,040 \$21,533	33 \$20,124	\$8,741,359 \$1,424,438
PRESENT VALUE of COSTS	TOTALS	\$1,976,337	\$1,108,	\$606,934 \$1,	\$1,159,						\$63,568		523 \$94	203	23	542 \$61,	\$45	\$42,890	84	\$28	\$26,379	\$24,653	8	\$20	\$10,165,797
CUM. PRESENT VALUE of CAPITAL COSTS CUM. PRESENT VALUE of O&M COSTS	\$8,741,359 \$1,424,438	\$1,976,337	\$3,043 \$41		\$5,494,388 \$6,592,71 \$145.001 \$206.37						\$8,626,637 \$803.807	\$8,626,637 \$8,626, \$863.216 \$918.	537 \$8,669, 739 \$970.	\$8,684 \$1.019		\$8,716, \$1,146.	\$8,725.		\$8,741,359 \$8,74 \$1,250,283 \$1,28	\$1.308.	\$8,741,359 \$1.335.088	\$8,741,359 \$8,741,3 \$1,359.741 \$1,382.7	81	\$8,741. \$1.424.	
COM. PRESENT VALUE of COSTS	\$10,165,797	\$1,976,3	37 \$3,084,930	\$3,691,865 \$5,6	\$6,799,	090 \$7,533,334	\$8,429,200 \$9,064,879	379 \$9,148,204	\$9,226,078 \$9,	\$9,298,857 \$9,366,875 11 12 12 12 12 12 12 12 12 12	\$9,430,444		376 \$9,640	072 \$9,703,565	88 9	130 \$9,862		951,559	991,643 \$10,021,844	\$10.	\$10,076,447	101,100	4,140 \$10,145,673	\$10.	
YEAR		0	1 2	8	4						13		15		18				53			27	8		

