FARR WEST
ENGINEERING

TECHNICAL MEMORANDUM

Prepared For:	Truckee Donner Public Utility District
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Reviewed By:	Matt Van Dyne, P.E.
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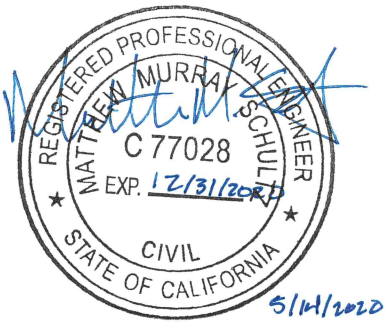

1.0 BACKGROUND

The Truckee Donner Public Utility District (District) plans to undertake a water system rate study in the Spring of 2020. An updated Capital Improvement Plan (CIP) is needed to understand the financial and timing impacts that capital projects will have on the District, which will be reviewed to ensure water rates are sufficient for funding projects. In December of 2019, the District entered into an agreement with Farr West Engineering (Farr West) to prepare the District's Water Infrastructure CIP Development (Project) which will focus on the preparation of an updated 10-year Water Infrastructure CIP to assist in developing a rate study.

2.0 PROJECT SUMMARY

Farr West was directed by the District to develop a 10-year CIP beginning with projects in 2021. This 10-year CIP spans the timeframe of 2021-2030. The Request for Proposal (RFP) identified the following Project tasks:

1. Review Existing System Information.
2. Identify Existing Facilities Requiring Rehabilitation and/or Replacement.
3. Review Regulatory Impacts.
4. Conduct Power Supply Outage Analysis.
5. Conduct Time of Use Electrical Rate Analysis.
6. Develop Cost Estimating Criteria.
7. Develop 10-year CIP.
8. Prepare CIP Report.

Farr West evaluated the Project tasks and closely coordinated with District staff to develop a complete list of CIP Projects. Farr West received the following direction from the District as a guideline to establish CIP Projects:

1. Include 2012 CIP projects scheduled between the years 2012-2030 which have not been constructed.
2. Exclude projects that were originally proposed to accommodate additional capacity to serve growth. Based on discussion with District Staff, buildout projections are less than estimated in the 2012 Water System Master Plan. Projects included in the 2021 CIP will address maintenance and operational needs of existing District infrastructure. Projects to address maintenance and operations needs are expected to be rate funded.

3. Add projects determined necessary resulting from the review of regulatory impacts or power outage analysis.
4. The system goal is to provide water to all customers during a power outage scenario. However, depending on the length of a power outage, supply to large irrigation services may be suspended. Service priority will be to provide water to all residential customers for domestic use during a power outage scenario.
5. Incorporate additional projects as directed by the District.
6. Prioritize Projects:
    a. High priority projects shall be considered critical to the continued operation of the water system and the ability of the District to provide water services to its customers.
    b. Medium priority projects shall be considered necessary to comply with regulatory requirements and maintain the current condition of the existing water system assets.
    c. All other projects shall be considered low priority.
7. Target an annual budget of $2,250,000 for CIP Projects.
8. Develop cost estimating criteria and produce updated planning level costs for all 2021 CIP projects.

The Project scope excludes efforts to update planning elements such as hydraulic modeling, building analysis, tank coating conditions, identifying system deficiencies, condition/risk assessment, CCTV, GIS, SCADA, and any related field work.

The CIP will be a tool for the District to understand and plan for facility improvements by establishing rates to implement the plan. Implementing the plan in this manner will ensure the stability in utility rates over time, provide the ability for the District to perform capital projects, and provide reliable infrastructure for years to come.

3.0 REGULATORY IMPACTS

To consider potential regulatory impacts related to the District's system facilities rehabilitation and/or replacement within the next 10 years, a review of current and proposed water, air quality, and electrical regulations was conducted. Regulatory changes with the potential to impact the District's water utility system fall under local, state, and federal regimes. Regulatory agencies and relevant associations consulted and researched include the State Water Resource Control Board (SWRCB), Division of Drinking Water (DDW), the California Special Districts Association (CSDA), the Association of California Water Agencies (ACWA), the California Air Resources Control Board (CARB), the Northern Sierra Air Quality Management District (NSAQMD), the California Legislature, and the United States Environmental Protection Agency (US EPA). No Agency would provide certainty of any regulatory mandates and when they would be implemented over the next 10-years, but certain parameters were discussed and identified in the following sections. The District should routinely monitor all regulatory agencies for proposed changes. A summary of all identified current and proposed regulatory impacts is included in Appendix A.

3.1 LOCAL WATER REGULATIONS

Local regulations potentially impacting the District's water system infrastructure in the coming years include requirements of the Truckee Sanitary District (TSD), the Tahoe-Truckee Sanitation Agency (T-TSA), and other Truckee River related requirements. TSD is responsible for wastewater collection throughout the Truckee area. The wastewater is sent to T-TSA facilities for wastewater treatment and eventual discharge into the Truckee watershed. TSD is one of five member agencies of the T-TSA, which protect the water quality of Lake Tahoe and the Truckee River under the Porter Cologne Act.

The District is permitted to discharge drinking water to the City storm drain system under the California Statewide General NPDES (National Pollutant Discharge Elimination System) Permit for Drinking Water System Discharges. Occasionally, the District allows water main flushing discharge into the sewer system through agreements with TSD and T-TSA. This activity typically occurs only during water main construction projects, and a permit is required from both TSD and T-TSA for temporary discharges into the

sewer system. The District should continue to obtain a Permit for Temporary Discharge into TSD facilities for each applicable construction project to allow flushing of water mains into the sanitary sewer.

3.2 STATE WATER REGULATIONS

State level regulatory requirements identified in this research include Urban Water Management Plans, Making Conservation a California Way of Life, and proposed legislative changes. Collectively these regulatory requirements include water loss calculations and improvements, reporting requirements, water loss audits, water shortage contingency plans, increasing efficiency standards, flood protection plans, and heightened drinking water quality standards including lead, perchlorate, chromium-6, and per- and polyfluoroalkyl substances (PFAS). Requirements pursuant to Making Conservation a California Way of Life may be the most relevant to the CIP. During 2020, the SWRCB is required to adopt performance standards for urban water suppliers which will include volumetric water loss reduction and other performance measures. By June 30, 2020, the SWRCB must adopt long-term standards for measures including indoor residential water use, outdoor irrigation of landscape areas, and water loss from water distribution systems. For more information and the status of proposed legislation, visit http://leginfo.legislature.ca.gov.

The District holds water right permits and statements for surface water sources (McGlashen, Southside, Tonini, Sheepherder, and Hofert Springs). These water rights are overseen by the SWRCB's Division of Water Rights. Additional state level regulatory considerations include maintaining the District's Division of Water Rights surface water Permits and Statements. Although the District is not currently using water under these rights, minimum reporting requirements should be maintained for compliance. If these rights are used in the future, the District should review the Water Code, Surface Water Treatment Rule, and other regulations to ensure compliance. Additional water planning, including Sustainable Groundwater Management Act (SGMA) and Integrated Regional Water Management (IRWM) initiatives should continue to be considered by the District. Although requirements under SGMA and IRWM are not currently applicable, the requirements should be monitored to ensure future compliance with all regulations.

The Truckee River basin is also protected by stormwater regulations. Stormwater discharges are regulated through NPDES permits. The existing SWRCB Region 6 (Lahontan Region) NDPES Municipal Permit includes South Lake Tahoe, Placer and Eldorado counties, but does not include Nevada County and the Truckee-Donner area. Stormwater protection requirements should be maintained to ensure compliance.

3.3 FEDERAL WATER REGULATIONS

Federal Level regulatory changes that may impact the District include proposed US EPA changes to water quality standards for perchlorate levels, chromium-6, PFAS, and potential regulatory changes for infrastructure permitting through the US Army Corps of Engineers (USACE) under the Clean Water Act and definitions of Waters of the United States.

3.4 ELECTRICAL REGULATIONS

Electrical regulation research focused on potential power supply outage requirements and regulations governing the use of emergency power generators which support the utility system. All portable generators require a permit to operate. The District should continue to maintain permits for portable generators. Air pollution standards for generators are regulated by the local air pollution district, in this case the NSAQMD. Natural gas or propane-fueled generators do not have air quality emissions restrictions. If the District uses diesel fueled generators during emergencies, there are currently no emissions restrictions. This includes generators used during a Public Safety Power Shutoffs (PSPS) event. However, if a diesel generator is used as a prime power source, strict emission regulations are imposed under CARB. California low sulfur (15 Parts Per Million) diesel fuel is required for all diesel generators. In addition, CARB regulations allow for the use of private and public back-up generators during PSPS, such as during high fire risk weather conditions. Legislative Assembly Bill 2182, introduced in 2020, proposes regulatory exemptions for

emergency backup generators at water and wastewater facilities. For more information on CARB regulations, visit www.arb.ca.gov.

Electric utilities in Northern California and Northern Nevada have developed policies to implement PSPS in extreme fire-risk situations. Particular environmental conditions, such as strong wind events, high temperatures, and low humidity, warrant the de-energization of power lines and equipment to prevent destructive and deadly wildfires.

The District receives its electrical transmission from NV Energy (NVE) in Nevada; therefore, the District is not subject to the requirements of the Cal ISO system. NVE administers PSPS under their Public Safety Outage Management (PSOM) policy. PSPS have recently been initiated in Northern California when environmental conditions warrant but have yet to be initiated by NVE. If NVE initiates PSPS triggered by the PSOM policy the District will be greatly impacted.

3.5 REGULATORY DISCUSSION AND RECOMMENDATIONS

The areas of strongest regulatory concern are treatment requirements and water audit and loss prevention. It is understood that arsenic is the water quality constituent of greatest concern for the District. The District currently treats one well source to reduce arsenic levels and other well sources report arsenic levels near the MCL limit. Currently, there are no planned regulatory changes to the arsenic MCL.

However, other contaminants are under review for potential inclusion into regulations. Water utility regulatory agencies have not identified any known regulatory changes within the next 10 years which warrant projects to address changes to treatment requirements. The District is recommended to remain informed regarding changes to treatment regulations, as well as MCL limits, and begin a testing regimen for contaminants under consideration for regulatory inclusion.

The District currently considers water loss auditing and prevention a high priority. Projects have previously been undertaken to reduce leaks in compromised water mains and establish system metering of all services, sources, and pump stations. Several regulations are forthcoming regarding water auditing and loss prevention, stemming from the Making Conservation and California Way of Life legislation. SWRCB is required to establish regulations identifying specific goals or targets for auditing and reduction over the next several years. The District is encouraged to utilize improved system metering to identify and continue to fund pipeline replacement projects to remove leaking water mains from the system. The District is recommended to remain informed regarding updates to the regulations and adjust the CIP, if necessary, to comply.

The District should be prepared for future power outages of their power supply due to PSPS. Further evaluation, discussion, and recommendations of power supply outage analysis is included in Section 4.0.

4.0 POWER SUPPLY OUTAGE ANALYSIS

New regulations allow power utilities to shutoff transmission and distribution lines during extreme fire risk conditions to minimize the risk of a wildfire. Impacts to the District's water system resulting from a 7-day power outage were evaluated using several demand scenarios. The results were used to suggest new District projects in preparation of PSPS.

The system water consumption was analyzed using the following scenarios for a 7-day power outage event:

1. Maximum Day Demand (MDD) with tanks full.
2. MDD with tanks half full.
3. Winter Day Demand (WDD) with tanks full.
4. Stage 3 Water Conservation Demand with tanks full.
5. Stage 3 Water Conservation Demand with tanks half full.

MDD and WDD were included for evaluation during a power outage, which represent the hypothetical maximum and minimum system demands. Stage 3 Water Conservation demands were also evaluated as a

moderate demand scenario during a power outage. It is understood that at this time, the District has not determined the target demand allowance or potential restrictions which will be implemented during a power outage.

MDD and Stage 3 Conservation Demand scenarios with both storage tanks full and storage tanks half full were evaluated during a power outage scenario to understand the effects on system production. MDD with storage tanks half full represents a worst-case scenario and WDD with tanks full represents a best-case scenario when evaluating limiting system operations during a power outage.

To aid in analysis, Farr West prepared a modification of the District System HGL Map that is included in Appendix B. The exhibit included MDD and WDD for pump stations and production rates for wells. Facilities with existing generators are highlighted yellow and those without generators are highlighted in pink. Tanks highlighted blue indicate that they contain sufficient storage to supply their dependent zone for at least 7 days at WDD. The MDD and the WDD values were taken from the Inter-Zone Transfers 2018 Water Demands figure provided by the District. The Martiswoods Tower storage tank was not considered in the analysis due to District plans to demolish the tank and replace it with a hydropneumatic pump station. The intent of this map was to place all applicable system operational data for review and use. The map presented tanks and the zones they feed and identified the flow of water from wells to given tanks. Farr West analyzed this map to understand if any tanks of a higher HGL could back-feed into a lower tank zone to aid in providing supplemental storage capacity to meet demand requirements for power outage durations.

A Stage 3 Water Conservation scenario was analyzed by applying a 30% reduction in water use to MDD values for each zone. Compliance is mandatory under Stage 3 Conservation efforts, with irrigation restricted to 3 days per week. The District's Water Conservation Program was taken from the 2015 Urban Water Management Plan. The various stages are identified in Table 1.

Table 1: Water Conservation Stages

Stage	Water Conservation Requirement	Compliance Level
1	Targeted 10% Reduction in Usage	Voluntary
2	Targeted 20% Reduction in Usage	Mandatory
3	Targeted 30% Reduction in Usage	Mandatory
4	Targeted 40% Reduction in Usage	Mandatory
5	Targeted 50% Reduction in Usage	Mandatory

Each pressure zone was analyzed based on the storage tank capacity of that system and daily water consumption. If a pressure zone did not have a dedicated storage tank, the water demand was included with the demand of the tank fed pressure zone providing the water supply. This data provided information on the number of days a storage tank could serve the applicable zone(s) with no District wells feeding the system.

The District's system currently has 31 active storage tanks which range in capacity from 100,000 gallons to 1,500,000 gallons, with the average capacity at 240,000 gallons. The inventory excludes Martiswoods Tower, which is planned for demolition, and 3 inactive storage tanks. Most zones are served by a single storage tank with the larger zones with higher demands served by two or three storage tanks. The Truckee System has 31 storage tanks and the Hirschdale System had 1 storage tank.