	Muthor         Add         Col         Col<	440         5         7         6         7         6         9         0         100 <th1< th=""><th></th><th>1000 1000</th><th>1000 11,200 11,201</th><th>1000         1000           510,896         510,896           53,992         53,992           53,893         53,893</th><th>20     28       000     00</th><th></th></th1<>		1000 1000	1000 11,200 11,201	1000         1000           510,896         510,896           53,992         53,992           53,893         53,893	20     28       000     00	
	Muthor         Refs         State S2         S	S165.222         S171.612         S171.625         S171.625         S171.625         S171.625         S171.625         S171.625         S171.625         S171.625         S160.012			\$14.301 \$10,896 \$14.301 \$14.301 \$10,896 \$14.301 \$10,896 \$14.301 \$10,896 \$1199 \$81.199 \$81.199 \$81.199 \$81.199 \$81.199 \$81.199 \$81.199 \$81.199 \$81.199 \$81.199	\$10,000 \$21,792 \$21,792 \$31,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,792 \$33,599 \$34,599 \$34,599 \$34,599 \$34,599 \$34,599 \$34,599 \$34,599 \$34,599 \$34,599 \$34,599 \$34,599 \$34,599 \$34,599 \$34,599 \$35,59		S246.522 S246.522 S193,464 S193,464 S193,464 S193,464 S193,464 S193,464 S193,464 S177,022 S22,772 S22,772 S22,772 S23,762 S23,762 S21,762 S2
	mmmer         1         mmmer         1         246223         8266522         5565623         5565623         5576523         5576523         5577520         5777520	\$165,202         \$163,202         \$133,404         \$133,404         \$131,612           \$171,612         \$133,404         \$133,404         \$131,612           \$100,806         \$10,0806         \$10,0806         \$10,0806           \$10,806         \$10,0806         \$10,0806         \$10,0806           \$10,0806         \$10,0806         \$10,0806         \$10,0806           \$10,0806         \$10,0806         \$10,0806         \$10,0806           \$10,0806         \$10,0806         \$10,0806         \$10,0806           \$10,1806         \$10,0806         \$10,0806         \$10,0806           \$10,1806         \$10,0806         \$10,0806         \$10,0806           \$11,4,400         \$13,4614         \$10,0806         \$10,0806           \$10,1809         \$13,4624         \$10,0806         \$10,0806           \$11,4,400         \$13,4634         \$10,0806         \$10,0806           \$11,4,400         \$11,4,400         \$11,4,400         \$11,4,400           \$11,4,400         \$11,4,400         \$10,6178         \$10,6186           \$10,1804         \$11,4,614         \$10,6186         \$10,6186           \$10,1804         \$11,4164         \$10,6186         \$10,6186           \$10,1805			\$14.301 \$10.896 \$10.896 \$10.896 \$1.109 \$1.109 \$1.19	\$10,000 \$310,0000\$ \$310,0000\$ \$310,0000\$ \$310,0000\$ \$310,0000\$ \$310,0000\$ \$310,0000\$ \$310,000\$ \$310,000\$ \$310,000\$ \$310,0000\$ \$310,000\$ \$3		State 22 State 446 State 478 State 490 State 4
	1         100000         510.4 did	S171,612         S133,404         S133,404           \$193,404         \$133,404         \$171,612           \$103,404         \$10,806         \$10,806           \$10,806         \$10,806         \$10,806           \$14,301         \$10,806         \$10,806           \$10,806         \$10,806         \$10,806           \$14,301         \$10,806         \$10,806           \$10,806         \$10,806         \$10,806           \$10,806         \$10,806         \$10,806           \$10,806         \$10,806         \$10,806           \$10,806         \$10,806         \$10,806           \$11,400         \$13,408         \$10,806           \$11,400         \$13,407         \$10,806           \$11,400         \$13,406         \$10,906           \$11,400         \$13,405         \$10,806           \$11,400         \$13,405         \$10,806           \$11,400         \$13,406         \$10,906           \$11,400         \$13,406         \$10,906           \$11,412         \$13,407         \$10,906           \$11,412         \$10,907         \$10,906           \$11,412         \$10,906         \$10,906           \$11,22         \$10,907			\$14.301 \$10,896 \$10,806 \$10,896\$\$10,896\$\$10,896\$\$10,896\$\$10,896\$\$10,896\$\$10,896\$\$10,896\$\$10,89	\$10,000 \$10,000 \$20,000 \$3,0000 \$3,0000 \$3,0000 \$3,0000 \$3,0000 \$3,0000 \$3,0000 \$3,0000 \$3,0000 \$3,0000 \$3,0000 \$0		S193, 444 S193, 444 S193, 474 S193, 612 S193, 612 S173, 612 S173, 612 S173, 612 S173, 612 S173, 612 S271, 792 S271, 792 S271, 792 S271, 792 S271, 792 S21, 792 S
	1         1         19904         519,404         519,404         519,404         519,404         519,404         519,404         519,404         519,404         519,404         519,404         519,404         519,404         519,404         519,404         519,404         519,404         519,404         519,605         510,405         511,406         511,406         511,406         511,406         511,406         511,406         511,406         511,406         511,406         511,406         511,406         511,406         511,406         511,406         511,406         511,406         511,406         511,406	\$193.404         \$193.404         \$193.404         \$171.612           \$10.806         \$14.301         \$10.806         \$10.806         \$10.806           \$14.301         \$10.806         \$10.806         \$10.806         \$10.806           \$14.301         \$10.806         \$10.806         \$10.806         \$10.806           \$14.301         \$10.806         \$10.806         \$10.806         \$10.806           \$14.301         \$10.806         \$10.806         \$10.806         \$10.806           \$14.400         \$10.806         \$10.806         \$10.806         \$10.806           \$14.400         \$10.806         \$10.806         \$10.806         \$10.806           \$14.400         \$10.806         \$10.806         \$10.806         \$10.806           \$10.806         \$10.806         \$10.806         \$10.806         \$10.806           \$10.806         \$10.807         \$10.806         \$10.806         \$10.806           \$10.806         \$10.806         \$10.806         \$10.806         \$10.806         \$10.806           \$10.806         \$10.807         \$10.806         \$10.806         \$10.806         \$10.806         \$10.806         \$10.806         \$10.806         \$10.806         \$10.806         \$10.806			\$14,301 \$10,896 \$10,89	\$10,896 \$10,896 \$20,702 \$2,100		5119.1718 5119.1718 5119.1718 5119.1718 5119.1718 5119.1718 5117.1718
	Muntler         Texts         277/300         551/371         561/311         571/321	S10,306         \$10,306 <t< td=""><td></td><td></td><td>\$14.301 \$10.896 \$10.896 \$10.896 \$10.896 \$10.896 \$10.896 \$10.896 \$10.896 \$10.815\$\$10.815\$\$10.81</td><td>\$10,896 \$60,000 \$2,1782 \$2,1782 \$2,1782 \$2,185 \$2,1</td><td></td><td>S1732 S123942 S123942 S21792 S</td></t<>			\$14.301 \$10.896 \$10.896 \$10.896 \$10.896 \$10.896 \$10.896 \$10.896 \$10.896 \$10.815\$\$10.815\$\$10.81	\$10,896 \$60,000 \$2,1782 \$2,1782 \$2,1782 \$2,185 \$2,1		S1732 S123942 S123942 S21792 S
	1         7.0         \$61.971<	S10.306         S10.306 <t< td=""><td></td><td></td><td>\$14,301 \$10,896 \$10,806 \$10,89</td><td>\$10,896 \$10,896 \$20,792 \$2,1792 \$2,1792 \$3,579 \$3,5</td><td></td><td>5123.0502 521.752 521.722 522.742 5</td></t<>			\$14,301 \$10,896 \$10,806 \$10,89	\$10,896 \$10,896 \$20,792 \$2,1792 \$2,1792 \$3,579 \$3,5		5123.0502 521.752 521.722 522.742 5
	1         510000         510000         511304         561971         541301           1         2         510000         510000         511304         561971         541301           1         2         510000         511304         561971         541301         541301           1         2         510000         511304         561071         545071         5413314         1         1         5413314         1         1         5413314         1         1         5413314         1         1         5413314         1         1         54133141         1 <td>\$10,866         *10,866         \$10,866         <t< td=""><td></td><td></td><td>\$10,896 \$14,301 \$10,896 \$10,896 \$10,896 \$10,896 \$10,896 \$1199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,200</td><td>\$10,896 \$10,896 \$10,896 \$21,792 \$335 \$335,792 \$355,792 \$335,792 \$3</td><td></td><td>821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.72</td></t<></td>	\$10,866         *10,866         \$10,866 <t< td=""><td></td><td></td><td>\$10,896 \$14,301 \$10,896 \$10,896 \$10,896 \$10,896 \$10,896 \$1199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,200</td><td>\$10,896 \$10,896 \$10,896 \$21,792 \$335 \$335,792 \$355,792 \$335,792 \$3</td><td></td><td>821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.72</td></t<>			\$10,896 \$14,301 \$10,896 \$10,896 \$10,896 \$10,896 \$10,896 \$1199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,199 \$81,200	\$10,896 \$10,896 \$10,896 \$21,792 \$335 \$335,792 \$355,792 \$335,792 \$3		821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.772 821.72
	1         510,000         510,000         514,301         54,4301         54,4301         54,4301         54,4301         54,4301         54,4301         54,4301         54,4301         54,4301         54,4301         54,4301         54,4301         54,4301         54,4301         54,4301         54,4301         54,5327         54,5320         54,4331         74,5300         54,4331         74,5300         54,4331         74,5300         54,4331         74,5300         54,4331         74,5300         54,4331         74,5300         54,4331         74,5300         54,4331         74,5300         54,4331         74,5300         54,4331         74,5300         54,4331         74,3314         74,331         74,3314         74,3314         74,331         74,3314         74,331         74,3314         74,3314         74,3314         74,3314         74,3314         74,3314         74,3314         74,3314         74,3314         74,3314	\$10,866         \$10,866         \$10,866         \$10,866           \$10,866         \$10,866         \$10,866         \$10,866           \$10,866         \$10,866         \$10,866         \$10,866           \$10,866         \$10,866         \$10,866         \$10,866           \$10,866         \$10,866         \$10,866         \$10,866           \$31,456         \$13,465         \$13,465         \$13,465           \$14,460         \$13,465         \$13,465         \$13,465           \$14,460         \$13,465         \$13,465         \$13,466           \$11,853         \$13,466         \$13,466         \$14,460           \$14,460         \$13,466         \$14,460         \$14,460           \$14,460         \$13,467         \$14,674         \$14,674           \$14,460         \$13,467         \$14,674         \$14,674           \$14,614         \$14,674         \$14,674         \$14,674           \$14,614         \$14,674         \$14,674         \$14,674           \$14,614         \$14,674         \$14,674         \$14,674           \$14,614         \$14,674         \$14,674         \$14,674           \$14,614         \$14,674         \$14,674         \$16,6709 <td< td=""><td></td><td></td><td>\$14.301 \$10,896 \$10,896 \$10,896 \$10,896 \$41,300 \$1199 \$1199 \$1199 \$1199 \$1199 \$11,796 \$1199 \$11,796 \$1199 \$11,796 \$11,796 \$11,997 \$10,997 \$10,</td><td>\$10,896 \$10,896 \$2,009 \$33,792 \$35,792 \$35,599 \$3,569 \$3,568\$\$3,568\$\$3,568\$\$3,568\$\$3,568\$\$3,568\$\$3,568\$\$3,568\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$\$3,568\$\$\$\$3,568\$\$\$\$3,568\$\$\$\$\$\$3,568\$</td><td></td><td>821.792 821.702 821.70</td></td<>			\$14.301 \$10,896 \$10,896 \$10,896 \$10,896 \$41,300 \$1199 \$1199 \$1199 \$1199 \$1199 \$11,796 \$1199 \$11,796 \$1199 \$11,796 \$11,796 \$11,997 \$10,997 \$10,	\$10,896 \$10,896 \$2,009 \$33,792 \$35,792 \$35,599 \$3,569 \$3,568\$\$3,568\$\$3,568\$\$3,568\$\$3,568\$\$3,568\$\$3,568\$\$3,568\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$3,568\$\$\$\$3,568\$\$\$\$3,568\$\$\$\$3,568\$\$\$\$\$\$3,568\$		821.792 821.702 821.70