System production was analyzed to determine the additional water volume needed to meet demands during MDD, WDD, and Stage 3 Water Conservation conditions. The well capacities used in each analysis were taken from the Inter-Zone Transfers 2018 Water Demands figure, except for the Hirschdale Well. The Hirschdale Well production rate was taken from the 2012 Water System Master Plan since it is not included

in the 2018 Inter-Zone Transfers Water Demands figure. The system demand versus storage analysis is included in Appendix C.

The District currently has 11 active potable well sites throughout the system. Ten wells are located within the Truckee System and one well within the Hirschdale System. The Truckee System's wells range in production rates from 0.41 to 3.89 MGD and the Hirschdale System's well has a production of 0.050 MGD.

Fire flow demand is not included in the power supply outage demand analysis. The addition of a fire demand during a power outage will greatly affect available storage. Immediate implementation of the most stringent water use restrictions would be recommended for a fire event occurring during a power outage.

The District currently has a well site (Well A) serving a zone with a higher Hydraulic Grade Line (HGL) and would potentially be an option to back feed into lower HGL zones with the installation of a new pressure relief valve. However, the well is currently out of service and the District does not foresee reactivating the well for potable water use in the future.

4.1 MAXIMUM DAY DEMAND (MDD) ANALYSIS

The MDD for each zone was used to determine the highest anticipated total water consumption over a 7-day power outage. The MDD value assumes minimal or no conservation efforts are in effect during that time, including limited or normal irrigation and a suggested decrease in indoor water use.

4.1.1 MDD Water Tank Storage

Three storage tanks in the system had the capacity to serve the MDD through a 7-day power outage if the tanks were at full capacity at the start of the outage. No storage tanks in the system had the capacity to serve any zones for 7 days under half full conditions. Table 2 identifies the storage tanks with the available capacity when full to serve the applicable zone(s) during a 7-day power outage.

Table 2: Tanks with Available Storage Capacity Under Full Conditions

Tank	Zone	7-Day MDD (MG)	Storage Capacity (MG)
Soma Sierra	Soma Sierra, Donner Trails	0.196	0.200
Ski Run	Upper Ski Run, Lower Ski Run	0.091	0.100
Hirschdale	Hirschdale	0.070	0.100

The storage tanks shown in Table 2 do not have the capacity to share stored water with a downstream neighboring zone during a 7-day power outage without stressing the currently served zone. Additionally, the MDD in neighboring zones is too high for it to make a significant impact, therefore, it was determined a new pump station or pressure relief station for interzone transfer during a Public Safety Power Shutoff is not warranted.

The 29 system storage tanks without 7-day MDD storage capacity (not identified in Table 2) have the available storage to serve the applicable zone(s) for 0.6 to 2.5 days during MDD if the tanks were at full capacity. If these 29 tanks are at half capacity, they would have the available storage to serve the applicable zone(s) for less than one day during MDD. The storage tanks identified in Table 2 would have available storage to sustain the applicable zones for approximately 4 days with the tanks at half capacity during MDD. Appendix C details the available storage, the demand, and the number of days a tank can serve a zone under full tank and half tank MDD conditions.

During the MDD analysis, it was determined that three storage tanks, identified in Table 3, do not have the capacity to serve the applicable zones under MDD and full storage conditions for one day. The zones supplied by these tanks have a higher demand than available storage and can be sustained for less than one day. It is recommended to immediately implement the most stringent water use restrictions for these zones and fill the storage tanks to full capacity ahead of a suspected power outage.

Table 3: Tanks with Less than One Day of Service at Full Capacity

Tank	Zone	1-Day MDD (MG)	Storage Capacity (MG)
Wolf Estates	Donner Lake-6124, Red Mountain Hydro, Wolfe Hydro	0.275	0.230
Ponderosa Palisades	Ponderosa Palisades, West Palisades Hydro, Palisades Hydro, Martiswoods	0.512	0.400
Glenshire Lower	Glenshire 2, Waterloo, Icknield	1.312	0.740

4.1.2 MDD Water System Supply

The additional water volume required to meet the 6.28 MGD (full tank) and 6.91 MGD (half tank) MDD system demands over a 7-day power outage was determined using the difference from the daily water consumption and the available storage for each zone.

When all tanks are full at 8.79 MG storage, approximately 6.28 MGD of additional supply is needed to supplement storage volume to account for the total system MDD requirement. Currently, only two production facilities (Airport Well and Prosser Village Well) have back up power supply. The total production available to the District during a power outage is from these two wells yielding a total of 3.11 MGD, 3.17 MGD short of the required system production demand. The District has identified installation of a generator at the Martis Valley No. 1 Well as a high priority project in the 2021 CIP. When the generator at the Martis Valley No. 1 Well is installed, total production during a power outage will increase to 5.34 MGD but will be 0.94 MGD short of the required demand. Additional generators are needed at other production facilities to sustain complete MDD system demands during a power outage.

A second review of the complete MDD system demand scenario was analyzed if tanks were not completely full prior to a power outage. Without understanding the District's storage tank operational parameters and SCADA, not part of this Project, a scenario was reviewed with all storage tanks at half full levels. This analysis can provide a range of possibilities to allow the District to better understand the range of impacts and severities when considering priority facilities.

If tanks are not at full capacity at the time of a power outage, the production deficit increases by approximately 0.63 MGD to 6.91 MGD. Table 4 compares the system demand with the production capacities of well sites with proposed and existing permanent generators.

Table 4: MDD Well Production

Well Site	Capacity (MGD)*	Permanent Generator	MDD (Tanks at Full Capacity)	MDD (Tanks at Half Capacity)
Airport	1.95	Yes (50% production capacity due to shared generator with pump station)	6.28 MGD (Production needed in addition to storage)	6.91 MGD (Production needed in addition to storage)
Prosser Village	1.16	Yes		
Total (Without Martis Valley No. 1)	**3.11**			
Martis Valley No. 1	2.23	Planned		
Total (With Martis Valley No. 1)	**5.34**			

* Production Capacities taken from the Inter-Zone Water Transfers 2018 Water Demands Figure. Airport well production when running on generator reduced by half since existing generator supplying well and pump station does not have power to run both facilities at maximum capacity.

4.2 WINTER DAY DEMAND (WDD) ANALYSIS

The WDD for each zone was used to determine the most conservative total water consumption over a 7-day power outage. The WDD value is reflective of a low demand period when no outdoor irrigation is occurring. WDD values were provided by District staff during this analysis as values were not present in past reports.

4.2.1 WDD Water Tank Storage

The six storage tanks identified in Table 5 have the capacity to serve the WDD through a 7-day power outage, if the tank was at full storage capacity when the power outage began.

Table 5: Tanks with Available Storage Capacity Under Full Conditions

Tank	Zone	7-Day WDD (MG)	Storage Capacity (MG)
Soma Sierra	Soma Sierra, Donner Trails	0.070	0.200
Ski Run	Upper Ski Run, Lower Ski Run	0.014	0.100
Glacier	Glacier, Upper Skislope, Middle Skislope, Lower Skislope	0.140	0.150
Prosser Annex, Prosser Heights	Prosser Heights (includes original Upper Lakeview), Heights Hydro	0.385	0.430
Glenshire Upper	Glenshire 1	0.490	0.490
Hirschdale	Hirschdale	0.042	0.100

The storage tanks identified in Table 5 do not have the capacity to share stored water with a downstream neighboring zone during a 7-day power outage without stressing the currently served zone. The WDD in neighboring zones is too high for it to make a significant impact; therefore, it was determined a new pump station or pressure relief station for interzone transfer during a PSPS is not warranted.

The remaining 26 storage tanks in the system have the available storage to serve the applicable zone(s) for 2.5 to 5.1 days, if the tanks were at full capacity. These tanks would require supplemental supply from well production facilities to serve the zone during a 7-day power outage event. Appendix C details the available storage, the demand, and the number of days a tank can serve a zone under full tank WDD conditions.

4.2.2 WDD Water System Supply

When tanks are full at 8.79 MG storage, approximately 1.25 MGD of production is needed to match WDD. Currently, only two production facilities (Airport Well and Prosser Village Well) have back up power supply. The total production from these two wells during a power outage is 3.11 MGD. Table 6 compares the system demand with the production capacities of well sites with proposed and existing permanent generators.

Table 6: WDD Well Production

Well Site	Capacity (MGD)*	Permanent Generator	WDD (Tanks at Full Capacity)
Airport	1.95	Yes (50% production capacity due to shared generator with pump station)	1.25 MGD (Production needed in addition to storage)
Prosser Village	1.16	Yes	
Total (Without Martis Valley No 1)	**3.11**		
Martis Valley No. 1	2.23	Planned	
Total (With Martis Valley No 1)	**5.34**		

***** Production Capacities taken from the Inter-Zone Water Transfers 2018 Water Demands Figure. Airport well production when running on generator reduced by half since existing generator supplying well and pump station does not have power to run both facilities at maximum capacity.

The additional water volume required to meet the remaining 1.25 MGD WDD system demand over a 7-day power outage is less than the 3.11 MGD total production from the Airport and Prosser Village Well sites. Under these conditions, an additional permanent generator is not needed in the system.

4.3 STAGE 3 WATER CONSERVATION

The District's Stage 3 Water Conservation enforces a mandatory 30% reduction in water use and restricts irrigation to 3 days per week. For this analysis, the MDD values for each zone were reduced to 70% of the full demand value.

4.3.1 Stage 3 Water Conservation Water Tank Storage

Three storage tanks have the capacity to serve the applicable zones during a 7-day power outage. As with the MDD and WDD analysis, the storage tanks identified in Table 7 do not have the capacity to share stored water with a neighboring zone during a 7-day power outage without stressing the currently served zone.

Table 7: Tanks with Available Storage Capacity Under Full Conditions

Tank	Zone	7-Day SW3C (MG)	Storage Capacity (MG)
Soma Sierra	Soma Sierra, Donner Trails	0.140	0.200
Ski Run	Upper Ski Run, Lower Ski Run	0.070	0.100
Hirschdale	Hirschdale	0.063	0.100

During the Stage 3 Water Conservation analysis, it was determined that the Glenshire Lower storage tank does not have the capacity to serve the applicable zones under Stage 3 Water Conservation efforts and full storage conditions for one day. The Glenshire 2, Waterloo, and Icknield zones have a higher demand than available storage and can be sustained for less than one day. It is recommended to immediately implement more stringent water use restrictions for these zones and load the storage tank to full capacity ahead of a power outage.

The remaining 29 storage tanks in the system have the available storage to serve the applicable zone(s) for 0.8 to 3.5 days if the tanks were at full capacity. If the tanks are at half capacity, the remaining 29 storage tanks have the available storage to serve the applicable zone(s) for 0.4 to 1.76 days. The storage tanks identified in Table 7 would have available storage to sustain the applicable zones for approximately 4 days if the tanks were at half capacity. Appendix C details the available storage, the demand, and the number of days a tank can serve a zone under full tank and half tank MDD conditions.

4.3.2 Stage 3 Water Conservation Water System Supply

When tanks are full at 8.79 MG storage, approximately 4.04 MGD of supply is needed to match Stage 3 Water Conservation Water System demands of 5.28 MGD. Currently, only two production facilities (Airport Well and Prosser Village Well) have back up power supply. The total production from these two wells during a power outage is 3.11 MGD. The District has identified installation of a generator at the Martis Valley No. 1 Well as a high priority project in the 2021 CIP. When the generator at the Martis Valley No. 1 Well is installed, total production during a power outage will increase to 5.34 MGD. Table 8 compares the system demand with the production capacities of well sites with proposed and existing permanent generators.

Table 8: Stage 3 Water Conservation Well Production

Well Site	Capacity (MGD)*	Permanent Generator	Stage 3 (Tanks at Full Capacity)	Stage 3 (Tanks at Half Capacity)
Airport	1.95	Yes (50% production capacity due to shared generator with pump station)	4.04 MGD (Production needed in addition to storage)	4.65 MGD (Production needed in addition to storage)
Prosser Village	1.16	Yes		
Total (Without Martis Valley No 1)	**3.11**			
Martis Valley No. 1	2.23	Planned		
Total (With Martis Valley No 1)	**5.34**			

* Production Capacities taken from the Inter-Zone Water Transfers 2018 Water Demands Figure. Airport well production when running on generator reduced by half since existing generator supplying well and pump station does not have power to run both facilities at maximum capacity.

Production from the Airport and Prosser Village wells is not sufficient to satisfy demands during a power outage with Stage 3 Water Conservation implemented. However, after a generator is installed at the Martis Valley No. 1 Well (as currently planned), Stage 3 Water Conservation demands (with tanks full or half full) would not require additional water production facilities to be operational during a power outage scenario.

4.4 HIRSCHDALE WATER SYSTEM

The Hirschdale water system is a separate system within District boundaries, consisting of one well, one storage tank, and one pressure zone. Demands for this system were provided by the District using data collected from February 2019 (WDD) and July 2019 (MDD). At full capacity, the storage tank can sustain the system for more than 7 days under MDD, WDD, and Stage 3 conditions. The Hirschdale Well can produce approximately 35 gallons per minute, with system demands of approximately 9 gallons per minute for MDD, 4 gallons per minute for WDD, and 6 gallons per minute for Stage 3 conditions.

The District anticipates connecting the Hirschdale System to the Truckee System in the future. It is not recommended to install a permanent generator on the well site, as the well may be taken out of service when the connection is made to relieve the District from maintaining the arsenic, iron, and manganese treatment system. The District should consider the interconnection as a priority over other Hirschdale improvements. Until the interconnection to the Truckee System can be made, it is recommended to fill the storage tank to full capacity ahead of a potential power outage.

4.5 POWER OUTAGE ANALYSIS DISCUSSION AND RECOMMENDATIONS

It is understood that the District wishes to provide service to all customers during the entire duration of a potential 7-day power outage event. Allowable customer demands on the system will largely govern the scope and extent of projects to satisfy customer demands. The analysis in this study did not include evaluation of additional system water storage as an option to satisfy system demands during a power outage. Therefore, the means to keep customers supplied with water service will focus on ensuring emergency power (generators) is established at facilities necessary to achieve system supply. The District is recommended to consider additional system water storage in future system analyses.

The District currently has permanent generators at 20 pump stations and water production facilities throughout the system. Two portable generators are currently assigned specifically to the Donner Trails and Soma Sierra Pump Stations.

As described in Section 4.0, an analysis was performed to understand the flow path of water from production wells to storage tanks. Ultimately, this analysis was able to identify which pump stations are critical to supplying water throughout the District's water system. Upon evaluation, existing generators allow for water to be supplied and conveyed throughout most of the water system during a power outage.