	Number         1         Number         7         Set         51,4,301         51,4,301         51,4,301         51,4,301         51,4,301           1         1         20         51,3,314         50,334         50,1371         51,4,301         51,4,4,301	\$10,301         \$10,306         \$20,306 <t< td=""><td></td><td></td><td>\$14.301 \$10,896 \$10,896 \$50,394 \$51,0000\$500 \$51,0000\$500\$500\$500\$500\$500\$500\$500\$500\$50</td><td>\$10,200 \$10,200 \$23,000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,00000 \$33,000000</td><td></td><td>820 602 812 602 812 602 822 122 822 122 823 122 824 650 824 650 824 650 825 122 826 122 826 122 826 122 826 122 826 122 827 122 828 123 829 122 829 122 820 122 820 122 820 122 821 122 821 122 821 122 822 122 823 122 824 122 825 122 826 122 827 122 828 122 848 122 848</td></t<>			\$14.301 \$10,896 \$10,896 \$50,394 \$51,0000\$500 \$51,0000\$500\$500\$500\$500\$500\$500\$500\$500\$50	\$10,200 \$10,200 \$23,000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,0000 \$33,00000 \$33,000000		820 602 812 602 812 602 822 122 822 122 823 122 824 650 824 650 824 650 825 122 826 122 826 122 826 122 826 122 826 122 827 122 828 123 829 122 829 122 820 122 820 122 820 122 821 122 821 122 821 122 822 122 823 122 824 122 825 122 826 122 827 122 828 122 848
	1         1         1         2         31.3.040         30.13.17           1         1         2         54.6627         36.6124	\$14,301         \$10,306 <t< td=""><td></td><td></td><td>\$14,301 \$10,896 \$20,394 \$50,394 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$50,394 \$51,000 \$50,394 \$51,000 \$50,394 \$51,000 \$50,394 \$51,000 \$50,394 \$50,394 \$51,000 \$50,394 \$50,394 \$50,394 \$50,394 \$50,0000\$50,0000\$50,00</td><td>\$10,0906 \$10,0006 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,00000</td><td></td><td>222.0002 222.1.122 222.1.22 22</td></t<>			\$14,301 \$10,896 \$20,394 \$50,394 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$51,000 \$50,394 \$51,000 \$50,394 \$51,000 \$50,394 \$51,000 \$50,394 \$51,000 \$50,394 \$50,394 \$51,000 \$50,394 \$50,394 \$50,394 \$50,394 \$50,0000\$50,0000\$50,00	\$10,0906 \$10,0006 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,0000 \$20,00000		222.0002 222.1.122 222.1.22 22
	1         2         \$46.627         \$46.627         \$46.627         \$46.627         \$46.627         \$46.627         \$46.627         \$46.627         \$46.627         \$46.627         \$46.627         \$46.627         \$46.627         \$46.627         \$46.627         \$46.627         \$46.627         \$56.626         \$56.627         \$56.626 <td>\$10,886         <t< td=""><td></td><td></td><td>\$10,896 \$50,394 \$54,200 \$10,199 \$64,200 \$10,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,200 \$61,199 \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,</td><td>\$10,896 \$20,292 \$21,792 \$21,792 \$23,592 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758</td><td></td><td>821.782 821.782 821.782 821.782 821.782 821.782 821.680 821.680 821.680 821.680 821.680 821.680 821.680 821.680 821.782 821</td></t<></td>	\$10,886         \$10,886 <t< td=""><td></td><td></td><td>\$10,896 \$50,394 \$54,200 \$10,199 \$64,200 \$10,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,200 \$61,199 \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,</td><td>\$10,896 \$20,292 \$21,792 \$21,792 \$23,592 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758</td><td></td><td>821.782 821.782 821.782 821.782 821.782 821.782 821.680 821.680 821.680 821.680 821.680 821.680 821.680 821.680 821.782 821</td></t<>			\$10,896 \$50,394 \$54,200 \$10,199 \$64,200 \$10,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,199 \$61,200 \$61,199 \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,200\$ \$61,	\$10,896 \$20,292 \$21,792 \$21,792 \$23,592 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758 \$24,758		821.782 821.782 821.782 821.782 821.782 821.782 821.680 821.680 821.680 821.680 821.680 821.680 821.680 821.680 821.782 821
	1         1         6         \$50,007         \$1,1         0         \$50,007         \$1,1         0         \$50,007         \$1,1         0         \$50,007         \$1,1         0         \$50,007         \$1,1         0         \$50,007         \$1,1         0         \$50,007         \$1,1         0         \$50,007         \$1,1         \$51,00	\$10,806         \$13,450         \$13,450         \$13,450           \$54,006         \$13,450         \$13,450         \$15,555           \$50,906         \$13,460         \$13,450         \$15,555           \$50,000         \$510,450         \$13,555         \$15,555           \$510,1303         \$510,1303         \$540,460         \$10,1303           \$510,1303         \$500,406         \$510,1303         \$500,244           \$510,1303         \$500,405         \$500,244         \$500,244           \$500,121         \$500,208         \$500,208         \$500,244           \$10,1303         \$500,244         \$500,244         \$500,244           \$10,1303         \$500,244         \$10,000         \$10,000           \$100,200         \$10,000         \$10,000         \$10,000           \$100,200         \$10,000         \$10,000         \$10,000           \$100,200         \$10,000         \$10,000         \$10,000           \$100,200         \$10,000         \$10,000         \$10,000           \$100,200         \$10,000         \$10,000         \$10,000           \$100,200         \$10,000         \$10,000         \$10,000           \$100,200         \$10,000         \$10,0000         \$10,000<			\$40.004 \$40.004 \$40.004 \$40.004 \$41.004 \$10.105 \$1.105\$10\$10\$10\$10\$10\$10\$10\$10\$10\$10\$10\$10\$10\$	\$21,722 \$23,792 \$33,599 \$33,599 \$33,598 \$33,598 \$33,598 \$33,598 \$33,598 \$33,598 \$33,598 \$33,598 \$33,598 \$33,598 \$33,598 \$34,758 \$34,758 \$34,758 \$35,75		257.125 257.155 257.155 257.155 267.15
	Damener         Longh         Rate         Source         Source <td>Stat. 006         S13,455         S13,455         S13,455         S15,555         S15,555</td> <td></td> <td></td> <td>\$40,004 \$40,004 \$40,004 \$41,004 \$119 \$119 \$11,195 \$10,879 \$10,879 \$10,879 \$10,879 \$10,879 \$10,879</td> <td>\$21,792 \$33,599 \$33,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$35,59</td> <td></td> <td>State 500 State 500 State</td>	Stat. 006         S13,455         S13,455         S13,455         S15,555			\$40,004 \$40,004 \$40,004 \$41,004 \$119 \$119 \$11,195 \$10,879 \$10,879 \$10,879 \$10,879 \$10,879 \$10,879	\$21,792 \$33,599 \$33,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$34,598 \$35,59		State 500 State
	100         300         5114         554.066	Stat 006         S13,445         S13,445         S13,445         S15,555         S10,122         S260,406         S260,406         S260,406         S260,406         S260,406         S260,406         S260,406         S260,405         S260,206			\$40,000 \$40,000 \$40,000 \$41,504 \$41,505 \$10,879 \$10,879 \$10,879 \$10,879 \$10,879 \$10,879 \$10,879	\$21,792 \$23,695 \$33,792 \$33,792 \$35,792 \$35,792 \$35,792 \$35,792 \$35,792 \$35,792 \$35,792 \$35,792 \$35,792 \$36,830		831,000 511,400 511,400 511,400 511,400 511,313 511,513 511,515 511,515 511,515 511,515 511,515 51,
	100         140         51.44         51.440         51.440           150         100         51.04         51.440         51.440           100         160         51.04         55.675         56.775           100         500         51.04         55.675         56.675           100         500         51.04         55.675         54.3.14           100         500         51.04         55.675         54.3.14           100         500         51.04         55.675         54.3.14           55.675         57.614         55.675         54.3.14         54.3.14           55.676         51.14         54.3.14         54.3.14         54.3.14           55.676         57.676         56.00         56.00         55.00         56.0.00           55.6766         57.617         56.66.66         57.412         58.82.00         55.0.00         57.62         <	514.400         511.363         515.555           \$56.095         \$10,102         \$10,303           \$204.096         \$10,125         \$15.555           \$10,127         \$360,606         \$10,265           \$10,127         \$360,606         \$10,265           \$10,128         \$360,606         \$500,006           \$10,127         \$362,006         \$500,006           \$10,128         \$360,506         \$500,006           \$10,128         \$500,006         \$500,006           \$10,128,13         \$500,246         \$500,006           \$10,128,13         \$500,246         \$500,006           \$10,128,13         \$500,246         \$500,006           \$10,128,13         \$500,246         \$10,000           \$10,128,13         \$500,246         \$10,000           \$10,128,13         \$500,246         \$10,000           \$10,128,13         \$500,144         \$500,000           \$10,120         \$10,000         \$500,000           \$10,120         \$10,000         \$500,000           \$10,000         \$500,000         \$500,000           \$10,000         \$500,000         \$500,000           \$10,000         \$500,000         \$500,000 <t< td=""><td></td><td></td><td>\$400.384 \$400.384 \$40.000 \$41.594 \$41.595 \$10.879 \$11.55 \$10.879 \$11.55 \$10.879 \$11.55 \$10.879 \$10.879 \$10.879 \$10.879</td><td>\$21,792 \$2,000 \$23,699 \$33,699 \$33,698 \$33,698 \$33,698 \$33,698 \$33,698 \$33,698 \$33,698 \$33,698 \$33,698 \$33,698 \$33,698 \$34,758 \$35,758</td><td></td><td>514.400 513.775 520.775 510.525 540.40</td></t<>			\$400.384 \$400.384 \$40.000 \$41.594 \$41.595 \$10.879 \$11.55 \$10.879 \$11.55 \$10.879 \$11.55 \$10.879 \$10.879 \$10.879 \$10.879	\$21,792 \$2,000 \$23,699 \$33,699 \$33,698 \$33,698 \$33,698 \$33,698 \$33,698 \$33,698 \$33,698 \$33,698 \$33,698 \$33,698 \$33,698 \$34,758 \$35,758		514.400 513.775 520.775 510.525 540.40
	100         100         50.6173         50.6773         544.314           100         510         5164         55.6773         544.314           101         500         510.4         55.673         544.314           101         500         500.453         540.453         544.314           544.314         544.314         544.314         544.314           550.401         550.401         550.401         550.401         550.401           550.401         550.401         550.401         550.401         550.401           550.401         550.401         550.401         550.401         544.7209           550.401         550.401         550.401         550.401         550.401           550.401         550.401         550.401         550.401         550.401           550.401         550.401         550.401         550.401         550.401           550.401         550.401         550.401         550.401         550.401           550.411         50.411         50.412         550.401         550.601           540.411         570.411         571.41         571.630         550.601           540.411         570.411         571.41 <t< td=""><td>568,765         \$15,525           \$204,096         \$374,614         \$362,776           \$274,614         \$362,776         \$15,525           \$210,1223         \$342,006         \$340,406           \$101,1223         \$340,406         \$340,406           \$101,1223         \$340,700         \$340,406           \$101,1223         \$340,406         \$340,406           \$101,1223         \$340,506         \$340,406           \$101,1223         \$340,506         \$340,406           \$101,1223         \$340,506         \$340,506           \$101,1223         \$340,506         \$340,506           \$101,1224         \$340,506         \$340,364           \$101,1224         \$340,506         \$340,364           \$101,1224         \$340,506         \$340,364           \$101,1224         \$340,506         \$340,364           \$101,1224         \$340,364         \$340,364           \$100,123         \$30,244         \$360,066           \$100,123         \$30,244         \$360,066           \$100,123         \$30,244         \$360,066           \$100,123         \$30,244         \$360,066           \$100,123         \$30,244         \$30,244           \$100,123</td><td></td><td></td><td>\$50,334 \$4,000 \$4,000 \$4,000 \$4,139 \$1,139\$1,139 \$1</td><td>\$21,792 \$2,000 \$23,699 \$35,699 \$35,699 \$35,699 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,566 \$3,576 \$3,566 \$3,5766 \$3,5766 \$3,5766 \$</td><td></td><td>\$26,070 \$26,070 \$490,445 \$490,445 \$440,445 \$440,445 \$440,445 \$440,445 \$441,749\$441,749 \$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749\$441,749 \$441,749\$441,749\$441,749 \$441,749\$441,749\$441,749 \$441,749\$441,749\$441,749\$441,749\$441,749\$441,</td></t<>	568,765         \$15,525           \$204,096         \$374,614         \$362,776           \$274,614         \$362,776         \$15,525           \$210,1223         \$342,006         \$340,406           \$101,1223         \$340,406         \$340,406           \$101,1223         \$340,700         \$340,406           \$101,1223         \$340,406         \$340,406           \$101,1223         \$340,506         \$340,406           \$101,1223         \$340,506         \$340,406           \$101,1223         \$340,506         \$340,506           \$101,1223         \$340,506         \$340,506           \$101,1224         \$340,506         \$340,364           \$101,1224         \$340,506         \$340,364           \$101,1224         \$340,506         \$340,364           \$101,1224         \$340,506         \$340,364           \$101,1224         \$340,364         \$340,364           \$100,123         \$30,244         \$360,066           \$100,123         \$30,244         \$360,066           \$100,123         \$30,244         \$360,066           \$100,123         \$30,244         \$360,066           \$100,123         \$30,244         \$30,244           \$100,123			\$50,334 \$4,000 \$4,000 \$4,000 \$4,139 \$1,139\$1,139 \$1	\$21,792 \$2,000 \$23,699 \$35,699 \$35,699 \$35,699 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,566 \$3,576 \$3,566 \$3,5766 \$3,5766 \$3,5766 \$		\$26,070 \$26,070 \$490,445 \$490,445 \$440,445 \$440,445 \$440,445 \$440,445 \$441,749\$441,749 \$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749 \$441,749\$441,749\$441,749 \$441,749\$441,749\$441,749 \$441,749\$441,749\$441,749 \$441,749\$441,749\$441,749\$441,749\$441,749\$441,
	1100         300         31.14         54.43.14         54.43.14           Dameter         Lungth         84.34.34         54.43.14         54.43.14           Dameter         S920.003         57.003         54.00.463         54.43.14           S920.003         S920.003         59.00.063         54.00.463         54.43.14           S920.003         S920.003         S920.003         59.00.063         55.00.05           S920.003         S920.003         S920.003         S920.003         59.00.003           S920.003         S920.003         S920.003         S920.003         S920.003           S920.0141         S920.0141         S920.003         S920.003         S920.003           S920.0126         S920.0141         S920.003         S920.003         S920.003           S920.0126         S200.0126         S200.00         S920.003         S99.203           S920.0126         S200.0126         S10.003         S99.203         S99.203           S920.0126         S200.0126         S10.003         S99.203         S99.203           S920.0126         S200.0126         S10.003         S99.203         S99.203           S920.0126         S10.017.128         S99.203         S10.003	980.800         577.4,614         5882.000         587.01         580.101           \$210,102         \$37.4,614         \$582.000         \$580.405         \$581.191           \$210,102         \$500.244         \$580.600         \$580.244         \$580.244           \$210,122         \$580.600         \$590.405         \$580.141         \$580.244           \$210,122         \$580.600         \$590.244         \$580.244         \$580.244           \$210,122         \$210,000         \$500.244         \$580.244         \$580.244           \$210,122         \$210,000         \$500.244         \$580.244         \$580.244           \$210,000         \$200,000         \$500.244         \$580.244         \$580.244           \$217,122         \$100,122         \$50.244         \$50.244         \$54.026           \$2100,223         \$50.000         \$50.000         \$55.000         \$56.000           \$217,122         \$141,240         \$14,240         \$124,240         \$14,240           \$1,021,72         \$160,172         \$160,173         \$56.000         \$56.000           \$50.000         \$50.000         \$50.000         \$56.000         \$56.000         \$56.000			\$50.394 \$4.100 \$8.1199 \$8.1199 \$8.1199 \$8.1799 \$10.819 \$8.1299 \$8.4.202	\$21,792 \$2,000 \$35,792		628/07/2 628/07/2 628
	Selio (43)         Selio (44)         Selio (	S204,088         S374,614         S382,008         S540,405         S661,191           \$5101,829         \$540,405         \$540,405         \$560,191           \$5117,825         \$540,405         \$540,405         \$560,244           \$512,5666         \$540,405         \$540,405         \$560,244           \$512,5666         \$540,405         \$540,405         \$560,244           \$512,5666         \$500,569         \$793,739         \$500,364           \$5102,000         \$500,669         \$793,739         \$560,364           \$5102,000         \$500,669         \$503,74         \$54,036           \$589,127         \$54,000         \$50,000         \$54,036           \$589,127         \$56,007         \$56,000         \$56,000           \$589,128         \$500,666         \$50,744         \$54,036           \$519,520         \$500,666         \$50,744         \$54,036           \$5117,825         \$580,770         \$54,036         \$54,036           \$5177,825         \$580,770         \$56,000         \$56,000           \$51,02,200         \$51,01,222         \$56,144         \$56,144         \$56,107           \$5000         \$5000         \$56,000         \$56,000         \$56,000         \$56,000 <td></td> <td></td> <td>\$50,384 \$4,000 \$4,000 \$61,169 \$81,169 \$81,109 \$1,729 \$1,0679 \$10,679 \$64,202</td> <td>\$21,792 \$2,000 \$35,792 \$35,792 \$35,792 \$35,792 \$35,792 \$35,792 \$35,792 \$35,792 \$35,793 \$35,792 \$35,793</td> <td></td> <td>\$40,048 \$240,048 \$277,614 \$277,614 \$277,614 \$260,149 \$260,149 \$261,248 \$277,289 \$477,289 \$57,000 \$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,000\$5,0000\$5,0000\$5,0000\$5,000\$5,000\$5,0000\$5,000\$5,000\$</td>			\$50,384 \$4,000 \$4,000 \$61,169 \$81,169 \$81,109 \$1,729 \$1,0679 \$10,679 \$64,202	\$21,792 \$2,000 \$35,792 \$35,792 \$35,792 \$35,792 \$35,792 \$35,792 \$35,792 \$35,792 \$35,793 \$35,792 \$35,793		\$40,048 \$240,048 \$277,614 \$277,614 \$277,614 \$260,149 \$260,149 \$261,248 \$277,289 \$477,289 \$57,000 \$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,000\$5,0000\$5,0000\$5,0000\$5,000\$5,000\$5,0000\$5,000\$5,000\$
	S274.614         S274.614         S274.614         S274.614         S274.614           S274.012         S691.012         S691.012         S691.012         S691.012           S261.016         S691.014         S691.191         S691.191         S691.191         S691.191           S261.016         S691.191         S691.191         S691.191         S601.023         S9176.239           S217.0206         S50.00         S50.00         S50.00         S50.00         S60.00           S477.239         S776.239         S477.239         S477.239         S776.239           S477.239         S5776.239         S477.239         S477.239         S576.239           S477.239         S5776.239         S5778.239         S477.239         S5778.239           S477.239         S5778.239         S5778.239         S5778.239         S5778.239           S477.239         S5778.239         S5778.239         S5778.239         S5778.239           S477.239         S5778.239         S5778.239         S5778.239         S5778.239           S4778.239         S5714.816.81.447         S7481.125         S588.239         S516.41         S5.88           S459.21         S565.616         S1377.17.13         S58.82         S5.88.29	St74,614         S92,008         S640,405         S661,191           \$S101,829         \$S40,405         \$S60,191           \$S101,829         \$S40,405         \$S60,191           \$S101,829         \$S40,405         \$S61,191           \$S101,829         \$S60,659         \$733,739           \$S100,000         \$S10,000         \$S60,244           \$S10,000         \$S10,000         \$S40,364           \$S80,244         \$S40,364         \$S40,364           \$S10,000         \$S10,000         \$S10,000           \$S80,121         \$S40,364         \$S40,364           \$S80,121         \$S40,364         \$S40,364           \$S80,121         \$S40,364         \$S40,364           \$S80,121         \$S40,364         \$S40,364           \$S80,126         \$S00,173         \$S40,364           \$S40,364         \$S0,317         \$S40,366           \$S40,364         \$S0,317         \$S40,366           \$S19,561         \$S40,366         \$S40,366           \$S19,561         \$S40,366         \$S40,366           \$S19,561         \$S40,367         \$S40,366           \$S19,561         \$S40,366         \$S40,366           \$S1025,312         \$S40,366         \$			\$50,394 \$44,200 \$64,200 \$61,129 \$61,129 \$61,179 \$61,179 \$64,202 \$64,202	251 152 252 152 253 155 253 155 254 155 255 15		\$1370,823 \$501,055 \$501,055 \$501,055 \$502,248 \$51,210 \$55,000 \$51,370,823 \$51,370,823 \$51,370,823