During a power outage, system operation is dependent upon generators having sufficient fuel capacity to continue operation during power outages. To fully understand a fuel consumption analysis of the District's generators, additional detailed information would be required, and an in-depth study performed which is beyond the scope of this memorandum. This complex effort should involve evaluation of an extended simulation of the system hydraulic water model and operational requirements and specifications of system generators. The District is encouraged to further evaluate the fuel consumption needs of system generators during a power outage and develop a plan for operation necessary for water conveyance.

4.5.1 Pump Stations

District pump stations have the capacity to match, and in most cases, greatly exceed the demands of the zone(s) supplied. Many pump stations throughout the system already have available emergency generators, either permanent or mobile. Table 9 summarizes current generator status at pump stations throughout the system. The District currently has the capability to provide emergency power at all but one of the critical pump stations in the system through permanent or mobile generators. Critical pump stations are assumed to be a single pathway for water to feed into the next zone and to supply each water storage tank.

The system is comprised of both traditional and hydropneumatic pump stations. Traditional pump stations supply zones which include a storage tank. Hydropneumatic pump stations supply zones without storage tanks. In a power outage situation, hydropneumatic zones would not have a water supply, even temporarily, unless the associated pump station was supplied power from a generator. Zones with storage tanks would have a temporary water supply from tanks, but in most cases, this supply is not enough to support zone demands during WDD, Stage 3 Water Conservation, or MDD conditions. Therefore, generators are necessary for both traditional and hydropneumatic pump stations.

Pump station facilities that do not have permanent generators include Gateway Hydropneumatic, Soma Sierra, Donner Trails, Falcon Point, Alder Creek, West Palisades Hydropneumatic, and Martiswoods. The Gateway hydropneumatic pump station currently has neither a permanent generator or a dedicated trailer mounted generator and is the only existing critical facility without backup power. The Falcon Point and Alder Creek pump stations are assumed to be redundant to the Innsbruck and Herringbone pump stations, respectfully, and therefore do not require generators for critical water conveyance. The Donner Trails and Soma Sierra pump stations are currently assigned mobile, trailer-mounted generators. The Soma Sierra, Donner Trails, West Palisades, and Martiswoods pump stations are scheduled to have permanent generators installed in 2021 as part of the 2021 CIP.

Installation of permanent generators at Soma Sierra and Donner Trails Pump Stations would alleviate mobile generators assigned to these facilities for use at other sites or as emergency back-up for permanent generators. The District may also consider the option of converting the mobile generators to permanent generators at the Donner Trails and Soma Sierra pump stations if both meet current emissions standards. This would reduce capital cost by removing the purchase of two new generators.

The District should consider an in-depth analysis of generators, pump stations, and zone demands to understand system requirements. All pump stations in the system are over-sized and can convey current demands for MDD, WDD, and Stage 3 Water Conservation conditions. Existing generators for all pump stations are assumed to be appropriately sized and have the capacity to serve the facility demand during emergency situations.

Table 9: Generator Status at System Pump Stations

Pump Station	Capacity (MGD)	MDD (MGD)	WDD (MGD)	Stage 3 Cons. (MGD)	Generator Status
Airport	Unknown	-	-	-	Existing Permanent
Gateway Hydro	1.44	0.001	0.001	0.001	Needs Generator
Donner Trails	5.61	1.856	1.01	1.30	Trailer, Proposed Permanent
Soma Sierra	5.61	1.828	1.00	1.30	Trailer, Proposed Permanent
Sitzmark Hydro	0.720	0.018	0.003	0.013	Existing Permanent
Falcon Point*	2.16	0.693	0.404	0.485	Not Needed (redundant booster)
Innsbruck*	2.30	0.693	0.404	0.485	Existing Permanent
Stockholm	1.58	0.116	0.04	0.081	Existing Permanent
Pinnacle Hydro	0.720	0.036	0.015	0.025	Existing Permanent
Roundhill Hydro	0.720	0.001	0.001	0.001	Existing Permanent
Herringbone**	1.51	0.270	0.211	0.189	Existing Permanent
Alder Creek**	1.30	0.270	0.211	0.189	Not Needed (redundant booster)
Donner View Hydro	0.720	0.013	0.007	0.009	Existing Permanent
Ski Lodge	0.922	0.074	0.002	0.052	Existing Permanent
Ski Run	0.576	0.061	0.020	0.043	Existing Permanent
Richards	3.24	0.537	0.247	0.376	Existing Permanent
Wolfe Estates Hydro	1.19	0.011	0.002	0.008	Existing Permanent
Red Mountain Hydro	0.432	0.004	0.002	0.003	Existing Permanent
Sierra Meadows	1.72	0.512	0.078	0.358	Existing Permanent
Palisades Hydro	1.30	0.032	0.007	0.022	Existing Permanent
Martiswoods	0.864	0.063	0.006	0.044	Proposed Permanent
West Palisades Hydro	0.058	0.005	0.001	0.004	Proposed Permanent
China Camp	1.72	0.435	0.125	0.305	Existing Permanent
Prosser Heights	1.53	0.017	0.006	0.012	Existing Permanent
Strand	0.860	0.283	0.070	0.198	Existing Permanent

* The demand is assumed to be split between the two pump stations. During a power outage, the pump station with a permanent generator has the capacity to manage full demands.

** The demand is assumed to be split between the two pump stations. During a power outage, the pump station with a permanent generator has the capacity to manage full demands.

4.5.2 System Production (Wells)

Existing District storage tanks do not contain sufficient capacity to provide enough water to meet system demands during a 7-day power outage event, as identified previously in Section 4.1.1. Therefore, sufficient production capacity must be provided by wells with generator backup to supply the required additional capacity.

Existing generators are located at the Airport and Prosser Village production facilities. The generator at the Airport production facility was installed in 2019 after the project was identified in the 2012 CIP. Installation of a generator at the Martis Valley No. 1 Well was also scheduled in the 2012 CIP but has not yet been installed. Installation of the Martis Valley No. 1 production facility generator is scheduled to be installed in 2021 as a high priority project in the 2021 CIP.

Planning for generator installation projects at water production facilities will depend upon the level of water use restrictions the District is willing to impose on customers during a 7-day power outage event. Assumptions for how full system tanks are at the onset of a power outage also play a critical role in planning for water production facility generator installations. Table 10 summarizes current water production site generator status throughout the system.

Table 10: Generator Status at System Water Production Sites

Well Site	Production Capacity (MGD)*	Generator Status
Airport	1.95	Existing
Glenshire Drive	2.62	None
Martis Valley No. 1	2.23	Planned
Sanders	0.41	None
Prosser Village	1.16	Existing
Old Greenwood	1.30	None
Prosser Annex	0.72	None
Prosser Heights	0.60	None
No. 20	0.89	None
Northside	0.83	None
Hirschdale	0.050	None
Total System Capacity	**13.21 MGD**	
Generator Capacity	**5.34 MGD**	

***** Production Capacities taken from the Inter-Zone Water Transfers 2018 Water Demands Figure. Airport well production when running on generator reduced by half since existing generator supplying well and pump station does not have power to run both facilities at maximum capacity.

During a power outage, the Airport and Prosser Village Wells can produce 3.11 MGD. Existing power outage production capacity exceeds the 1.25 MGD difference between demand and full tank storage volume for WDD. However, the difference between demand and full tank storage volume for Stage 3 Water Conservation demands and MDD cannot be met.

The addition of the planned generator installation at the Martis Valley No. 1 Well allows power outage system production to make up the difference between demand and full tank (4.04 MGD) or half full tank (4.65 MGD) storage in the Stage 3 Water Conservation scenario. However, even with the addition of the generator at the Martis Valley No. 1 Well, production cannot match the difference between full tank storage

volume and demand for MDD conditions. Additional wells would require generator installation to satisfy an MDD scenario.

As previously discussed in Section 4.1.2, if all storage tanks are full the MDD requires an additional 3.17 MGD from well production. With the addition of the Martis Valley No. 1 Well generator, an additional 2.23 MGD is provided, reducing the production need to 0.94 MGD. The Old Greenwood Well site, with the production rate of 1.30 MGD, is the ideal well that could make up the difference to fully supply the District during MDD conditions through a power outage. Glenshire Well would also suffice, but is much larger, would have excess capacity, and require a larger generator.

To meet MDD conditions with tanks half full during a power outage, generators would need to be installed at production facilities producing a minimum of 1.57 MGD of supply in addition to the production capacities of the Airport, Prosser Village, and Martis Valley No. 1 Well sites. Currently the Glenshire Well, with a production rate of 2.62 MGD, appears to be the only well capable of producing the supply necessary to meet MDD conditions with tanks half full. Therefore, the District should consider implementing procedures to fill tanks ahead of conditions which may warrant a power outage.

The District may consider implementing a Stage 3 Water Conservation directive to its customers during emergency power outages rather than installing an additional permanent generator at a fourth well site to satisfy MDD. The capital cost for a generator at a fourth production facility may not justified to supply MDD during power outages.

5.0 COST ESTIMATING CRITERIA

The preparation of the CIP's current and future cost estimates includes the development of specific individual project costs and average unit pricing for future (non-specific) projects. Individual cost estimates were developed for new projects identified from regulatory or power outage impacts and uncompleted 2012 CIP projects. Evaluation of multiple criteria to create average universal unit rates was performed which the District can utilize for budgeting purposes for both near term and long-term project costs for non-specific projects. The cost estimates include a cost basis analysis and a cost factor analysis.

A cost basis analysis involves the review of previous unit pricing as well as direct cost factors that affect the baseline cost of the work. This includes the evaluation of special factors that affect the unit price or scopes of work that do not have recent cost history. Cost basis analysis incorporates the following:

- Average unit price of previous District items of similar scope,
- Comparison of average unit price of items of similar scope from neighboring jurisdictions,
- Detailed cost estimates of items without recent cost history, and
- Current material pricing, labor rates, equipment rates, and operation costs.

Special factors and considerations include areas with an increased number of residential services (reduced productivity), high traffic areas, ROW crossings and encroachment situations, and uncommon or unique scopes of work.

Cost factor analysis is the evaluation of escalation, fee, and overhead factors that result in multipliers to the base cost. The analysis incorporates projected overhead fees on completed work, projected fee/profit based on current market and competition projects, labor escalations including short term (known) and long term (projection), equipment escalation, and material escalation. A detailed cost analysis of the specific and most frequent bid items was performed using the following basis shown in Table 11 for cost estimating.

Table 11: Cost Analysis Basis*

Cost Basis	Inclusions
Labor	Labor includes the wages, benefits, and taxes associated with separate trade classifications. Examples include laborer, equipment operator, and carpenter trades. Prevailing wage rates, Davis-Bacon wage rates, and Union wage scale are evaluated to determine hourly labor cost.
Equipment	Equipment rates include the typical rental equipment rates for heavy equipment, as well as fuel consumption, wear parts, and routine maintenance and preventative care. These criteria are utilized to determine operated equipment hourly costs.
Material**	Material pricing for pipe, valve, fittings, and accessories are provided from local wholesale and retail suppliers.

* All cost basis criteria are based on Q1-2020 data and no escalation is applied in the initial cost evaluation.

** Considerations for material cost analysis included current unit price rates from material suppliers in the Reno/Tahoe/Truckee market with applicable submittals, certifications, delivery, and sales tax.

Using the cost basis information, a detailed estimate was created based on the average daily productivity from location conditions and industry practice. The estimate includes all costs of the work associated with a complete installation or rehabilitation. A pipeline would include, for example, sawcutting, AC removal and disposal, excavation, pipeline installation, backfill, grading, street restoration, and associated traffic control. Productivity would vary based on the number of service laterals or anticipated encumbrances and size of pipe. Percentage allocation of valves and service laterals/meters are included. A project overhead factor is included, as well as a factor for anticipated profit. Standard percentages for mobilization, contingency, engineering, inspection, legal, and permitting were used. No land acquisition fees were assumed or included. Generally, the applied contingency is 10%; however, a 20% contingency was used for well replacement projects due to a higher likelihood of additional work developing when pump assemblies are removed from the well. Planning level cost estimates for proposed projects are included in Appendix D.

The detailed cost estimate was created using HCSS Heavy-Bid estimating software. A copy of each project's cost estimate detail is included in Appendix E. Database productivity software was not used due to the program's lack of ability to accurately represent the local conditions, market, and labor challenges. The cost basis unit price was evaluated against the unit prices from recent bids from within the District's system, as well as neighboring jurisdictions. The cost estimate was used to evaluate known escalation percentages for labor and materials in the near term and the impact on the overall cost so an escalation factor can be determined and included for subsequent years. A year over year escalation factor of 4.0% was applied to the longer-term projects, as well as an increased contingency factor. A breakdown of the year over year (YOY) escalation is shown in Table 12.

Table 12: 4.0% Escalation Factor Breakdown

Cost Type	% of Total	% Increase	% of Total Increase	Notes
Labor	25%	4%	1.00%	Labor market is expected to grow based on supply and demand of labor. Indicators based on union wage negotiations show 2% - 7.5% YOY increases to base wage, as well as fringe benefit packages consistently across all trades.
Equipment	15%	3%	0.45%	Equipment costs are expected to have modest YOY growth as newer equipment is acquired with advanced tiered engine emissions standards, as well as increased costs for maintenance (labor).
Materials	40%	5%	2.00%	Material costs can fluctuate greatly as innovations and varying raw material costs push cost up and down. Long term growth is typically 2.0 % - 3.0%, however, raw material costs have been steady for extended periods of time and are expected to increase. Upward pressure on production and delivery labor will have a greater impact on material costs.
Overhead*	10%	4%	0.40%	Overhead costs will increase as indirect labor and materials increase, as well as regulatory standards continue to progress.
Fee/Profit	10%	0%	0.00%	Assume profit margins remain constant.
	100%		**3.9%**	
			4.0% YOY Escalation	

***** Future projections incorporate anticipated higher levels of effort required for additional safety personnel, supplies and reporting, environmental personnel and reporting, and payroll systems and certification. These factors have increased direct project overhead as a percentage from approximately 7-10% over the past 15-20 years, based on experience.

Cost estimates were prepared using a weighted average unit price. Due to the numerous factors that affect unit pricing, as well as variations in the bid tabs, if no recent unit prices were available, the estimated unit price was used. This unit pricing was incorporated into major items that could be quantified. Allowances were included in each project estimate to create a total cost for each identified project and to create a baseline estimate for projects which are similar in nature, such as storage tank coating or PRV replacement. Projects such as well or pump station rehabilitation and emergency generator installation are unique to the size of the pumps, flow rates, horsepower, and electrical demands in both MDD and WDD conditions. These variations make generalizing project costs difficult and produce inaccurate results. For this reason, well pump, pump station, and emergency generator projects have been identified separately and individual budgets have been created.