	SSI01,829         S101,829	\$101,829         \$540,405         \$541,191           \$216,606         \$560,405         \$560,1191           \$80,244         \$50,244           \$8173,177         \$832,289         \$580,669           \$100,000         \$10,000         \$10,000           \$100,000         \$10,000         \$10,000           \$100,000         \$10,000         \$10,000           \$100,000         \$10,000         \$10,000           \$100,000         \$10,000         \$10,000           \$100,000         \$10,000         \$10,000           \$100,000         \$10,000         \$10,000           \$100,000         \$10,000         \$10,000           \$100,611         \$24,026         \$10,000           \$100,611         \$24,026         \$10,000           \$100,611         \$24,0126         \$10,000           \$100,612         \$100,012         \$54,036           \$100,613         \$100,712         \$100,713           \$100,611         \$100,714         \$54,036           \$100,712         \$100,714         \$100,773           \$100,712         \$100,714         \$100,773           \$100,712         \$100,714         \$100,773           \$100,712         \$100,714<			560,394 940,000 961,199 961,199 961,199 961,199 561,199 561,199 561,209 564,202 564,202	227, 122 233, 122 231, 122 231		\$510,1829 \$540,405 \$661,191 \$661,191 \$661,191 \$661,191 \$661,191 \$661,191 \$661,191 \$570,000 \$51,370,223 \$5,000 \$51,370,223 \$5,000 \$51,370,223 \$5,000 \$51,370,223 \$5,000 \$51,370,223 \$5,000 \$51,370,223 \$5,000 \$51,370,223 \$5,000 \$51,370,223 \$5,000 \$51,370,223 \$51,370,223 \$52,000 \$52,000 \$53,0000\$50,000 \$53,000 \$53,0000\$50,000 \$53,000\$50,00
	Stor, at stor, a	S215,600         S00,141           \$2715,600         \$60,141           \$50,147         \$50,141           \$517,617         \$50,141           \$517,617         \$50,141           \$517,617         \$50,141           \$517,617         \$50,141           \$51,127         \$50,569           \$510,000         \$10,000           \$510,001         \$10,000           \$510,001         \$510,000           \$510,561         \$50,000           \$510,561         \$50,000           \$510,561         \$50,000           \$510,561         \$50,000           \$510,561         \$50,000           \$510,561         \$50,000           \$510,561         \$50,000           \$510,561         \$50,000           \$510,561         \$50,000           \$510,561         \$50,000           \$510,261         \$50,014           \$510,261         \$50,014           \$510,261         \$50,014           \$510,261         \$50,016           \$510,261         \$50,016           \$510,261         \$50,016           \$510,261         \$50,016           \$510,261,44         \$50,016			540,034 540,034 541,304 541,304 541,304 541,304 541,305 541,305 541,205 541,205 541,202	<b>\$51.782</b> \$2.000 <b>\$3.000</b> <b>\$3.509</b> \$3.509 \$3.500 \$3.509 \$3.500\$\$3.500\$\$3.500\$\$3.500\$\$3.500\$\$3.500\$\$3.500\$\$3.500\$\$3.500\$\$3.500\$\$3.500\$\$3.500\$\$3.500\$\$3.500\$\$\$3.500\$\$\$3.500\$\$\$3.500\$\$\$3.500\$\$\$3.500\$\$\$3.500\$\$\$3.500\$\$\$3.500\$\$\$\$3.500\$\$\$\$3.500\$\$\$\$\$3.500\$\$\$\$\$\$\$\$\$\$		800.244 800.244 8175.000 8470.233 85.000 85.000 85.000 85.000 85.000 85.000 85.000 85.000 85.000 85.000 85.000 85.000
	Surf. 200         Surf. 200 <t< td=""><td>Str9_172         5932_269         5990_172         5932_269         5990_169         5300_364         579_3         5500_364         579_3         5500_364         570_3         5500_364         570_3         5500_364         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_36</td><td></td><td></td><td>\$50,394 \$4,300 \$119 \$316 \$316 \$316 \$316 \$316 \$316 \$316 \$316</td><td>221,792 22,000 22,000 23,050 23,550 23,550 23,550 23,550 23,550 24,792 25,550 25,550 25,550 25,550 25,550 25,550 25,550 26,550 27,750 26,550 27,750 26,550 27,750 20,7500 20,7500 20,7500 20,7500 20,7500 20,7500 20,7500 20,75000</td><td></td><td>\$5,000 \$9718,2289 \$5718,2289 \$5,000\$5,000 \$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,000\$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,</td></t<>	Str9_172         5932_269         5990_172         5932_269         5990_169         5300_364         579_3         5500_364         579_3         5500_364         570_3         5500_364         570_3         5500_364         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_366         5500_36			\$50,394 \$4,300 \$119 \$316 \$316 \$316 \$316 \$316 \$316 \$316 \$316	221,792 22,000 22,000 23,050 23,550 23,550 23,550 23,550 23,550 24,792 25,550 25,550 25,550 25,550 25,550 25,550 25,550 26,550 27,750 26,550 27,750 26,550 27,750 20,7500 20,7500 20,7500 20,7500 20,7500 20,7500 20,7500 20,75000		\$5,000 \$9718,2289 \$5718,2289 \$5,000\$5,000 \$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,000\$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,0000\$5,
	S5,000         S5,000         S5,000         S10,013         S10,013         S10,013         S10,013         S10,013         S10,013         S10,010         S	Str3         257         350         350         364           510,000         510,000         510,000         510,000         510,000         510,000           510,000         510,000         510,000         510,000         510,000         510,000           5883         127         582,259         550,069         510,000         510,000           5883         584,229         560,069         500,274         564,006           5815,117         584,206         500,016         500,214         51,060           5815,117         584,206         500,016         500,214         51,061,013           5816,117         584,206         51,041,122         51,041,213         564,006           5816,117         584,206         51,041,122         51,041,213         564,003           5816,113         584,206         51,041,122         51,041,213         564,003           5817,124,25         51,041,122         51,041,213         564,003         560,000           581,012,00         51,412,214         51,461,142         560,000         560,000           580,000         56,000         56,000         56,000         56,000         56,000           580,0000         56,0000			\$50,394 \$4,000 \$4,309 \$81159 \$81159 \$11285 \$11785 \$10,879 \$10,879 \$10,879 \$10,879 \$34,202	<b>\$21.792</b> \$22.000 \$35.792 \$35.795 \$3.569 \$3.569 \$3.569 \$3.569 \$3.569 \$3.569 \$3.569 \$3.768		000'5S
	Si,000         Si,500         Si,500         Si,714,47         Si,732,30           First,11,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,	\$179, 173         \$502,259         \$500,659         \$733,739         \$500,364           \$10,007         \$10,000         \$10,000         \$10,000         \$10,000         \$10,000           \$2083,171         \$842,259         \$500,669         \$10,000         \$10,000         \$10,000           \$2083,171         \$842,259         \$500,669         \$10,000         \$10,000         \$10,000           \$2083,171         \$842,259         \$500,669         \$10,000         \$10,000         \$10,000           \$20,001         \$20,002         \$20,000         \$10,001         \$10,000         \$10,000           \$20,001         \$20,002         \$10,012         \$10,000         \$10,000           \$20,002         \$10,012         \$10,012         \$10,000         \$10,000           \$20,000         \$10,012         \$10,012         \$10,000         \$10,000           \$108,202         \$120,120         \$14,240         \$14,240         \$14,2420           \$1,422,40         \$1,422,40         \$14,240         \$14,240         \$124,220           \$1,022,00         \$20,000         \$20,000         \$50,000         \$50,000         \$50,000           \$50,000         \$50,000         \$50,000         \$50,000         \$50,000			\$50,394 \$4,000 \$4,300 \$169 \$8,159 \$1,159 \$1,159 \$1,159 \$1,159 \$1,159 \$4,1202 \$44,202	\$21,792 \$2,000 \$2,000 \$23,792 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,569 \$3,758 \$3,669 \$3,758 \$3,669 \$3,758 \$3,669 \$3,758 \$3,669 \$3,758 \$3,669 \$3,758 \$3,669 \$3,758 \$3,558\$}\$3,558 \$3,558\$} \$3,558\$}\$3,558 \$3,558\$}\$3,558 \$3,558\$} \$3,558\$}\$3,558\$} \$3,558\$}\$3,558\$} \$3,558\$}\$3,558\$} \$3,558\$}\$3,558\$} \$3,558\$}\$3,558\$} \$3,558\$} \$3,558\$}\$3,558\$}\$3,558\$} \$3,558\$}\$3,558\$} \$3,558\$}\$3,558\$}\$3,558\$} \$3,558\$}\$3,558\$} \$3,558\$}\$3,558\$}\$3,558\$} \$3,558\$}\$3,558\$}\$3,558\$} \$3,558\$}\$3,558\$}\$3,558\$}\$3,558\$} \$3,558\$}\$3,558\$}\$3,558\$} \$3,558\$}\$3,558\$} \$3,558\$}\$3,558\$} \$3,558\$}\$} \$3,558\$}\$} \$3,558\$}\$} \$3,558\$}\$} \$3,558\$}\$} \$3,558\$}		529 (YE, 12
	Res         Sections	Stry 127         Sta2,259         Sta2,269         Sta2,269         Sta2,269         Sta2,269         Sta2,269         Sta2,269         Sta2,273         Sta2,029         Sta2,273         Sta2,029			\$40.000 \$54,000 \$54,394 \$816 \$816 \$1,796 \$1,796 \$1,796 \$1,796 \$1,796 \$1,796 \$1,796 \$1,796 \$1,796 \$1,796 \$1,796 \$1,796 \$1,202 \$2,000 \$1,796 \$1,202 \$2,0000 \$2,0000 \$2,0000 \$2,000 \$2,000 \$2,000\$	\$21,792 \$23,709 \$3569 \$3569 \$3569 \$3569 \$3569 \$3569 \$3569 \$3569 \$3569 \$3569 \$3569 \$3569 \$3568 \$3568 \$3568 \$3568 \$306,830		528 (UE 18
	Base         10%         \$389,14         \$17,143         \$12,12         \$38,893         \$29,143         \$12,121         \$38,893         \$29,84         \$29,84         \$29,84         \$20,85         \$20,85         \$20,85         \$20,85         \$20,85         \$23,81         \$21,83         \$23,83         \$23,81         \$23,83         \$24,93         \$23,83         \$24,93	888.913         384.263         580.096         580.374         554.036           888.913         584.263         560.007         580.374         554.036           819.561         580.750         581.2215         554.036         554.036           819.561         580.750         581.077         584.036         554.036           581.9561         580.266         590.740         554.036         554.036           581.77,825         588.472         51.00,122         5160.720         51.24.230           51.08,200         51.24.40         51.42.514         5160.723         51.42.514           51.08,200         51.32.754         582.544         51.265.134         586.101           51.382,134         582.544         51.265.134         586.000         56.000           56.000         56.000         56.000         56.000         56.000			\$8,159 \$816 \$1,795 \$1,1795 \$8,159 \$10,879 \$10,879 \$84,202	\$3,569 \$357 \$3,569 \$3,569 \$4,758 \$4,758 \$36,830		\$1,370,823
	CDB         CDB         SEMAND	319:20:01         340:70:70:70:70:70:70:70:70:70:70:70:70:70			\$1,795 \$1,69 \$10,879 \$10,879 \$84,202	\$4,758 \$4,758 \$4,758 \$36,830		\$1,370,823
	150         16         56         \$94,000         \$16,000         \$17,50,000         \$17,50,000         \$17,300         \$15,000         \$15,000         \$15,000         \$15,000         \$15,000         \$15,000         \$16,00	\$109,200         \$123,480         \$114,240         \$114,240         \$124,320           \$1,322,440         \$123,480         \$952,544         \$1,326,194         \$688,121           \$1,322,400         \$1,472,794         \$952,544         \$1,266,194         \$688,121           \$60,00         \$60,000         \$60,000         \$66,000         \$66,000           \$60,000         \$60,000         \$66,000         \$66,000         \$66,000			\$84,202	\$36,830		
	Base         Number         Rate         58,361,277         51,176,314         5643,305         51,336         56,000         5	\$1,382,430 \$1,472,794 \$6,000\$6,000 \$6		362 \$47,372	\$36,830 \$84,202 \$36,83	30 \$36,830 \$36,830		
	Base         Number         Rate         S4.000         56.000	\$6,000 \$6						\$8,114,941