Emergency generators typically have an integral fuel storage tank capable of providing average run times for 12 – 24 hours depending on the engine load. In a prolonged outage, this may not be sufficient. It is recommended the District develop a plan for daily fueling or additional fuel storage capacity. Sizing of fuel tanks will depend on the expected outage duration, fuel demands for the anticipated outage, and desired frequency of fueling. Alternately, a central fuel storage facility may be considered with mobile fueling equipment and internal fuel delivery. Both options are accompanied by initial capital and periodic

maintenance costs. Initial budgetary costs are between $10 - $12 per gallon of fuel storage for fixed site storage.

6.0 10-YEAR CAPITAL IMPROVEMENT PLAN

Farr West produced an updated 10-year CIP for the District spanning the years 2021-2030. The 2021 CIP is largely based on information from the 2012 CIP, input from the District, and analysis performed as part of the project scope. Projects included in the CIP were established from the following sources:

1. Include 2012 CIP projects scheduled between the years 2012-2030 which have not been constructed. Exclude projects not completed within the 2012 CIP that were originally proposed to accommodate additional capacity to serve growth.
2. Add projects determined to be necessary resulting from the review of regulatory impacts or power outage analysis.
3. Incorporate additional projects as directed by the District.

Assumptions regarding project scope (for both specific and generic projects) were presented to and confirmed by the District. When evaluating the system during a 7-day power outage event, the assumption was that the system goal is to provide water to all customers during a power outage scenario. However, depending on the length of a power outage, supply to large irrigation services may be suspended. Service priority will be to provide water to all residential customers for domestic use during a power outage scenario. The District provided guidance on the remaining projects that were of higher priority. High priority projects not completed from the 2012 CIP include the Martiswoods pump station replacement and tower demolition, installing permanent stand-by generators at Martis Valley No. 1 Well, Donner Trails pump station, Soma Sierra pump station, and the West Palisades Hydropneumatic pump station.

The updated CIP incorporates the District's preferences for adding projects, project prioritization, and project frequency, including targeting three tank rehabilitations per year, two pump station rehabilitations each year, one well rehabilitation per year, and highest priority for the Martiswoods pump station replacement and other generator projects. Projects were prioritized using the following classifications:

1. High priority projects shall be considered critical to the continued operation of the water system and the ability of the District to provide water services to its customers.
2. Medium priority projects shall be considered necessary to comply with regulatory requirements and maintain the current condition of the existing water system assets.
3. Low priority projects represent all other projects shall be considered low priority.

6.1 PUMP STATIONS

Pump station projects were included in two categories: complete replacement, and pump and motor assembly replacement. Pump and motor replacements are included for all pump stations not being replaced during the 2021 CIP timeframe. Select pump stations have been chosen by the District to be completely replaced. Complete replacement includes replacement of buildings, pumps and motors, associated piping, valving, generators, meters, telemetry, VFDs, PLC, and SCADA systems to improve efficiency. Pump and motor replacement (whether as a standalone project or facility replacement) is assumed to require the same number of pumps and total horsepower for the pump station. Hydropneumatic pump stations were based on the skid mounted pump station example by R.F. MacDonald Company supplied by the District, as well as a permanent generator to ensure customer supply during a power outage event. Based on existing District generator inventory, it is assumed new generators will be Cummins brand and housed in a weatherproof enclosure not within a building.

As part of the 2012 CIP, the District had proposed to convert the existing Martiswoods pump station into a hydropneumatic pump station and demolish the Martiswoods Tower storage tank, as well as upgrade the West Palisades hydropneumatic pump station. Both projects are considered a high priority of the District and are proposed to be completed in 2021. To comply with regulatory impacts, the projects include the

installation of a permanent stand-by generator. Additional pump station projects requested by the District include rehabilitation of the Pinnacle hydropneumatic pump station and Innsbruck pump station, proposed to be completed in 2025 and 2029, respectively. The construction costs for the projects mentioned include specific individual budgets.

The Donner Trails and Soma Sierra pump stations emergency power is currently served by a mobile, trailer mounted generator. Installing permanent stand-by generators at both sites was proposed as part of the 2012 CIP. Since the District owns existing trailer mounted generators dedicated to these facilities, the District should investigate the possibility of converting the trailer mounted generator units to permanent units. These two generators are sized for two of the larger pump stations within the system and would be oversized if used as mobile, trailer mounted generators. The District could possibly purchase a new mobile generator that could be smaller in size. Nevertheless, the cost estimate for a permanent generator to be installed at both sites in 2021 is based on the purchase of a new generator.

It is recommended the District install a new permanent generator at the Gateway Hydropneumatic pump station to prepare for Public Safety Power Shutoffs. This project is considered to stem from regulatory changes and is proposed to be completed in 2021.

6.2 STORAGE TANKS

Storage tank rehabilitation can include internal and external coating replacement, various appurtenance maintenance, or structural and seismic upgrades to meet current seismic code. Current tank conditions are unknown and individual assessments were not performed for this technical memorandum. A generic approach based on the average size tank in the system was utilized to determine rehabilitation costs per year.

The District's system currently has 31 active storage tanks which range in capacity from 100,000 gallons to 1,500,000 gallons. The average tank capacity is 240,000 gallons. The storage tank inventory excludes Martiswoods Tower, which is planned for demolition when the Martiswoods pump station is converted to a hydropneumatic pump station. Of the 31 tanks in the system, 24 were constructed prior to 1990. Storage tanks within this category are assumed to require both interior and exterior coating, as well as seismic retrofitting, and are planned for rehabilitation at the rate of three per year from 2021 to 2028. The six tanks constructed between 1990 to 1999 are assumed to only need interior and exterior coatings. The tanks are planned for rehabilitation at three per year in 2029 and 2030. The two tanks constructed after 2000 are not included in the 10-year CIP.

It is recommended the District implement a storage tank condition assessment program prior to prioritizing older tanks for rehabilitation due to lack of condition records. The program should include, but is not limited to, assessing the exterior coating by performing adhesion and lead paint tests, examining the roof for rusted areas, and performing a dive inspection to assess the interior coating condition. The District should rehabilitate and retrofit individual tanks as part of one project to minimize disturbance on new tank coatings and facilities.

6.3 WELL SITES

Well rehabilitation can vary from pump and motor replacement to full above ground facility replacement. Full facility replacements include the pump, motor, and cable assembly as well as any above ground facilities including the building and sodium hypochlorite dosing system.

It is assumed only potable wells will require any rehabilitation. Generator additions and rehabilitation can vary from installing generators at critical facilities for emergency power to general maintenance. Based on existing District generator inventory, it is assumed new generators will be Cummins brand and housed in a weatherproof enclosure, not within a building.

The District identified that the Northside Well and Sanders Well are planned for above ground facility replacements in 2023 and 2027, respectively. During facility replacement, it is assumed the existing pumps

and motors will be replaced and have been factored into the cost estimate. The Airport Well's well bore and casing are not completely vertical and there is significant offset in the casing. As a result, the Airport Well is on a five-year cycle for pump and motor replacement, which is proposed for rehabilitation in 2022 and 2027.

The eight remaining active potable wells in the system are each proposed to undergo a pump and motor replacement within the next 10 years. Cost estimates were formed based on three well capacity categories: 300 to 500 GPM, 600 to 1,000 GPM, and 1,200 to 1,500 GPM. Pump and motor replacements were prioritized based on well production rates, with the highest producing wells undergoing replacement in the earlier years. It is recommended the District evaluate the condition of each well site and prioritize rehabilitation based on the useful life of each pump and motor and reorder the project as needed.

6.4 PIPELINE REPLACEMENT

A condition assessment of existing pipeline infrastructure was not performed, and leak data was not provided. For planning purposes, replacement pipeline costs have been calculated for 4", 6", 8", 10", and 12" DR 14 Class 305 PVC C900 in residential neighborhoods with basic traffic control requirements and a fixed amount of service connections per linear foot of pipe.

The District currently accepts the installation of both PVC and ductile iron pipe. Table 13 compares the single bid item cost per linear foot between Ductile Iron and the District's preferred PVC pipe.

Table 13: Ductile Iron (DI) Pipe vs. DR 14 Class 305 C900 Cost Comparison

Description	Unit	PVC Cost	% Increase for DI	Ductile Iron Cost
4" Water Main	LF	$76.00	74%	$132.24
6" Water Main	LF	$116.00	37%	$158.92
8" Water Main	LF	$170.00	29%	$219.30
10" Water Main	LF	$176.00	28%	$225.28
12" Water Main	LF	$208.00	24%	$257.92

The proposed linear footage for each year that includes replacement projects was derived from the average length of pipeline replaced by the District between 2014 and 2018. These projects included installation of 8" and 12" water main at an average length of 3,300 LF and 550 LF, respectively. Table 14 compares the generic complete average cost to install a new water main. A detailed cost breakdown of the difference between water main sizes is included in Appendix E.

Table 14: All-In Average Cost for DR 14 C900 PVC Water Main Replacement

Description	Cost per LF	Notes
4" Water Main	$564.87	Includes mobilization, pipe material, water services, fire hydrants, system connections, rock excavation, AC pavement and base material, miscellaneous work, and contingencies
6" Water Main	$632.79	
8" Water Main	$648.75	
10" Water Main	$734.66	
12" Water Main	$738.51	

It is recommended the District maintain the pipeline replacement program to comply with Making Conservation and CA Way of Life (AB 1668/SB 606) and limit system water loss through leaking infrastructure. It is also recommended the District evaluate the condition of each potential water main

replacement and prioritize rehabilitation based on the useful life and maintenance requirements and reorder the project as needed. The average length of pipe to derive the presented costs should be used with caution and economy of scale factors should be considered. If a project contains significantly less linear feet or other parameters change that will slow production, the average unit price will increase.

6.5 CONTROL VALVE STATIONS

The District currently has 40 control valve stations throughout the Truckee System, with six being inactive. The inactive control valves are not included in the 10-year CIP. The District provided a target budget of $100,000 per year for control valve rehabilitation. Rehabilitations at a rate of four per year from 2021 to 2024 and three per year from 2025 to 2030 will allow the District to perform maintenance on all active control valves in the system while meeting the target budget.

The District had proposed three new Pressure Relief Valve (PRV) stations as part of the 2012 CIP. The Hirschdale PRV is proposed to be installed in conjunction with the Hirschdale connection pipeline in 2022. The Oberwald and Pathway PRV stations are proposed to be completed in 2023.

6.6 COST ESTIMATES AND BUDGET

Cost estimates for existing and new projects are based on 2020/2021 labor, equipment, and material costs. Projects proposed from 2022 to 2030 were applied with a year over year escalation factor of 4.0%. The District provided a target yearly budget of $2,250,000 for CIP Projects. This target budget was intended as a guideline to use to distribute projects throughout the duration of the CIP. However, the CIP was developed primarily based on given factors (i.e. project requests, frequency, etc.) for the purposes of aligning with initial direction held by the District. The 2021 – 2030 Capital Improvement Project List is displayed in Table 15.

Based on discussion with District Staff, system buildout projections are less than estimated in the 2012 Water System Master Plan. Projects included in the 2021 CIP will address maintenance and operational needs of existing District infrastructure. Projects to address maintenance and operations needs are expected to be rate funded.

Calculated costs for all projects desired to be completed by the District in the 2021-2030 CIP greatly exceed the target budget. Average yearly cost of the 2021-2030 CIP is approximately $7,000,000 including all projects, assumptions, and inflation. The average yearly cost is an equivalent cost representing a distribution of project costs evenly during the 10-year CIP period. Upon review and consideration by the District, the CIP may be revised, reordered, and modified to better align with District financial needs. Actual yearly expenditures for CIP projects could vary greatly from year to year based on District preference.

Appendix A
Upcoming Regulations

Potential Regulatory Impacts for TDPUD CIP Planning		
Regulatory Origin	**Nature of the Requirement**	**Timing of Requirement**
Local Regulations		
T-TSA/TSD	Temporary discharge permit to flush water mains into the sewer from TSD and TTSA (chlorine residual in excess of 100 mg/L prohibited - TTSA Ordinance 2-2015), neighborhoods with no sanitary sewer system will need to flush into water trucks for delivery to T-TSA	**Ongoing**
Stormwater protection	Stormwater protection under an NPDES permit may be necessary to protect Truckee River	**Ongoing**
State Regulations		
General Permit for Discharges from Drinking Water Systems	Permits discharge of drinking water for water system operation, maintenance, and construction	**Ongoing**
Urban Water Management Plans (Water Code Section 10610-10656)	Water shortage contingency plan, water loss audits	1-Jul-2021
Making Conservation a CA Way of Life (AB 1668/SB 606)	Proposed reporting requirements: Residential-Gallons Per Capita per Day (R-GPCPD)	Proposed
Making Conservation a CA Way of Life (AB 1668/SB 606)	Urban Water Use Efficiency Standards	1-Jan-2021
Making Conservation a CA Way of Life (AB 1668/SB 606)	Annual Water use reporting including estimated indoor and outdoor residential use, irrigation and landscaping dedicated meter readings, and water losses	1-Nov-2023
Making Conservation a CA Way of Life (AB 1668/SB 606)	Additional water use efficiency standards to be developed and implemented. Water loss control can be addressed through four foundational approaches: Detecting and locating leaks, efficient responses to reported leaks, reducing operational pressure and pressure variations, and prioritizing infrastructure replacement	1-Jan-2027
Making Conservation a CA Way of Life (AB 1668/SB 606)	Require Urban Retail Water Suppliers (URWS) to implement feasible technologies on a system-wide scale to effectively detect and locate leaks, prioritize infrastructure replacement and repair or replace infrastructure cost-effectively. For URWS's that opt for pressure management in part or whole of their system, large-scale implementation of pressure management will be expected in this phase.	2028 - 2035