	54.000         1         22.000         95.000         97.000           54.000         1         22.000         95.000         95.000           54.000         1         22.000         95.000         95.000           54.000         1         22.000         95.000         95.000           54.000         1         22.000         95.000         95.000           54.000         1         22.000         95.000         95.000           54.000         1         22.000         95.000         95.000           54.000         1         22.000         95.000         95.000           54.000         54.000         56.000         56.000         56.000	\$6,000 \$6,000 \$6,000 \$6,000		000 88	68.000	ee ooo	68 000 68 000	66 000 66 000
	S47000         1         25.000           S47000         56.000         56.000	000 20 000 20 000 20	36,000 36,000 56,000 56,000 56,000 66,0000 66,000 66,000 66,000 66,0000 66,000 66,000 66,000 66,000 66,000	86,000	000'98 86,000	\$6,000 \$6,000	\$6,000 \$6,000 \$6,000 \$6,000 \$6,000	\$6,000 \$6,000 \$6,000 \$6,000
	\$4,000         1         \$2,000         \$6,000           \$4,000         1         \$2,000         \$6,000           \$4,000         1         \$2,000         \$6,000	\$6,000 \$6,000 \$6,000 \$6,000 \$6,000 \$6,000	Section         Section         Section         Section           Section         Section         Section         Section           Section         Section         Section         Section           Section         Section         Section         Section	\$6,000	\$6,000	\$6,000 \$6,000 \$6,000 \$6,000	\$6,000 \$6,000 \$6,000 \$6,000 \$6,000 \$6,000	\$6,000 \$6,000 \$6,000 \$6,000
	\$4,000 1 \$2,000 \$6,000	\$6,000 \$6,000 \$6,000 \$6,000 \$6,000 \$6,000 \$6,000	\$6,000         \$6,000<	\$6,000 \$6,000	\$6,000 \$6,000	\$6,000 \$6,000 \$6,000	\$6,000 \$6,000 \$6,000 \$6,000 \$6,000	\$6,000 \$6,000 \$6,000
	Power Pump Rate ADWF Cost/kWh	\$6,000 \$6,000 \$6,000 \$6,000 \$6,000 \$6,000	\$6,000 \$6,000 \$6,000 \$6,000 \$6,000	\$6,000	\$6,000	\$6,000 \$6,000	\$6,000 \$6,000 \$6,000	\$6,000 \$6,000
	103 103.5 10.2 0.15 \$16,006 \$2,230 7.5 2.7 2.58 0.15 \$1,130 0.0 62 2.0 2.58 0.15 \$1,130	\$6,690 \$8,920 \$11,150 \$13,346 \$15,610 \$16,006 \$1,130 \$1,130 \$1,130 \$1,130 \$1,130 \$1,130 \$1,130	\$16,006 \$16,006 \$16,006 \$16,006 \$16,006 \$1,130 \$1,130 \$1,130 \$1,130 \$1,130 \$1,130 \$1,130 \$1,130 \$1,130	\$16,006 \$1,130 er 40	\$16,006 \$1,130 ee4e	\$16,006 \$16,006 \$1,130 \$1,130 \$5,10 \$5,130	\$16,006 \$16,006 \$16,006 \$1,130 \$1,130 \$1,130 \$5,10 \$1,130 \$1,130	\$16,006 \$16,006 \$1,130 \$1,130 ee40 ee40
	2.2 28.5 0.15 0.15 2.2 28.5 2.87 0.15	\$74 \$74 \$349 \$349	work         work         work         work         work           \$740         \$740         \$744         \$744         \$744           \$349         \$349         \$349         \$349         \$349	\$74 \$349	\$74 \$349	\$74 \$74 \$349 \$349	\$74 \$74 \$74 \$349 \$349 \$349	\$74 \$74 \$349 \$349
	1         7.5         0.29         0.15         \$61         2           2.2         7.5         0.51         0.15         \$236         2	\$236 \$236 \$236 \$236 \$236	\$61         \$61         \$61         \$61         \$61           \$236         \$236         \$236         \$236         \$236	\$61 \$236	\$61 \$236	\$61 \$61 \$236 \$236	\$61 \$61 \$61 \$61 \$61 \$236 \$236	\$61 \$61 \$236 \$236
	10         17.5         2.12         0.15         \$1,910         \$1,910           Diameter         Length         Rate         2.12         0.15         \$1,910	\$1,910 \$1,910 \$1,910 \$1,910 \$1,910 \$1,910	\$1,910 \$1,910 \$1,910 \$1,910 \$1,910	\$1,910	\$1,910	\$1,910 \$1,910	\$1,910 \$1,910 \$1,910	\$1,910 \$1,910
0         0	300         3,500.0         \$0.75         \$2,608         \$2,608           150         300.0         \$0.71         \$213         \$2,608	\$2,608         \$2,608<	\$2,608         \$2,608         \$2,608         \$2,608         \$2,608         \$2,608         \$2,608         \$2,508<	\$2,608 \$213	\$2,608 \$213	\$2,608 \$2,608 \$213 \$213	\$2,608 \$2,608 \$2,608 \$213 \$213 \$213	\$2,608 \$2,608 \$213 \$213
	100 130.0 \$0.71 100 140.0 \$0.71	\$92 \$92 \$92 \$92 \$99 \$99 \$99 \$99 \$99	\$92         \$92         \$92         \$92         \$92         \$93         \$92         \$93         \$92         \$93 <td>\$92 \$99</td> <td>\$92 \$99</td> <td>\$92 \$92 \$99 \$99</td> <td>\$92 \$92 \$92 \$92 \$99 \$99 \$99 \$99 \$99</td> <td>\$92 \$92 \$99 \$99</td>	\$92 \$99	\$92 \$99	\$92 \$92 \$99 \$99	\$92 \$92 \$92 \$92 \$99 \$99 \$99 \$99 \$99	\$92 \$92 \$99 \$99
	150 100.0 50.71			2/1 9/1	5100	\$/1 \$/1	\$/1 \$/1 \$/1	5/1 5/1 5/10
	100 150.0 30.71 5100 100 570.0 50.71 5402 150 30.0 50.71 5402	\$402 \$402 \$402 \$402 \$402 \$402 \$402	\$100 \$100 \$100 \$100 \$100 \$100 \$100 \$100	\$402	\$402	\$10b \$10b \$402 \$402	\$402 \$402 \$402 \$402	\$106 \$106 \$402 \$402
300         1000         2000         1000         2000	Diameter         Length         Rate         S5,687         S5,687<	\$5,687 \$5,687 \$5,687 \$5,687 \$5,687	\$5,687 \$5,687 \$5,687 \$5,687 \$5,687 \$5,687	\$5,687	\$5,687	\$5,687 \$5,687	\$5,687 \$5,687	\$5,687 \$5,687
100         100 <td>225         160.0         \$2.63         \$421         \$421           300         190.0         \$2.55         \$485         \$485</td> <td>\$421         <th< td=""><td>\$421         \$4221         \$422         \$422         \$422         \$425         <t< td=""><td>\$421 \$485</td><td>\$421 \$485</td><td>\$421 \$421 \$485 \$485</td><td>\$421 \$421 \$485 \$485</td><td>\$421 \$421 \$485 \$485</td></t<></td></th<></td>	225         160.0         \$2.63         \$421         \$421           300         190.0         \$2.55         \$485         \$485	\$421         \$421 <th< td=""><td>\$421         \$4221         \$422         \$422         \$422         \$425         <t< td=""><td>\$421 \$485</td><td>\$421 \$485</td><td>\$421 \$421 \$485 \$485</td><td>\$421 \$421 \$485 \$485</td><td>\$421 \$421 \$485 \$485</td></t<></td></th<>	\$421         \$4221         \$422         \$422         \$422         \$425 <t< td=""><td>\$421 \$485</td><td>\$421 \$485</td><td>\$421 \$421 \$485 \$485</td><td>\$421 \$421 \$485 \$485</td><td>\$421 \$421 \$485 \$485</td></t<>	\$421 \$485	\$421 \$485	\$421 \$421 \$485 \$485	\$421 \$421 \$485 \$485	\$421 \$421 \$485 \$485
1         1         2	375 85.0 \$2.48 \$211 \$211 150 1.665.0 \$2.71 \$4.238 \$211	\$211         \$211 <th< td=""><td>\$211         \$211         \$211         \$211         \$211           \$4,238         \$4,238         \$4,238         \$4,238         \$4,238</td><td>\$211 \$4,238</td><td>\$211 \$4,238</td><td>\$211 \$211 \$4,238 \$4,238</td><td>\$211 \$211 \$4,238 \$4,238</td><td>\$211 \$211 \$4,238 \$4,238</td></th<>	\$211         \$211         \$211         \$211         \$211           \$4,238         \$4,238         \$4,238         \$4,238         \$4,238	\$211 \$4,238	\$211 \$4,238	\$211 \$211 \$4,238 \$4,238	\$211 \$211 \$4,238 \$4,238	\$211 \$211 \$4,238 \$4,238
100         1000         5000	225 180.0 \$2.63 \$473 150 1,415.0 \$2.71 \$3.832	\$473 \$473 \$473 \$473 \$473 \$473 \$473 \$473	\$4/3 \$4/3 \$4/3 \$4/3 \$4/3 \$4/3 \$4/3 \$5/832 \$3,832 \$3,832 \$3,832	\$4/3 \$3,832	\$4/3 \$3,832	\$4/3 \$4/3 \$3,832 \$3,832	\$4/3 \$4/3 \$3,832 \$3,832	\$4/3 \$4/3 \$3,832 \$3,832
1         2	225 2.53 260 1,790.0 \$2.71 276 470.0 \$2.83	\$4,847 \$4,847 \$4,847 \$4,847 \$1,236 \$1,236 \$1,236 \$1,236	\$4,847 \$4,847 \$4,847 \$4,847 \$4,847 \$1.236 \$1.236 \$1.236 \$1.236 \$1.236	\$4,847	\$4,847	\$4,847 \$4,847 \$4,847 \$4,347	\$4,847 \$4,847 \$1.236 \$1.236	\$4,847 \$4,847 \$4,847
100         2700         2671         5711         5711	225 470.0 32.03 150 2,365.0 \$2.71 256 460.0 \$3 63	S1,620         S1,620         S1,620         S1,620         S1,6404         S6,404         S6,404         S6,404         S6,404         S1,6404         S1,400         S1,740         S1,400         S1,500	91,200         91,200         91,200         91,200         91,200           \$6,404         \$6,404         \$6,404         \$6,404           \$1,910         \$1,910         \$1,910         \$1,910	\$ 1,230 \$6,404 \$1 210	\$6,404 \$6,404	\$1,230 \$6,404 \$6,404 \$1,210 \$1,210 \$1,210	\$6,404 \$6,404 \$6,404 \$6,404 \$1,210 \$1,200	\$6,404 \$6,404 \$6,404 \$6,404 \$1.210 \$1.210
100         2.4400         5.271         5.607	223 400.0 32.03 150 2.120.0 32.71 275 \$2.87	\$5,741 \$5,741 \$5,741	31,210         31,210         31,210         31,210         31,210           \$5,741         \$5,741         \$5,741         \$5,741         \$5,741	\$5,741	\$5,741	\$5,741 \$5,741	\$5,741 \$5,741	\$5,741 \$5,741
1:00         22.71         55.67	150 2,440.0 \$2.71 225 410.0 \$2.63	\$6,607 \$1,078	\$6,607         \$6,078         \$1,078<	\$6,607 \$1,078	\$6,607 \$1,078	\$6,607 \$6,607 \$1,078 \$1,078	\$6,607 \$6,607 \$1,078 \$1,078	\$6,607 \$6,607 \$1,078 \$1,078
1         30000         530,00	2012 150 2,170.0 \$2.71 225 60.0 \$2.63	\$5,876 \$5 \$168 \$	\$5,876 \$5,876 \$5,876 \$5,876 \$5,876 \$158 \$158 \$158 \$158	\$5,876 \$158	\$5,876 \$158	\$5,876 \$5,876 \$158 \$158	\$5,876 \$5,876 \$158 \$158	\$5,876 \$5,876 \$158 \$158
S10,407         S10,407         S10,407         S10,406         S10,406 <t< td=""><td>30000 \$30,000 \$30,000</td><td>000'06\$ 000'06\$ 000'06\$ 000'06\$ 000'06\$ 000'06\$</td><td>000'0E\$ 000'0E\$ 000'0E\$ 000'0E\$</td><td>\$30,000</td><td>\$30,000</td><td>\$30,000 \$30,000</td><td>\$30,000 \$30,000 \$</td><td>\$30,000 \$30,000</td></t<>	30000 \$30,000 \$30,000	000'06\$ 000'06\$ 000'06\$ 000'06\$ 000'06\$ 000'06\$	000'0E\$ 000'0E\$ 000'0E\$ 000'0E\$	\$30,000	\$30,000	\$30,000 \$30,000	\$30,000 \$30,000 \$	\$30,000 \$30,000
Image: Second and and and and and and and and and a	\$150.407         \$47.641         \$52.474           \$81.101.664         \$2.420.232         \$12.23.966         \$705.689	\$88.956         \$83.611         \$106.971         \$121.547         \$137.917         \$150.408           \$1.451.366         \$1.556.405         \$1.059.515         \$1.386.740         \$1.036.038         \$150.408	\$150,408         \$150,408	780 \$150	\$150,408 \$234,610	408 \$150,408 238 \$187,238	\$150,408         \$150,408	\$150,408 \$150,408
Total       Statistic	\$2.261,699 \$1,027,438 \$225,202 \$22,261,699 \$1,027,438 \$225,202 \$202,202 \$202,202 \$200,200,202 \$200,200	\$1.064.649 \$1,060.082 \$634.720 \$787.899 \$522.715 \$25.666 \$5.6613 \$77179 \$7.5.693 \$50.269 \$81.812	271 45.8 S66 7R3 S62 414 S58 331 S54 515	\$14,997 \$44,615 \$44	\$21,759 \$38.868	\$8,313 \$7,769 \$33,949 \$31,728	\$27.712 \$25.900 \$24.205 \$22	\$8,003 \$21.142 \$19.759 \$1.400
<b>560.03.05 51.967.06 51.967.06 51.967.16 55.919.271 55.55.991 57.91.20 51.964.04 57.964.604 57.966.705 56.003.205 58.003.206 59.01 51.206 </b>	\$2,261,899 \$1,069,050 \$576,199 TOTALS	\$1,107,255 \$1,109,696 \$705,999 \$865,592 \$602,984 \$81,812	\$71,458 \$66,783 \$62,414 \$58,331 \$54,515	\$62,612 \$44,500	73 \$60,628	\$42,262 \$39,497 \$29,652	\$27,712 \$25,900 \$24,205 \$22	\$21,142 \$19,759 \$9,403
	\$8,003,205         \$2,261,899         \$3,289,338         \$3,814,540           \$1,400,356         \$41,612         \$32,609         \$32,803,600	\$4,869,188 \$5,319,271 \$6,553,391 \$7,341,890 \$7,864,604 \$7,864,604 \$7,864,604 \$1,861 \$64,604 \$1,861 \$513,882 \$145,215 \$204,829 \$276,108 \$351,801 \$432,070 \$513,882	\$\$7,864,604         \$7,864,604         \$7,864,604         \$7,864,604         \$7,864,604         \$7,864,604         \$2,864,604         \$3,384,604         \$3,384,604         \$4,604         \$2,664,604         \$4,604         \$2,664,604         \$4,604         \$5,664,604	\$7,946,285 \$7,946,285 \$1,002,404 \$1,046,904	69 \$7,978,228 \$7 93 \$1,127,362 \$1	\$7,995,436 \$8,003,205 \$8,003,205 \$1,197,636 \$1,229,364 \$1,259,016	\$8,003,205 \$8,003,205 \$8,003,205 \$8,003 \$1,286,729 \$1,312,628 \$1,336,834 \$1,359	\$8,003,205 \$1,380,597


# Appendix D Water Preliminary Cost Estimate

GHD

2014 2010	\$20,000 \$20,000	\$2,419,500 \$8,104,000	3 \$72,394 4 \$155,891 4 \$17,215	0 \$6,974	SY 1416     SY 2416       3     527,282       3     527,282       3     527,282       3     539,051       6     53,497       6     53,497       7     54,976       8     53,661       9     54,676       9     54,676       1     51,62       9     54,646       1     54,646       1     53,061       1     53,064       1     53,064	2 \$635,542 2 \$8,739,542	
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NPV Analvsis			*******		
Water Supply					
YEAR PERIOD NO					
CAPITAL COSTS	Diameter	Lenath	Rate		
From Stockton From Williamtown	250	3300			
Trunk Ring Main					
Stage 1,2 Stage 3,4,5	200	797	\$175 \$175		
Stage 7 State A	200	334	\$175 \$175		
Stage 9 Stage 10	200	2474	\$175		
Stage 11	200				
Thrust Bores Nelson Bay Rd at Stockton Bridge	Diameter 250	Length	Rate \$1,045		
3	300		\$1,125		
Keticulation mains Stage 1,2	150				
Stage 3,4,5	150	238	\$145 \$145		
Stage 6	150				
Stage 7	150				
Stage 8	150				
Stage 9	150				
Stage 10	<u>15</u>				
Stage 11	150				
		22000			
Miscellaneous Connection at Stockton Bridge		-	10,000.0		
ᇣ		-	10,000.0		
Estimated Contract Value Sub Total					
Establishment & Disestablishment Estimated Contract Award Total					
Design Costs Design Management			10%		
Pre construction contingency Construction management			20%		
Construction contingency TOTAL CAPITAL COSTS			20%		
OPERATION & MAINTENANCE COSTS					
Lead in Mains From Stockton	Diameter 250	Length 3,300.0	Rate		
From Williamtown	300	7,750.0	\$0.75		
Trunk Ring Main Stage 1,2	200	797	\$0.72		
Stage 3,4,5 Stage 6	200		\$0.72 \$0.72		
Stage 7 Stage 8	200	334	\$0.72 \$0.72		
Stage 9 Stage 10	200	2,474	\$0.72		
Stage 11	200		\$0.72		
Reticulation Mains Stage 1,2	150		\$0.71		
Stage 3,4,5	1 <u>50</u>		\$0.71 \$0.71		
Stage 6	150 150		\$0.71 \$0.71		
Stage 7	<u>5</u> 25		\$0.71 \$0.71		
Stage 8	150		\$0.71 \$0.71		
Stage 9	<u>5</u> 5		\$0.71 \$0.71		
Stage 10	<u>8</u> 8	1181 308 2755	\$0.71 \$0.71		
Stage 11	388		\$0.71		
Miscellanaous	8		90.1		
TOTAL OPERATING COSTS					
PRESENT VALUE of CAPITAL COSTS PRESENT VALUE of O&M COSTS					
PRESENT VALUE of COSTS					
CUM. PRESENT VALUE OF CAPITAL COSTS CUM. PRESENT VALUE OF O&M COSTS CUM. PRESENT VALUE OF COSTS					
YEAR DISCOUNT FACTOR					
TOTAL PRESENT VALUE of COSTS •					

22/11631/Excel/NPV - Water Supply (Rev 1).XLS/Fern Bay



# Appendix E Hunter Water Corporation Correspondence



HUNTER WATER CORPORATION PO BOX 5171 HRMC NSW 2310 426-432 KING STREET NEWCASTLE WEST TEL: 1300 657 657 ABN: 46 228 513 446 www.hunterwater.com.au

1800 422/11631

26 October 2004

Ref: 2003-569

Monteath & Powys Pty Ltd PO Box 726 Newcastle NSW 2300

Attention: Mr Greg Burnitt

Dear Sir

## RE WINTEN, PROPOSED RESIDENTIAL SUBDIVISION FERN BAY Revised Hunter Water Regional Wastewater Servicing Strategy

caring for our

community and the

environment

I make reference to our recent discussions regarding wastewater servicing arrangements for the proposed Winten residential development at Fern Bay and the broader servicing strategy undertaken by Hunter Water.

For some time now Hunter Water has had in place a wastewater servicing strategy covering the existing Fern Bay community and growth identified that may occur in the vicinity.

Development such as that being considered by Winten is included in the strategy proposed by Hunter Water, along with potential sewer loading being generated from nearby SEPP 5 land, proposed mobile home park and the existing Caravan Park. Based on relatively long periods of time between these developments proceeding, Hunter Water concluded that these later areas should pump via separate sewer rising mains to our proposed regional WWPS located within the existing Fern Bay residential precinct.

Up until recently Hunter Water, and Winten, has been proceeding with investigation and design of various wastewater transfer elements linking Fern Bay with Stockton 4 WWPS on the basis of the framework established in the original Hunter Water wastewater servicing strategy for Fern Bay.

A number of immerging issues, however, have necessitated Hunter Water revisiting the wastewater servicing strategy to ensure that it remains optimally configured: -

- Hunter Water has received revised development timing for the SEPP 5 development that brings forward their need for connection to wastewater services and increases Hunter Water's confidence that they will proceed;
- You will recall at our meeting with the Roads & Traffic Authority on 20 August 2004 they raised a number of concerns regarding the proposed road widening of Nelson Bay Road, the number of water and sewer services proposed to run parallel in this corridor, and the potential for service conflicts. The need to consolidate services has now arisen.

F:\Brett\WP\Miscellaneous Developments\2003-569 Letter Winten Changed Regional Sewer Strategy 26-10-04.doc

PROUD SPONSORS OF: HUNTER SURF LIFE SAVING . LANDCARE . STREAMWATCH . THE WETLANDS CENTRE AUSTRALIA

HUNTER WATER CORPORATION PO BOX 5171 HR MC NSW 2310 426-432 KING STREET NEWCASTLE WEST TEL: 1300 657 657 ABN: 46 228 513 446 nd the t www.hunterwater.com.au 63 004 122 30

## Ref: 2003-569

# - SUBDIVISION FERN BAY stewater Servicing Strategy

garding wastewater servicing arrangements for t at Fern Bay and the broader servicing strategy

place a wastewater servicing strategy covering identified that may occur in the vicinity.

w Winton is included in the strategy proposed



26 October 2004

Monteath & Powys Pty Ltd PO Box 726 Newcastle NSW 2300

Attention: Mr Greg Burnitt

Dear Sir

# RE WINTEN, PROPOSED RESIDENTIAL Revised Hunter Water Regional Wa

I make reference to our recent discussions re the proposed Winten residential development undertaken by Hunter Water.