Potential Regulatory Impacts for TDPUD CIP Planning		
Regulatory Origin	**Nature of the Requirement**	**Timing of Requirement**
Making Conservation a CA Way of Life (AB 1668/SB 606)	Regular monitoring of the distribution system, prioritizing infrastructure replacement and continued repair (and replacement as suitable) for system components. From 2036 onwards, URWS's would be required to comply with their final allowable water loss volume on a three-year average basis with a maximum allowed deviation of 5%	2036 and beyond
2019 Legislative Proposals		
AB 1204	Adoption or amendment of primary drinking water standard equal to or more stringent than federal standards	2 Year Bill
2020 Legislative Proposals - Water Related		
SB 19	Stream Gages: DWR and SWRCB	Unknown
SB 134	Water conservation/water losses. Would prohibit the board from issuing an information order, written notice, or conservation order to an urban retail water supplier that does not meet its urban water use objective if the board determines the URWS is not meeting its urban water use objective solely because the volume of water loss exceeds the urban retail water supplier's standard for water loss and the board is taking enforcement action against the urban retail water supplier for not meeting the performance standards for the volume of water losses.	Unknown
SB 646	Local agency utility services: extension of utility services. Would revise the definition of "fee" to mean a fee for the physical facilities necessary to make a water connection or sewer connection, and that the estimated reasonable cost of labor and materials for installation of those facilities bears a fair or reasonable relationship to the payor's burdens on, or benefits received from, the water connection or sewer connection.	Unknown
SB 779	Bill would authorize the SWRCB board, after a hearing, to change any other provision or condition of a permit or licenses to appropriate water.	Unknown
SB 946	Local Flood Protection Plans requirement	Unknown
SB 996	SWRCB: Constituents of emerging concern- water quality standards	Unknown
AB 352	Wildfire Prevention, Safe Drinking Water, Drought Preparation, and Flood Protection Bond Act of 2020	Unknown

Potential Regulatory Impacts for TDPUD CIP Planning		
Regulatory Origin	**Nature of the Requirement**	**Timing of Requirement**
AB 756/AB 841	Public water systems: perfluoroalkyl substances and polyfluoroalkyl substances.	Unknown
AB 1180	Water, recycled water: backflow prevention requirements	SWRCB make regs prior to 1/1/2023: under Title 22 CCR
AB 1414	Urban Retail Water Suppliers: reporting	Water loss audit reports would be due on or before Oct 1, 2023 or January 1, 2024
AB 1432	Water Shortage Emergency: water supplier can declare a shortage in emergency conditions of wildfire w/out a hearing	Unknown
AB 1588	Drinking water and wastewater operator certification programs. Gives reciprocity/equivalence for military status in hiring	Unknown
AB 2060	Drinking water: pipes and fittings, lead content. Would define "lead free," for purposes of manufacturing, industrial processing, or conveying or dispensing water for human consumption, to mean not more than one microgram of lead under certain tests and meeting a specified certification when used with respect to end-use devices.	Unknown
AB 2324	Proposes to repeal current provisions requiring DWR to make recommendations to SWRCB for studies and investigations and report to legislature by 1/1/2020.	Unknown
2020 Legislative Proposals - Electrical Related		
SB 49	Energy: appliance standards and State Water Project assessment	Assessment and recommendations be provided to the appropriate policy committees of the Legislature before January 1, 2022.
SB 70/SB 167	Electricity: undergrounding of electrical infrastructure, wildfire mitigation plan	Unknown

Potential Regulatory Impacts for TDPUD CIP Planning		
Regulatory Origin	**Nature of the Requirement**	**Timing of Requirement**
SB 774	Electricity: microgrids. Would require each electrical corporation to collaborate with the Office of Emergency Services, and local governments and other interested parties in its service territory, to identify locations where sources of back-up electricity may provide increased electrical distribution grid resiliency	Unknown
AB 2182	Emergency back up generators: water and wastewater facilities exempt from regulation EXCEPT by the NFPA 110 standards	Unknown
Federal Changes		
US EPA	Water quality standards changes including perchlorate levels	Currently Ongoing
US EPA Clean Water Act	Changes to definition of "Waters of the United States"	Currently Ongoing

Appendix B
Modified System HGL Exhibit

* Sierra Soma and Donner Trails have trailer generators

* Water use not covered by a storage tank over a 7 day period
TOTAL SYSTEM WIDE = 8,775,000 gal → 1.25 MGD

NOTES
1) Storage Tanks and Pressure Zone Service Areas are Shown to the Proper Elevations
2) Pump Stations, Wells, Control Stations and Piping are Not Shown to the Proper Elevations

MDD - number of days the tank(s) can serve the zone during summer peak

Tank(s) can serve immediate zones for 7 days during WDD
Generator (existing)
Generator (needed)

TRUCKEE DONNER Public Utility District

Figure 3-1
Existing System Schematic

Appendix C
System Storage Assessment

MAX DAY DEMAND AND STORAGE ANALYSIS

			* TANKS AT FULL CAPACITY				* HALF CAPACITY	
Tank	**Zone**	**Total Storage Capacity (MG)**	**MDD (MGD)**	**Total MDD (MGD)**	**MDD Days**	**Additional MDD Volume (MG)**	**MDD Days**	**Additional MDD Volume (MG)**
6170, Sierra Meadows	6170/Sierra Meadows	2	1.328	1.700	1.03	10.15	0.51	11.03
	6040/Olympic Heights		0.205					
	Riverview		0.166					
	Gateway/Chez Hydro		0.001					
Northside	Town	0.40	0.189	0.189	2.12	0.92	1.06	1.12
Gateway, Donner Trails	Gateway	0.75	0.700	0.700	1.07	4.15	0.54	4.53
Armstrong	Armstrong	0.10	0.064	0.064	1.56	0.35	0.78	0.40
DL-6323	Donner Lake-6323	0.30	0.108	0.198	1.52	1.09	0.76	1.24
	Donner Lake-NE		0.066					
	Coldstream 6080		0.024					
Wolf Estates	Donner Lake-6124	0.23	0.260	0.275	0.84	1.70	0.42	1.81
	Red Mountain Hydro		0.004					
	Wolfe Hydro		0.011					
Sitzmark, Falcon Point, Innsbruck	Innsbruck	0.60	0.388	0.442	1.36	2.49	0.68	2.79
	Sitzmark Hydro		0.018					
	Bennett Flat		0.036					
Roundhill, Herringbone, Stockholm	Stockholm	0.92	0.615	0.731	1.26	4.20	0.63	4.66
	Trout Creek 6550		0.003					
	Alder Creek		0.012					
	Hillside		0.100					
	Roundhill Hydro		0.001					
Pinnacle	Pinnacle	0.18	0.080	0.116	1.55	0.63	0.78	0.72
	Pinnacle Hydro		0.036					
Donner View, Ski Lodge	Donner View	0.70	0.414	0.465	1.51	2.56	0.75	2.91
	Heidi Way		0.038					
	Donner View Hydro		0.013					
Prosser Lakeview	Lower Lakeview	0.25	0.217	0.217	1.15	1.27	0.58	1.39
Ponderosa Palisades	Ponderosa Palisades	0.40	0.412	0.512	0.78	3.18	0.39	3.384
	West Palisades Hydro		0.005					
	Palisades Hydro		0.032					
	Martiswoods		0.063					
Glenshire Lower	Glenshire 2	0.74	1.218	1.312	0.56	8.45	0.28	8.82
	Waterloo		0.052					
	Icknield		0.042					
Soma Sierra	Some Sierra	0.20	0.013	0.028	7.14	-0.004	3.57	0.096
	Donner Trails		0.015					
Ski Run	Upper Ski Run	0.10	0.000	0.013	7.69	-0.009	3.85	0.041
	Lower Ski Run		0.013					
Glacier	Glacier	0.15	0.029	0.061	2.46	0.28	1.23	0.35
	Upper Skislope		0.015					
	Middle Skislope		0.009					
	Lower Skislope		0.008					
Prosser Annex, Prosser Heights	Prosser Heights/Upper Lakeview	0.43	0.201	0.22	1.97	1.10	0.99	1.31
	Heights Hydro		0.017					
Glenshire Upper	Glenshire 1	0.49	0.283	0.28	1.74	1.49	0.87	1.74
Hirschdale	Hirschdale	0.10	0.013	0.01	7.63	-0.0083	3.82	0.042
			System MDD Additional Production (MGD/day)			**6.28**		**6.91**

WINTER DAY DEMAND AND STORAGE ANALYSIS

			* TANKS AT FULL CAPACITY			
Tank	**Zone**	**Total Storage Capacity (MG)**	**WDD (MGD)**	**Total WDD (MGD)**	**WDD Days**	**Additional WDD Volume (MG)**
6170, Sierra Meadows	6170/Sierra Meadows	2	0.464	0.570	3.07	2.24
	6040/Olympic Heights		0.042			
	Riverview		0.063			
	Gateway/Chez Hydro		0.001			
Northside	Town	0.40	0.121	0.121	3.31	0.45
Gateway, Donner Trails	Gateway	0.75	0.289	0.289	2.60	1.27
Armstrong	Armstrong	0.10	0.041	0.041	2.44	0.19
DL-6323	Donner Lake-6323	0.30	0.029	0.121	2.48	0.55
	Donner Lake-NE		0.037			
	Coldstream 6080		0.055			
Wolf Estates	Donner Lake-6124	0.23	0.081	0.085	2.71	0.37
	Red Mountain Hydro		0.002			
	Wolfe Hydro		0.002			
Sitzmark, Falcon Point, Innsbruck	Innsbruck	0.60	0.172	0.192	3.13	0.74
	Sitzmark Hydro		0.003			
	Bennett Flat		0.017			
Roundhill, Herringbone, Stockholm	Stockholm	0.92	0.257	0.295	3.12	1.15
	Trout Creek 6550		0.001			
	Alder Creek		0.002			
	Hillside		0.034			
	Roundhill Hydro		0.001			
Pinnacle	Pinnacle	0.18	0.025	0.040	4.50	0.10
	Pinnacle Hydro		0.015			
Donner View, Ski Lodge	Donner View	0.70	0.135	0.162	4.32	0.43
	Heidi Way		0.020			
	Donner View Hydro		0.007			
Prosser Lakeview	Lower Lakeview	0.25	0.070	0.070	3.57	0.24
Ponderosa Palisades	Ponderosa Palisades	0.40	0.064	0.078	5.13	0.15
	West Palisades Hydro		0.001			
	Palisades Hydro		0.007			
	Martiswoods		0.006			
Glenshire Lower	Glenshire 2	0.74	0.220	0.235	3.14	0.91
	Waterloo		0.009			
	Icknield		0.006			
Soma Sierra	Some Sierra	0.20	0.007	0.010	20.00	-0.13
	Donner Trails		0.003			
Ski Run	Upper Ski Run	0.10	0.000	0.002	50.00	-0.086
	Lower Ski Run		0.002			
Glacier	Glacier	0.15	0.009	0.020	7.50	-0.01
	Upper Skislope		0.006			
	Middle Skislope		0.002			
	Lower Skislope		0.003			
Prosser Annex, Prosser Heights	Prosser Heights/Upper Lakeview	0.43	0.049	0.055	7.82	-0.045
	Heights Hydro		0.006			
Glenshire Upper	Glenshire 1	0.49	0.070	0.070	7.03	-0.002
Hirschdale	Hirschdale	0.10	0.006	0.006	16.67	-0.058
			System WDD Additional Production (MGD/day)			**1.25**

STAGE 3 WATER CONSERVATION DEMAND AND STORAGE ANALYSIS

			* TANKS AT FULL CAPACITY STAGE 3 CONSERVATION				* HALF CAPACITY	
Tank	**Zone**	**Total Storage Capacity (MG)**	**S3C (MGD)**	**Total S3C (MGD)**	**S3C Days**	**Additional S3C Volume (MG)**	**S3C Days**	**Additional S3C Volume (MG)**
6170, Sierra Meadows	6170/Sierra Meadows	2	1.328	1.19	1.47	6.58	0.74	7.46
	6040/Olympic Heights		0.205					
	Riverview		0.166					
	Gateway/Chez Hydro		0.001					
Northside	Town	0.40	0.189	0.13	3.02	0.53	1.51	0.73
Gateway, Donner Trails	Gateway	0.75	0.700	0.49	1.53	2.68	0.77	3.06
Armstrong	Armstrong	0.10	0.064	0.04	2.23	0.21	1.12	0.26
DL-6323	Donner Lake-6323	0.30	0.108	0.14	2.16	0.67	1.08	0.82
	Donner Lake-NE		0.066					
	Coldstream 6080		0.024					
Wolf Estates	Donner Lake-6124	0.23	0.260	0.19	1.19	1.12	0.60	1.23
	Red Mountain Hydro		0.004					
	Wolfe Hydro		0.011					
Sitzmark, Falcon Point, Innsbruck	Innsbruck	0.60	0.388	0.31	1.94	1.57	0.97	1.87
	Sitzmark Hydro		0.018					
	Bennett Flat		0.036					
Roundhill, Herringbone, Stockholm	Stockholm	0.92	0.615	0.512	1.80	2.66	0.90	3.12
	Trout Creek 6550		0.003					
	Alder Creek		0.012					
	Hillside		0.100					
	Roundhill Hydro		0.001					
Pinnacle	Pinnacle	0.18	0.080	0.08	2.22	0.39	1.11	0.48
	Pinnacle Hydro		0.036					
Donner View, Ski Lodge	Donner View	0.70	0.414	0.33	2.15	1.58	1.08	1.93
	Heidi Way		0.038					
	Donner View Hydro		0.013					
Prosser Lakeview	Lower Lakeview	0.25	0.217	0.15	1.65	0.81	0.82	0.94
Ponderosa Palisades	Ponderosa Palisades	0.40	0.412	0.36	1.12	2.11	0.56	2.3088
	West Palisades Hydro		0.005					
	Palisades Hydro		0.032					
	Martiswoods		0.063					
Glenshire Lower	Glenshire 2	0.74	1.218	0.92	0.80	5.69	0.40	6.06
	Waterloo		0.052					
	Icknield		0.042					
Soma Sierra	Some Sierra	0.20	0.013	0.02	10.20	-0.0628	5.10	0.0372
	Donner Trails		0.015					
Ski Run	Upper Ski Run	0.10	0.000	0.01	10.99	-0.0363	5.49	0.0137
	Lower Ski Run		0.013					
Glacier	Glacier	0.15	0.029	0.04	3.51	0.15	1.76	0.22
	Upper Skislope		0.015					
	Middle Skislope		0.009					
	Lower Skislope		0.008					
Prosser Annex, Prosser Heights	Prosser Heights/Upper Lakeview	0.43	0.201	0.15	2.82	0.64	1.41	0.85
	Heights Hydro		0.017					
Glenshire Upper	Glenshire 1	0.49	0.283	0.20	2.48	0.89	1.24	1.14
Hirschdale	Hirschdale	0.10	0.013	0.01	10.91	-0.03581	5.45	0.014
			System MDD Additional Storage (MGD)			**4.04**		**4.65**

Appendix D
Planning Level Cost Estimates

Martiswoods Pump Station Replacement/Remove Tower					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 23,750.00
2	1	LS	Demo Exist Tower	$ 50,000.00	$ 50,000.00
3	1	LS	Sitework	$ 40,000.00	$ 40,000.00
4	1	LS	Hydropneumatic Pump Stataion	$ 180,000.00	$ 180,000.00
5	240	SF	Pump Station Building	$ 500.00	$ 120,000.00
6	1	LS	Emergency Generator	$ 35,000.00	$ 35,000.00
7	1	LS	Electrical	$ 50,000.00	$ 50,000.00
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
				Total Construction Estimate	$ 498,750.00
				Contingency (10%)	$ 49,875.00
				Engineering/Planning (10%)	$ 49,875.00
				Engineering Inspection (20%)	$ 119,700.00
				Land Acquisition	$ -
				Legal (5%)	$ 24,937.50
				Permitting (5%)	$ 24,937.50
				TOTAL	**$ 768,075.00**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Install Standby Generator at Martis Valley Well					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 13,250.00
2	1	LS	Sitework	$ 15,000.00	$ 15,000.00
3	1	LS	350 kW Generator	$ 220,000.00	$ 220,000.00
4	1	LS	Electrical	$ 30,000.00	$ 30,000.00
5					$ -
6					$ -
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
				Total Construction Estimate	$ 278,250.00
				Contingency (10%)	$ 27,825.00
				Engineering/Planning (10%)	$ 27,825.00
				Engineering Inspection (20%)	$ 66,780.00
				Land Acquisition	$ -
				Legal (5%)	$ 13,912.50
				Permitting (5%)	$ 13,912.50
				TOTAL	**$ 428,505.00**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Install Standby Generator at Donner Trails and Soma Sierra					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 42,000.00
2	1	LS	Sitework - Donner	$ 50,000.00	$ 50,000.00
3	1	LS	Sitework - Soma Sierra	$ 50,000.00	$ 50,000.00
4	1	LS	550 kW Emergency Generator - Donner	$ 300,000.00	$ 300,000.00
5	1	LS	550 kW Emergency Generator - Soma Sierra	$ 300,000.00	$ 300,000.00
6	1	LS	Electrical - Donner	$ 70,000.00	$ 70,000.00
7	1	LS	Electrical - Soma Sierra	$ 70,000.00	$ 70,000.00
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 882,000.00
				Contingency (10%)	$ 88,200.00
				Engineering/Planning (10%)	$ 88,200.00
				Engineering Inspection (20%)	$ 211,680.00
				Land Acquisition	$ -
				Legal (5%)	$ 44,100.00
				Permitting (5%)	$ 44,100.00
				TOTAL	**$ 1,358,280.00**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

West Palisades Hydropnuematic Pump Station Upgrade					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 14,500.00
2	1	LS	Demolition	$ 30,000.00	$ 30,000.00
3	1	LS	Sitework	$ 30,000.00	$ 30,000.00
4	1	LS	New Pump Station in Vault	$ 165,000.00	$ 165,000.00
5	1	LS	Emergency Generator	$ 25,000.00	$ 25,000.00
6	1	LS	Electrical	$ 40,000.00	$ 40,000.00
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
				Total Construction Estimate	$ 304,500.00
				Contingency (10%)	$ 30,450.00
				Engineering/Planning (10%)	$ 30,450.00
				Engineering Inspection (20%)	$ 73,080.00
				Land Acquisition	$ -
				Legal (5%)	$ 15,225.00
				Permitting (5%)	$ 15,225.00
				TOTAL	**$ 468,930.00**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Install Standby Generator at Gateway Hydro PS					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 4,750.00
2	1	LS	Sitework	$ 10,000.00	$ 10,000.00
3	1	LS	80 kW Generator	$ 65,000.00	$ 65,000.00
4	1	LS	Electrical	$ 20,000.00	$ 20,000.00
5					$ -
6					$ -
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
				Total Construction Estimate	$ 99,750.00
				Contingency (10%)	$ 9,975.00
				Engineering/Planning (10%)	$ 9,975.00
				Engineering Inspection (20%)	$ 23,940.00
				Land Acquisition	$ -
				Legal (5%)	$ 4,987.50
				Permitting (5%)	$ 4,987.50
				TOTAL	**$ 153,615.00**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Hirschdale Connection Pipeline					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 12,480.72
2	2003	LF	4" Water Main	$ 76.00	$ 152,228.00
3	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 13,000.00
4	40	HRS	Rock Excavation	$ 1,500.00	$ 60,000.00
5	500	SF	AC Pavement and Base (Small Patching)	$ 25.00	$ 12,500.00
6	1	LS	All Other Work Required by the Contract Documents	$ 11,886.40	$ 11,886.40
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
				Total Construction Estimate	$ 262,095.12
				Contingency (10%)	$ 26,209.51
				Engineering/Planning (10%)	$ 26,209.51
				Engineering Inspection (20%)	$ 62,902.83
				Land Acquisition	$ -
				Legal (5%)	$ 13,104.76
				Permitting (5%)	$ 13,104.76
				TOTAL	**$ 403,626.48**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Hirschdale PRV					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 1,883.75
2	1	LS	4" PRV	$ 27,000.00	$ 27,000.00
3	4	HRS	Rock Excavation	$ 1,500.00	$ 6,000.00
4	50	SF	AC Pavement and Base (Small Patching)	$ 25.00	$ 1,250.00
5	1	LS	All Other Work Required by the Contract Documents	$ 3,425.00	$ 3,425.00
6					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 39,558.75
				Contingency (10%)	$ 3,955.88
				Engineering/Planning (10%)	$ 3,955.88
				Engineering Inspection (20%)	$ 9,494.10
				Land Acquisition	$ -
				Legal (5%)	$ 1,977.94
				Permitting (5%)	$ 1,977.94
				TOTAL	**$ 60,920.48**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

8" Pipeline from across Donner Pass Rd to South of Fire Station 92					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 9,143.75
2	550	LF	8" Water Main	$ 170.00	$ 93,500.00
3	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 11,916.67
4	28	HRS	Rock Excavation	$ 1,500.00	$ 41,250.00
5	2750	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 27,500.00
6	1	LS	All Other Work Required by the Contract Documents	$ 8,708.33	$ 8,708.33
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
				Total Construction Estimate	$ 192,018.75
				Contingency (10%)	$ 19,201.88
				Engineering/Planning (10%)	$ 19,201.88
				Engineering Inspection (20%)	$ 46,084.50
				Land Acquisition	$ -
				Legal (5%)	$ 9,600.94
				Permitting (5%)	$ 9,600.94
				TOTAL	**$ 295,708.88**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

8" Pipeline from Royal Way to Royal Crest Extension					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 20,107.50
2	1500	LF	8" Water Main	$ 170.00	$ 255,000.00
3	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 13,000.00
4	75	HRS	Rock Excavation	$ 1,500.00	$ 112,500.00
5	100	SF	AC Pavement and Base (Small Patching)	$ 25.00	$ 2,500.00
6	1	LS	All Other Work Required by the Contract Documents	$ 19,150.00	$ 19,150.00
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
				Total Construction Estimate	$ 422,257.50
				Contingency (10%)	$ 42,225.75
				Engineering/Planning (10%)	$ 42,225.75
				Engineering Inspection (20%)	$ 101,341.80
				Land Acquisition	$ -
				Legal (5%)	$ 21,112.88
				Permitting (5%)	$ 21,112.88
				TOTAL	**$ 650,276.55**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

8" Pipeline from Sitzmark to Mougle Lane to extend Sitzmark Hydro Zone					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 6,107.50
2	425	LF	8" Water Main	$ 170.00	$ 72,250.00
3	1	EA	Connection to Existing Pipe	$ 6,500.00	$ 9,208.33
4	21	HRS	Rock Excavation	$ 1,500.00	$ 31,875.00
5	120	SF	AC Pavement and Base (Small Patching)	$ 25.00	$ 3,000.00
6	1	LS	All Other Work Required by the Contract Documents	$ 5,816.67	$ 5,816.67
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
				Total Construction Estimate	$ 128,257.50
				Contingency (10%)	$ 12,825.75
				Engineering/Planning (10%)	$ 12,825.75
				Engineering Inspection (20%)	$ 30,781.80
				Land Acquisition	$ -
				Legal (5%)	$ 6,412.88
				Permitting (5%)	$ 6,412.88
				TOTAL	**$ 197,516.55**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Replace Cross Country Pipeline Between Schussing Way & St Bernard Drive					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 8,203.13
2	475	LF	8" Water Main	$ 170.00	$ 80,750.00
3	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 13,000.00
4	40	HRS	Rock Excavation	$ 1,500.00	$ 60,000.00
5	100	SF	AC Pavement and Base (Small Patching)	$ 25.00	$ 2,500.00
6	1	LS	All Other Work Required by the Contract Documents	$ 7,812.50	$ 7,812.50
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
				Total Construction Estimate	$ 172,265.63
				Contingency (10%)	$ 17,226.56
				Engineering/Planning (10%)	$ 17,226.56
				Engineering Inspection (20%)	$ 41,343.75
				Land Acquisition	$ -
				Legal (5%)	$ 8,613.28
				Permitting (5%)	$ 8,613.28
				TOTAL	**$ 265,289.06**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Airport Well Pump & Motor Replacement					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 4,700.00
2	4	EA	Remove Existing Pumps	$ 5,000.00	$ 20,000.00
3	4	EA	Install New Pump/Motors	$ 16,000.00	$ 64,000.00
4	1	LS	Electrical	$ 10,000.00	$ 10,000.00
5					$ -
6					$ -
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
				Total Construction Estimate	$ 98,700.00
				Contingency (10%)	$ 9,870.00
				Engineering/Planning (10%)	$ 9,870.00
				Engineering Inspection (20%)	$ 23,688.00
				Land Acquisition	$ -
				Legal (5%)	$ 4,935.00
				Permitting (5%)	$ 4,935.00
				TOTAL	**$ 151,998.00**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Oberwald PRV Site Piping					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 1,666.50
2	100	LF	8" Site Piping	$ 150.00	$ 15,000.00
3	1	EA	Tie in to Existing Piping	$ 6,300.00	$ 6,300.00
4	2	HRS	Rock Excavation	$ 1,500.00	$ 3,000.00
5	600	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 6,000.00
6	1	LS	All Other Work Required by the Contract Documents	$ 3,030.00	$ 3,030.00
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
				Total Construction Estimate	$ 34,996.50
				Contingency (10%)	$ 3,499.65
				Engineering/Planning (10%)	$ 3,499.65
				Engineering Inspection (20%)	$ 8,399.16
				Land Acquisition	$ -
				Legal (5%)	$ 1,749.83
				Permitting (5%)	$ 1,749.83
				TOTAL	**$ 53,894.61**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Oberwald PRV					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 2,598.75
2	1	LS	6" PRV (No 2" Bypass)	$ 40,000.00	$ 40,000.00
3	4	HRS	Rock Excavation	$ 1,500.00	$ 6,000.00
4	50	SF	AC Pavement and Base (Small Patching)	$ 25.00	$ 1,250.00
5	1	LS	All Other Work Required by the Contract Documents	$ 4,725.00	$ 4,725.00
6					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 54,573.75
				Contingency (10%)	$ 5,457.38
				Engineering/Planning (10%)	$ 5,457.38
				Engineering Inspection (20%)	$ 13,097.70
				Land Acquisition	$ -
				Legal (5%)	$ 2,728.69
				Permitting (5%)	$ 2,728.69
				TOTAL	**$ 84,043.58**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Pathway PRV Site Piping					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 1,666.50
2	100	LF	8" Site Piping	$ 150.00	$ 15,000.00
3	1	EA	Tie-in to Existing Piping	$ 6,300.00	$ 6,300.00
4	2	HRS	Rock Excavation	$ 1,500.00	$ 3,000.00
5	600	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 6,000.00
6	1	LS	All Other Work Required by the Contract Documents	$ 3,030.00	$ 3,030.00
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
				Total Construction Estimate	$ 34,996.50
				Contingency (10%)	$ 3,499.65
				Engineering/Planning (10%)	$ 3,499.65
				Engineering Inspection (20%)	$ 8,399.16
				Land Acquisition	$ -
				Legal (5%)	$ 1,749.83
				Permitting (5%)	$ 1,749.83
				TOTAL	**$ 53,894.61**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Pathway PRV					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 2,598.75
2	1	LS	6" PRV (No 2" Bypass)	$ 40,000.00	$ 40,000.00
3	4	HRS	Rock Excavation	$ 1,500.00	$ 6,000.00
4	50	SF	AC Pavement and Base (Small Patching)	$ 25.00	$ 1,250.00
5	1	LS	All Other Work Required by the Contract Documents	$ 4,725.00	$ 4,725.00
6					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 54,573.75
				Contingency (10%)	$ 5,457.38
				Engineering/Planning (10%)	$ 5,457.38
				Engineering Inspection (20%)	$ 13,097.70
				Land Acquisition	$ -
				Legal (5%)	$ 2,728.69
				Permitting (5%)	$ 2,728.69
				TOTAL	**$ 84,043.58**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

8" Pipeline in Sitzmark Way to extend Sitzmark Zone					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 6,339.38
2	300	LF	8" Water Main	$ 170.00	$ 51,000.00
3	150	LF	2" PE Water Service Lateral	$ 85.00	$ 12,750.00
4	4	EA	Water Service	$ 3,250.00	$ 13,000.00
5	1	EA	Connection to Existing Pipe	$ 6,500.00	$ 6,500.00
6	15	HRS	Rock Excavation	$ 1,500.00	$ 22,500.00
7	1500	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 15,000.00
8	1	LS	All Other Work Required by the Contract Documents	$ 6,037.50	$ 6,037.50
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
				Total Construction Estimate	$ 133,126.88
				Contingency (10%)	$ 13,312.69
				Engineering/Planning (10%)	$ 13,312.69
				Engineering Inspection (20%)	$ 31,950.45
				Land Acquisition	$ -
				Legal (5%)	$ 6,656.34
				Permitting (5%)	$ 6,656.34
				TOTAL	**$ 205,015.39**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