For some time now Hunter Water has had in the existing Fern Bay community and growth

Development euch se that heing considered k

oading being generated from nearby SEPP 5 sting Caravan Park. Based on relatively long proceeding, Hunter Water concluded that these ising mains to our proposed regional WWPS al precinct.

as been proceeding with investigation and its linking Fern Bay with Stockton 4 WWPS on original Hunter Water wastewater servicing

e necessitated Hunter Water revisiting the t remains optimally configured: -

elopment timing for the SEPP 5 development ction to wastewater services and increases I proceed;

toads & Traffic Authority on 20 August 2004 ding the proposed road widening of Nelson Bay ervices proposed to run parallel in this corridor, The need to consolidate services has now





HWC DOES NOT GUARANTEE THE ACCURACY OF THIS PLAN



caring <sub>for our</sub> community<sub>and the</sub> environment



- From: Josh Chappelow Planning
  - CC:
- Date: 18 March 2004
- File Ref: P3083/20

#### RE: LOT 16 DP 258848, NELSON BAY RD, FERN BAY - 208 LOT SUBDIVISION (WINTEN - FERNWOOD STAGE 1)

MEM

#### Bob,

In response to GHD's letter dated 16 February 2004 regarding the 208 lot subdivision of land at Lot 16 DP 258848, Nelson Bay Rd, Fern Bay (Winten - Fernwood Stage 1), Planning offers the following advice with respect to water and wastewater servicing requirements.

#### Water

An analysis of the existing water supply system was undertaken for various stages of the proposed development of the Winten site and Mobile Home Village sites. The nominated connection points are as per Planning's previous advice (6 November 2003) ie.

- (1) 375mm CICL main in the Fullerton St roadway reserve near Stockton Bridge
- (2) 300mm DICL main at the intersection of Cabbage Tree Rd and Nelson Bay Rd, Williamtown.

The available Hydraulic Grade Line Levels (HGL) for the various flow scenarios at the nominated points of connection are as follows:

Development Stage	Demand Scenario	HGL RL (m)	
Winten 208 Lots	Average Day (Max)	65.2	
(Single connection to 1.)	Peak Day (Peak Hour)	58.2	
	Peak Day (Peak Hour)+ 11 L/s Fireflow	57.3	
Winten 208 Lots	Average Day (Max)	65.2	
Mobile Home Village 165 ET	Peak Day (Peak Hour)	57.7	
(Single connection to 1.)	Peak Day (Peak Hour)+ 11 L/s Fireflow	57.0	
Winten 1000 Lots	Average Day (Max)	65.2	
Mobile Home Village 165 ET	Peak Day (Peak Hour)	55.2	
(Single connection to 1.)	Peak Day (Peak Hour)+ 11 L/s Fireflow	54.5	
Winten 1000 Lots	Average Day (Max)	(1) 65.2, (2) 65.0	
Mobile Home Village 165 ET	Peak Day (Peak Hour)	(1) 58.1, (2) 67.5	
(Dual connection to 1 & 2)*	Peak Day (Peak Hour)+ 11 L/s Fireflow	(1) 57.7, (2) 66.5	

\*Note: this option was modelled with the inclusion of a proposed 375mm trunk main from Tomago to Williamtown to service future industrial development at Williamtown.

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### Wastewater

Further to GHD's request for the connection point and head details of the future Winten WWPS to the Fern Bay Regional Wastewater Transportation System, I wish to advise the following:

1. The Fern Bay Regional WWPS is located at the rear of the Community Hall in Vardon Rd, Fern Bay. Ground level 3.30m, TWL -1.50m, BWL -2.80m, floor level -3.55m.

2. The rising main system from the Fern Bay Regional WWPS to Stockton No.4 WWPS consists of 370m of DN250 DICL PN20 and 2200m of DN300 DICL PN20. The common rising main section shared by the future Winten WWPS is the 2200m long DN300 section commencing at the intersection of Rankin Rd and Nelson Bay Rd and terminating at Stockton No.4 WWPS. A hardcopy plan has been attached to illustrate the proposed layout and point of connection (which is located at the intersection of Rankin Rd and Nelson Bay Rd).

3. The proposed Fern Bay Regional WWPS will have an average duty of 95.0 L/s @ 19.0m when pumping alone or 59.3 L/s @ 25.5m when pumping together with the Winten WWPS (a copy of the Fern Bay Regional WWPS rising main system and pump curves can be supplied upon request). The assumed duty of the Winten WWPS is 83.3 L/s @ 31.5m (pumping together with the Fern Bay Regional WWPS). It has also been assumed that the rising main from the Winten WWPS would comprise of 3100m of DN300.

4. The average head conditions at the point of connection estimated to be.

- Fern Bay Regional WWPS only pumping: HGL RL 11.2m
- Fern Bay Regional WWPS and Winten WWPS pumping together: HGL RL 20.8m

Note: These figure were calculated using: HGL = (TWL + BWL)/2 + Pump Head (Average Duty) - Station Losses - Rising Main Losses (370m of DN250) - RM minor losses

Please do not hesitate to contact me if you require clarification on any of the information provided above.

Josh Chappelow Engineer, Planning

13/04

Stuart Horvath Water Distribution Planning Engineer

Julia Irwin

Wastewater Distribution Planning Engineer

25.3.04 .

Greg Bone Planning Engineer

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Caring <sub>for our</sub> community<sub>and the</sub> environment NUNTER WATER CORPORATION PO BOX 3171 HRMC NEW 2110 426-452 WHO THEFT NEW CASTLE WEST TEL: 1300 657 657 ASN: 46 228 313 446 WWW.hunterweter.com.au

19 November 2003

Ref:2003-569

Winten Property Group C/- Fagan Mather Duggan P O Box 429 Nelson Bay NSW 2315

Dear Sir/Madam

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Hunter Water's requirements for the provision of water and sewerage facilities to the Stage 1 subdivision of 1 lot into 208 lots and one residue lot at Lot 16 DP 258848, Nelson Bay Road, Fem Bay are as follows:

1 Payment of a developer charge of \$1,436,248. (Refer page 5 of the attached guide).

For water the developer charge is \$182,248.

In respect of sewer, as Fern Bay is currently an unserviced area, Hunter Water does not have a published developer charge for this area. Once final configuration and costs for the system are known, a Development Servicing Plan (DSP) will be prepared for the Fern Bay area and a charge registered. The charge will include a contribution to the costs of the sewer assets in the Fern Bay area, the sewer transfer pipeline to Shortland and the Shortland Wastewater Treatment Works. To assist with your feasibility assessment of this development in Fern Bay, the indicative sewer developer charge is estimated as \$6,000 per equivalent tenement which for the Stage 1 development would be in the order of \$1,254,000. Please note this charge is not final & may vary once the DSP for Fern Bay has been finalised. Hunter Water will then confirm the Developer Charge payable for sewer.

If the water developer charge that has been specified in this notice is not paid by 30 June 2004 the total will be adjusted for inflation from 1 July 2004. This adjustment will be based on the weighted average of the capital cities CPI for the 12 months to the end of March 2004; and

Construct Major Works, (refer to page 6 of the attached guide) on behalf of Hunter Water, to connect each of the lots to the existing water and sewer systems of Hunter Water.

• A new minimum 250mm diameter lead-in watermain would need to be constructed to service the proposed development (ultimate 1000 lots). The recommended point of connection to HWC's system is at the 375mm CICL watermain in the Fullerton Streat roadway reserve near Stockton Bridge. Details of connection will have to be confirmed with Hunter Water prior to submission of designs. An opportunity may axist for the developer to upsize the 250mm main and construct a minimum 300mm diameter leadin watermain under a joint errangement with the owner of another proposed subdivision at Fern Bay. This proposal would represent cost savings to both developers compared to constructing separate watermains. This option should be discussed with Hunter Water prior to preparation of designs.

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DECENDEN 24.11.03

PROUD SPONSORS OF HUNTER SURF LIFE SAVING . LANGCASE . STHRAMMATCH . THE WETCANDS CENTRE AUSTRALIA

÷ (1),

Hunter Water requires the Developer to install infrastructure to provide adequate security of supply (detailed in section 2.1.4 of the design Manual). Options may exist to maintain adoquate security of supply & the owner's design consultant should contact Hunter Water to discuss this issue. The Corporation is currently undertaking a risk assessment & regional water servicing stratogy to ensure that an adequate security of supply is maintained for the Kooragang - Stockton region. The outcomes of these studies will be available in early 2005. Initially Stage 1 of the development will be allowed to proceed with the recommended 250mm diameter lead-in watermain, however you are advised that future security of supply works may be required, with the details likely to be available in early 2005.

A sewer servicing strategy for the site will need to be undertaken, at the owner's cost, using an approved design consultant. The point of connection for the development is the proposed Fern Bay sewer reticulation system in the vicinity of the intersection of Rankin Road & Nelson Bay Road, Fern Bay, where a common rising main section (375mm) is planned as part of the proposed Fern Bay Reginnal WWPS. It will be necessary to confirm with Hunter Water flow & head conditions of this regional pump station in order that the proposed WWPS & rising main from the development site can be designed with both pump stations operating correctly.

A Major Works assessment/administration fee of \$1,783 should be paid when designs are submitted. Additional assessment fees will be required for westewater pump station assessments; and

Please note that Hunter Water requires 3 copies of the final plan of subdivision and a disk containing a DXF file of the subdivision with lot numbers and boundaries only, directly on the MGA ord. The lot boundaries should be produced directly from your calculation software and should be all edge matched and unbroken. The lot boundaries should also match as near as possible the final deposited plan of the subdivision. Preferably this information can be smalled to Hunter Water (contact point Peter Bartiett email address poter.bartiett@hunterwater.com.au at Hunter Water Australia).

if you have submitted your data by email and have not received a response from Peter Bartlett within 2 working days please contact him on 02 4979 9698.

The above requirements, subject to finalisation of the DSP charges and CPI adjustment are valid for 12 months from the date of this letter, are specific to this development. Please refer to the attached Guide to Hunter Water's Notice of Requirements for Developers, which details the conditions under which water and sever facilities are available to new customers.

Yours faithfully

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JOHN O'HEARN MaRager Business & Urban Development

Enquirles: Tel: Fax: Robert Daniels (02) 4979-9723 (02) 4979-9711



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### **Document Status**

Rev	Author	Reviewer		Approved for Issue			
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0	P M Simpson	G McDiarmid	G McDiarmid	T Kovats	T Kovats	3/5/04	
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2	P M Simpson	G McDiarmid	G McDiarmid	I Joliffe	l Joliffe	15/11/04	