8" Pipeline in Davos Drive to extend Stockholm Zone					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 23,765.88
2	1100	LF	8" Water Main	$ 170.00	$ 187,000.00
3	550	LF	2" PE Water Service Lateral	$ 85.00	$ 46,750.00
4	12	EA	Water Service	$ 3,250.00	$ 39,000.00
5	2	EA	Fire Hydrant	$ 9,300.00	$ 18,600.00
6	4	EA	Connection to Existing Pipe	$ 6,500.00	$ 23,833.33
8	55	HRS	Rock Excavation	$ 1,500.00	$ 82,500.00
9	5500	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 55,000.00
10	1	LS	All Other Work Required by the Contract Documents	$ 22,634.17	$ 22,634.17
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 499,083.38
				Contingency (10%)	$ 49,908.34
				Engineering/Planning (10%)	$ 49,908.34
				Engineering Inspection (20%)	$ 119,780.01
				Land Acquisition	$ -
				Legal (5%)	$ 24,954.17
				Permitting (5%)	$ 24,954.17
				TOTAL	**$ 768,588.40**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Replace Cross Country Pipeline between Alder Creed Rd & Wolfgang Rd					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 8,459.06
2	500	LF	8" Water Main	$ 170.00	$ 85,000.00
3	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 13,000.00
4	40	HRS	Rock Excavation	$ 1,500.00	$ 60,000.00
5	125	SF	AC Pavement and Base (Small Patching)	$ 25.00	$ 3,125.00
6	1	LS	All Other Work Required by the Contract Documents	$ 8,056.25	$ 8,056.25
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
				Total Construction Estimate	$ 177,640.31
				Contingency (10%)	$ 17,764.03
				Engineering/Planning (10%)	$ 17,764.03
				Engineering Inspection (20%)	$ 42,633.68
				Land Acquisition	$ -
				Legal (5%)	$ 8,882.02
				Permitting (5%)	$ 8,882.02
				TOTAL	**$ 273,566.08**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Northside Well Facility Replacement					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 10,625.00
2	1	LS	New Well & Pump (575 GPM) (No Well Rehab)	$ 25,000.00	$ 25,000.00
3	1	LS	Sitework	$ 15,000.00	$ 15,000.00
4	225	SF	New Well House	$ 500.00	$ 112,500.00
5	1	LS	Chemical Dosing System	$ 25,000.00	$ 25,000.00
6	1	LS	Electrical	$ 35,000.00	$ 35,000.00
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
				Total Construction Estimate	$ 223,125.00
				Contingency (20%)	$ 44,625.00
				Engineering/Planning (10%)	$ 22,312.50
				Engineering Inspection (20%)	$ 58,012.50
				Land Acquisition	$ -
				Legal (5%)	$ 11,156.25
				Permitting (5%)	$ 11,156.25
				TOTAL	**$ 370,387.50**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

12" Pipeline in Glacier Way & Skislope Way					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 40,660.81
2	1750	LF	12" Water Main	$ 208.00	$ 364,000.00
3	875	LF	2" PE Water Service Lateral	$ 85.00	$ 74,375.00
4	13	EA	Water Service	$ 3,250.00	$ 42,250.00
5	4	EA	Fire Hydrant	$ 9,300.00	$ 37,200.00
6	6	EA	Connection to Existing Pipe	$ 6,500.00	$ 37,916.67
8	88	HRS	Rock Excavation	$ 1,500.00	$ 131,250.00
9	8750	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 87,500.00
10	1	LS	All Other Work Required by the Contract Documents	$ 38,724.58	$ 38,724.58
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 853,877.06
				Contingency (10%)	$ 85,387.71
				Engineering/Planning (10%)	$ 85,387.71
				Engineering Inspection (20%)	$ 204,930.50
				Land Acquisition	$ -
				Legal (5%)	$ 42,693.85
				Permitting (5%)	$ 42,693.85
				TOTAL	**$ 1,314,970.68**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Hansel Avenue Fire Hydrant Relocate					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 880.00
2	2	EA	Relocate Fire Hydrants	$ 6,000.00	$ 12,000.00
3	2	HRS	Rock Excavation	$ 1,500.00	$ 3,000.00
4	40	SF	AC Pavement and Base (Small Patching)	$ 25.00	$ 1,000.00
5	1	LS	All Other Work Required by the Contract Documents	$ 1,600.00	$ 1,600.00
6					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 18,480.00
				Contingency (10%)	$ 1,848.00
				Engineering/Planning (10%)	$ 1,848.00
				Engineering Inspection (20%)	$ 4,435.20
				Land Acquisition	$ -
				Legal (5%)	$ 924.00
				Permitting (5%)	$ 924.00
				TOTAL	**$ 28,459.20**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

8" Pipeline from Martiswoods Tower to Kleckner Court					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 9,287.50
2	650	LF	8" Water Main	$ 170.00	$ 110,500.00
3	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 14,083.33
4	33	HRS	Rock Excavation	$ 1,500.00	$ 48,750.00
5	150	SF	AC Pavement and Base (Small Patching)	$ 25.00	$ 3,750.00
6	1	LS	All Other Work Required by the Contract Documents	$ 8,666.67	$ 8,666.67
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
				Total Construction Estimate	$ 195,037.50
				Contingency (10%)	$ 19,503.75
				Engineering/Planning (10%)	$ 19,503.75
				Engineering Inspection (20%)	$ 46,809.00
				Land Acquisition	$ -
				Legal (5%)	$ 9,751.88
				Permitting (5%)	$ 9,751.88
				TOTAL	**$ 300,357.75**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Change Pressure Zone of Services on Hansel Avenue					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 2,549.25
2	6	EA	Water Service	$ 3,250.00	$ 19,500.00
3	6	EA	3/4" PRV (Per Service)	$ 225.00	$ 1,350.00
4	12	HRS	Rock Excavation	$ 1,500.00	$ 18,000.00
5	300	SF	AC Pavement and Base (Small Patching)	$ 25.00	$ 7,500.00
6	1	LS	All Other Work Required by the Contract Documents	$ 4,635.00	$ 4,635.00
7					$ -
8					$ -
9					$ -
				Total Construction Estimate	$ 53,534.25
				Contingency (10%)	$ 5,353.43
				Engineering/Planning (10%)	$ 5,353.43
				Engineering Inspection (20%)	$ 12,848.22
				Land Acquisition	$ -
				Legal (5%)	$ 2,676.71
				Permitting (5%)	$ 2,676.71
				TOTAL	**$ 82,442.75**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

12" Pipeline in Skislope Way below Ski Lodge Tank Site					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 33,277.13
2	1500	LF	12" Water Main	$ 208.00	$ 312,000.00
3	750	LF	2" PE Water Service Lateral	$ 85.00	$ 63,750.00
4	6	EA	Water Service	$ 3,250.00	$ 19,500.00
5	2	EA	Fire Hydrant	$ 9,300.00	$ 18,600.00
6	5	EA	Connection to Existing Pipe	$ 6,500.00	$ 32,500.00
8	75	HRS	Rock Excavation	$ 1,500.00	$ 112,500.00
9	7500	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 75,000.00
10	1	LS	All Other Work Required by the Contract Documents	$ 31,692.50	$ 31,692.50
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 698,819.63
				Contingency (10%)	$ 69,881.96
				Engineering/Planning (10%)	$ 69,881.96
				Engineering Inspection (20%)	$ 167,716.71
				Land Acquisition	$ -
				Legal (5%)	$ 34,940.98
				Permitting (5%)	$ 34,940.98
				TOTAL	**$ 1,076,182.22**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

8" Pipeline in Skislope Way below Ski Lodge Tank Site					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 12,565.44
2	550	LF	8" Water Main	$ 170.00	$ 93,500.00
3	275	LF	2" PE Water Service Lateral	$ 85.00	$ 23,375.00
4	10	EA	Water Service	$ 3,250.00	$ 32,500.00
5	1	EA	Fire Hydrant	$ 9,300.00	$ 9,300.00
6	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 11,916.67
8	28	HRS	Rock Excavation	$ 1,500.00	$ 41,250.00
9	2750	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 27,500.00
10	1	LS	All Other Work Required by the Contract Documents	$ 11,967.08	$ 11,967.08
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 263,874.19
				Contingency (10%)	$ 26,387.42
				Engineering/Planning (10%)	$ 26,387.42
				Engineering Inspection (20%)	$ 63,329.81
				Land Acquisition	$ -
				Legal (5%)	$ 13,193.71
				Permitting (5%)	$ 13,193.71
				TOTAL	**$ 406,366.25**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Pinnacle Hydropnuematic Pump Station Upgrade					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 9,000.00
2	1	LS	Sitework	$ 20,000.00	$ 20,000.00
3	1	LS	Hydropneumatic PS Skid	$ 50,000.00	$ 50,000.00
4	150	SF	New Pump Station Building	$ 500.00	$ 75,000.00
5	1	LS	Electrical	$ 35,000.00	$ 35,000.00
6					$ -
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
				Total Construction Estimate	$ 189,000.00
				Contingency (10%)	$ 18,900.00
				Engineering/Planning (10%)	$ 18,900.00
				Engineering Inspection (20%)	$ 45,360.00
				Land Acquisition	$ -
				Legal (5%)	$ 9,450.00
				Permitting (5%)	$ 9,450.00
				TOTAL	**$ 291,060.00**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

8" Pipeline in Northwoods Blvd to extend Donner View Zone					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 11,053.88
2	500	LF	8" Water Main	$ 170.00	$ 85,000.00
3	250	LF	2" PE Water Service Lateral	$ 85.00	$ 21,250.00
4	6	EA	Water Service	$ 3,250.00	$ 19,500.00
5	1	EA	Fire Hydrant	$ 9,300.00	$ 9,300.00
6	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 13,000.00
8	25	HRS	Rock Excavation	$ 1,500.00	$ 37,500.00
9	2500	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 25,000.00
10	1	LS	All Other Work Required by the Contract Documents	$ 10,527.50	$ 10,527.50
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 232,131.38
				Contingency (10%)	$ 23,213.14
				Engineering/Planning (10%)	$ 23,213.14
				Engineering Inspection (20%)	$ 55,711.53
				Land Acquisition	$ -
				Legal (5%)	$ 11,606.57
				Permitting (5%)	$ 11,606.57
				TOTAL	**$ 357,482.32**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

8" Pipeline in Rocky Lane to extend Donner Trail Hydro Zone					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 32,332.13
2	1500	LF	8" Water Main	$ 170.00	$ 255,000.00
3	750	LF	2" PE Water Service Lateral	$ 85.00	$ 63,750.00
4	18	EA	Water Service	$ 3,250.00	$ 58,500.00
5	2	EA	Fire Hydrant	$ 9,300.00	$ 18,600.00
6	5	EA	Connection to Existing Pipe	$ 6,500.00	$ 32,500.00
8	75	HRS	Rock Excavation	$ 1,500.00	$ 112,500.00
9	7500	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 75,000.00
10	1	LS	All Other Work Required by the Contract Documents	$ 30,792.50	$ 30,792.50
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 678,974.63
				Contingency (10%)	$ 67,897.46
				Engineering/Planning (10%)	$ 67,897.46
				Engineering Inspection (20%)	$ 162,953.91
				Land Acquisition	$ -
				Legal (5%)	$ 33,948.73
				Permitting (5%)	$ 33,948.73
				TOTAL	**$ 1,045,620.92**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

6" Pipeline in McPhetres Street					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 3,083.50
2	200	LF	6" Water Main	$ 116.00	$ 23,200.00
3	1	EA	Fire Hydrant	$ 9,300.00	$ 6,200.00
4	1	EA	Connection to Existing Pipe	$ 6,500.00	$ 4,333.33
5	10	HRS	Rock Excavation	$ 1,500.00	$ 15,000.00
6	1000	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 10,000.00
7	1	LS	All Other Work Required by the Contract Documents	$ 2,936.67	$ 2,936.67
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
				Total Construction Estimate	$ 64,753.50
				Contingency (10%)	$ 6,475.35
				Engineering/Planning (10%)	$ 6,475.35
				Engineering Inspection (20%)	$ 15,540.84
				Land Acquisition	$ -
				Legal (5%)	$ 3,237.68
				Permitting (5%)	$ 3,237.68
				TOTAL	**$ 99,720.39**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

8" Pipeline in Blueberry Rd and Purple Sage Rd to extend Palisades Hydro Zone					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 12,029.94
2	550	LF	8" Water Main	$ 170.00	$ 93,500.00
3	275	LF	2" PE Water Service Lateral	$ 85.00	$ 23,375.00
4	4	EA	Water Service	$ 3,250.00	$ 13,000.00
5	2	EA	Fire Hydrant	$ 9,300.00	$ 18,600.00
6	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 11,916.67
8	28	HRS	Rock Excavation	$ 1,500.00	$ 41,250.00
9	2750	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 27,500.00
10	1	LS	All Other Work Required by the Contract Documents	$ 11,457.08	$ 11,457.08
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 252,628.69
				Contingency (10%)	$ 25,262.87
				Engineering/Planning (10%)	$ 25,262.87
				Engineering Inspection (20%)	$ 60,630.89
				Land Acquisition	$ -
				Legal (5%)	$ 12,631.43
				Permitting (5%)	$ 12,631.43
				TOTAL	**$ 389,048.18**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Roundhill Drive Pressure Zone Changes					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 1,897.50
2	7	EA	Water Service	$ 3,250.00	$ 22,750.00
3	2	HRS	Rock Excavation	$ 1,500.00	$ 3,000.00
4	350	SF	AC Pavement and Base (Small Patching)	$ 25.00	$ 8,750.00
5	1	LS	All Other Work Required by the Contract Documents	$ 3,450.00	$ 3,450.00
6					$ -
7					$ -
8					$ -
				Total Construction Estimate	$ 39,847.50
				Contingency (10%)	$ 3,984.75
				Engineering/Planning (10%)	$ 3,984.75
				Engineering Inspection (20%)	$ 9,563.40
				Land Acquisition	$ -
				Legal (5%)	$ 1,992.38
				Permitting (5%)	$ 1,992.38
				TOTAL	**$ 61,365.15**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Connect Piping at Glenshire Drive & Somerset Drive					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 1,860.00
2	20	LF	6" Water Main	$ 200.00	$ 4,000.00
3	1	LS	Pipe Fittings/Valve	$ 15,000.00	$ 15,000.00
4	2	HRS	Rock Excavation	$ 1,500.00	$ 3,000.00
5	200	SF	AC Pavement and Base (Small Patching)	$ 25.00	$ 5,000.00
6	1	LS	Traffic Control Allowance	$ 7,500.00	$ 7,500.00
7	1	LS	All Other Work Required by the Contract Documents	$ 2,700.00	$ 2,700.00
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 39,060.00
				Contingency (10%)	$ 3,906.00
				Engineering/Planning (10%)	$ 3,906.00
				Engineering Inspection (20%)	$ 9,374.40
				Land Acquisition	$ -
				Legal (5%)	$ 1,953.00
				Permitting (5%)	$ 1,953.00
				TOTAL	**$ 60,152.40**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Airport Well Pump & Motor Replacement					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 4,700.00
2	4	EA	Remove Existing Pumps	$ 5,000.00	$ 20,000.00
3	4	EA	Install New Pump/Motors	$ 16,000.00	$ 64,000.00
4	1	LS	Electrical	$ 10,000.00	$ 10,000.00
5					$ -
6					$ -
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
				Total Construction Estimate	$ 98,700.00
				Contingency (10%)	$ 9,870.00
				Engineering/Planning (10%)	$ 9,870.00
				Engineering Inspection (20%)	$ 23,688.00
				Land Acquisition	$ -
				Legal (5%)	$ 4,935.00
				Permitting (5%)	$ 4,935.00
				TOTAL	**$ 151,998.00**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Sanders Well Facility Replacement					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 8,600.00
2	1	LS	New Well & Pump (290 GPM) (No Well Rehab)	$ 12,000.00	$ 12,000.00
3	1	LS	Sitework	$ 5,000.00	$ 5,000.00
4	225	SF	New Well House	$ 500.00	$ 112,500.00
5	1	LS	Chemical Dosing System	$ 22,500.00	$ 22,500.00
6	1	LS	Electrical	$ 20,000.00	$ 20,000.00
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
				Total Construction Estimate	$ 180,600.00
				Contingency (20%)	$ 36,120.00
				Engineering/Planning (10%)	$ 18,060.00
				Engineering Inspection (20%)	$ 46,956.00
				Land Acquisition	$ -
				Legal (5%)	$ 9,030.00
				Permitting (5%)	$ 9,030.00
				TOTAL	**$ 299,796.00**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

8" Pipeline in Olympic Blvd from East Ridge Road to Kayhoe Court					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 28,082.25
2	1300	LF	8" Water Main	$ 170.00	$ 221,000.00
3	650	LF	2" PE Water Service Lateral	$ 85.00	$ 55,250.00
4	21	EA	Water Service	$ 3,250.00	$ 68,250.00
6	3	EA	Fire Hydrant	$ 9,300.00	$ 27,900.00
7	65	HRS	Rock Excavation	$ 1,500.00	$ 97,500.00
8	6500	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 65,000.00
9	1	LS	All Other Work Required by the Contract Documents	$ 26,745.00	$ 26,745.00
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
				Total Construction Estimate	$ 589,727.25
				Contingency (10%)	$ 58,972.73
				Engineering/Planning (10%)	$ 58,972.73
				Engineering Inspection (20%)	$ 141,534.54
				Land Acquisition	$ -
				Legal (5%)	$ 29,486.36
				Permitting (5%)	$ 29,486.36
				TOTAL	**$ 908,179.97**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Innsbruck Pump Station Upgrade					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 49,320.00
2	1	LS	Demolition	$ 50,000.00	$ 50,000.00
3	1	LS	Sitework	$ 40,000.00	$ 40,000.00
4	4	EA	New 50HP Pumps/Piping	$ 75,000.00	$ 300,000.00
5	720	SF	New Pump Station (36 x 20 Masonry Structure)	$ 600.00	$ 432,000.00
6	1	LS	Electrical	$ 164,400.00	$ 164,400.00
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
				Total Construction Estimate	$ 1,035,720.00
				Contingency (10%)	$ 103,572.00
				Engineering/Planning (10%)	$ 103,572.00
				Engineering Inspection (20%)	$ 248,572.80
				Land Acquisition	$ -
				Legal (5%)	$ 51,786.00
				Permitting (5%)	$ 51,786.00
				TOTAL	**$ 1,595,008.80**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

4" Pipeline in Northwoods Blvd to extend Stockholm Zone					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 7,643.13
2	500	LF	4" Water Main	$ 76.00	$ 38,000.00
3	250	LF	2" PE Water Service Lateral	$ 85.00	$ 21,250.00
4	4	EA	Water Service	$ 3,250.00	$ 13,000.00
5	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 10,833.33
6	25	HRS	Rock Excavation	$ 1,500.00	$ 37,500.00
7	2500	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 25,000.00
8	1	LS	All Other Work Required by the Contract Documents	$ 7,279.17	$ 7,279.17
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
				Total Construction Estimate	$ 160,505.63
				Contingency (10%)	$ 16,050.56
				Engineering/Planning (10%)	$ 16,050.56
				Engineering Inspection (20%)	$ 38,521.35
				Land Acquisition	$ -
				Legal (5%)	$ 8,025.28
				Permitting (5%)	$ 8,025.28
				TOTAL	**$ 247,178.66**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

8" Pipeline in Aspenwood Rd to Extend Palisades Hydro Zone					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 7,126.18
2	325	LF	8" Water Main	$ 170.00	$ 55,250.00
3	162	LF	2" PE Water Service Lateral	$ 85.00	$ 13,770.00
4	3	EA	Water Service	$ 3,250.00	$ 9,750.00
5	1	EA	Fire Hydrant	$ 9,300.00	$ 9,300.00
6	1	EA	Connection to Existing Pipe	$ 6,500.00	$ 7,041.67
8	16	HRS	Rock Excavation	$ 1,500.00	$ 24,375.00
9	1625	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 16,250.00
10	1	LS	All Other Work Required by the Contract Documents	$ 6,786.83	$ 6,786.83
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 149,649.68
				Contingency (10%)	$ 14,964.97
				Engineering/Planning (10%)	$ 14,964.97
				Engineering Inspection (20%)	$ 35,915.92
				Land Acquisition	$ -
				Legal (5%)	$ 7,482.48
				Permitting (5%)	$ 7,482.48
				TOTAL	**$ 230,460.50**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

8" Pipeline in Sitzmark Way to extend Sitzmark Zone					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 6,339.38
2	300	LF	8" Water Main	$ 170.00	$ 51,000.00
3	150	LF	2" PE Water Service Lateral	$ 85.00	$ 12,750.00
4	4	EA	Water Service	$ 3,250.00	$ 13,000.00
5	1	EA	Connection to Existing Pipe	$ 6,500.00	$ 6,500.00
6	15	HRS	Rock Excavation	$ 1,500.00	$ 22,500.00
7	1500	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 15,000.00
8	1	LS	All Other Work Required by the Contract Documents	$ 6,037.50	$ 6,037.50
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
				Total Construction Estimate	$ 133,126.88
				Contingency (10%)	$ 13,312.69
				Engineering/Planning (10%)	$ 13,312.69
				Engineering Inspection (20%)	$ 31,950.45
				Land Acquisition	$ -
				Legal (5%)	$ 6,656.34
				Permitting (5%)	$ 6,656.34
				TOTAL	**$ 205,015.39**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

8" Pipeline in Skislope Way to extend Donner View Hydro Zone					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 5,884.81
2	250	LF	8” Water Main	$ 170.00	$ 42,500.00
3	125	LF	2” PE Water Service Lateral	$ 85.00	$ 10,625.00
4	4	EA	Water Service	$ 3,250.00	$ 13,000.00
5	1	EA	Fire Hydrant	$ 9,300.00	$ 9,300.00
6	1	EA	Connection to Existing Pipe	$ 6,500.00	$ 5,416.67
8	13	HRS	Rock Excavation	$ 1,500.00	$ 18,750.00
9	1250	SF	AC Pavement and Base (Trench Restoration)	$ 10.00	$ 12,500.00
10	1	LS	All Other Work Required by the Contract Documents	$ 5,604.58	$ 5,604.58
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 123,581.06
				Contingency (10%)	$ 12,358.11
				Engineering/Planning (10%)	$ 12,358.11
				Engineering Inspection (20%)	$ 29,659.46
				Land Acquisition	$ -
				Legal (5%)	$ 6,179.05
				Permitting (5%)	$ 6,179.05
				TOTAL	**$ 190,314.84**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Tank Coating/Rehab					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 14,017.50
2	1	LS	Tank Re-Coating (400,000 Gallon Tank)	$ 192,000.00	$ 192,000.00
3	1	LS	Tank Structural Repair & Seismic Retrofit Allowance	$ 75,000.00	$ 75,000.00
4	1	LS	All Other Work Required by the Contract Documents	$ 13,350.00	$ 13,350.00
5					$ -
6					$ -
7					$ -
8					$ -
9					$ -
				Total Construction Estimate	$ 294,367.50
				Contingency (10%)	$ 29,436.75
				Engineering/Planning (10%)	$ 29,436.75
				Engineering Inspection (20%)	$ 70,648.20
				Land Acquisition	$ -
				Legal (5%)	$ 14,718.38
				Permitting (5%)	$ 14,718.38
				TOTAL	**$ 453,325.95**

Unit Price based on 400,000 Gallon Tank	**$ 1.13**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Tank Coating ONLY					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 10,080.00
2	1	LS	Tank Re-Coating (400,000 Gallon Tank)	$ 192,000.00	$ 192,000.00
3	1	LS	All Other Work Required by the Contract Documents	$ 9,600.00	$ 9,600.00
4					$ -
5					$ -
6					$ -
7					$ -
8					$ -
				Total Construction Estimate	$ 211,680.00
				Contingency (10%)	$ 21,168.00
				Engineering/Planning (10%)	$ 21,168.00
				Engineering Inspection (20%)	$ 50,803.20
				Land Acquisition	$ -
				Legal (5%)	$ 10,584.00
				Permitting (5%)	$ 10,584.00
				TOTAL	**$ 325,987.20**

Unit Price based on 400,000 Gallon Tank	**$ 0.81**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Generic Well Facility Replacement					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 1,750.00
2	1	LS	New Well & Pump (300-500 GPM) (No Well Rehab)	$ 30,000.00	$ 30,000.00
3	1	LS	Electrical	$ 5,000.00	$ 5,000.00
4					$ -
5					$ -
6					$ -
				Total Construction Estimate	$ 36,750.00
				Contingency (20%)	$ 7,350.00
				Engineering/Planning (10%)	$ 3,675.00
				Engineering Inspection (20%)	$ 9,555.00
				Land Acquisition	$ -
				Legal (5%)	$ 1,837.50
				Permitting (5%)	$ 1,837.50
				TOTAL	**$ 61,005.00**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Generic Well Facility Replacement					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 3,000.00
2	1	LS	New Well & Pump (800-1000 GPM) (No Well Rehab)	$ 55,000.00	$ 55,000.00
3	1	LS	Electrical	$ 5,000.00	$ 5,000.00
4					$ -
5					$ -
6					$ -
				Total Construction Estimate	$ 63,000.00
				Contingency (20%)	$ 12,600.00
				Engineering/Planning (10%)	$ 6,300.00
				Engineering Inspection (20%)	$ 16,380.00
				Land Acquisition	$ -
				Legal (5%)	$ 3,150.00
				Permitting (5%)	$ 3,150.00
				TOTAL	**$ 104,580.00**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Generic Well Facility Replacement					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 4,500.00
2	1	LS	New Well & Pump (1200-1500 GPM) (No Well Rehab)	$ 85,000.00	$ 85,000.00
3	1	LS	Electrical	$ 5,000.00	$ 5,000.00
4					$ -
5					$ -
6					$ -
				Total Construction Estimate	$ 94,500.00
				Contingency (20%)	$ 18,900.00
				Engineering/Planning (10%)	$ 9,450.00
				Engineering Inspection (20%)	$ 24,570.00
				Land Acquisition	$ -
				Legal (5%)	$ 4,725.00
				Permitting (5%)	$ 4,725.00
				TOTAL	**$ 156,870.00**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Generic 6" PRV - Valve/Piping Replacement Project					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 822.03
2	1	LS	6" PRV w/ 2" Bypass	$ 14,946.00	$ 14,946.00
3	1	LS	All Other Work Required by the Contract Documents	$ 1,494.60	$ 1,494.60
4					$ -
5					$ -
6					$ -
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
				Total Construction Estimate	$ 17,262.63
				Contingency (10%)	$ 1,726.26
				Engineering/Planning (10%)	$ 1,726.26
				Engineering Inspection (20%)	$ 4,143.03
				Land Acquisition	$ -
				Legal (5%)	$ 863.13
				Permitting (5%)	$ 863.13
				TOTAL	**$ 26,584.45**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Generic - 4" Water Line					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 8,733.38
2	500	LF	4” Water Main	$ 76.00	$ 38,000.00
3	250	LF	2” PE Water Service Lateral	$ 85.00	$ 21,250.00
4	4	EA	Water Service	$ 3,250.00	$ 13,000.00
5	2	EA	Fire Hydrant	$ 9,300.00	$ 18,600.00
6	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 13,000.00
8	25	HRS	Rock Excavation	$ 1,500.00	$ 37,500.00
9	2500	SF	AC Pavement and Base (trench restoration)	$ 10.00	$ 25,000.00
10	1	LS	All Other Work Required by the Contract Documents	$ 8,317.50	$ 8,317.50
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 183,400.88
				Contingency (10%)	$ 18,340.09
				Engineering/Planning (10%)	$ 18,340.09
				Engineering Inspection (20%)	$ 44,016.21
				Land Acquisition	$ -
				Legal (5%)	$ 9,170.04
				Permitting (5%)	$ 9,170.04
				TOTAL	**$ 282,437.35**
				Per LF	**$ 564.87**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Generic - 6" Water Line					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 9,783.38
2	500	LF	6” Water Main	$ 116.00	$ 58,000.00
3	250	LF	2” PE Water Service Lateral	$ 85.00	$ 21,250.00
4	4	EA	Water Service	$ 3,250.00	$ 13,000.00
5	2	EA	Fire Hydrant	$ 9,300.00	$ 18,600.00
6	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 13,000.00
8	25	HRS	Rock Excavation	$ 1,500.00	$ 37,500.00
9	2500	SF	AC Pavement and Base (trench restoration)	$ 10.00	$ 25,000.00
10	1	LS	All Other Work Required by the Contract Documents	$ 9,317.50	$ 9,317.50
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 205,450.88
				Contingency (10%)	$ 20,545.09
				Engineering/Planning (10%)	$ 20,545.09
				Engineering Inspection (20%)	$ 49,308.21
				Land Acquisition	$ -
				Legal (5%)	$ 10,272.54
				Permitting (5%)	$ 10,272.54
				TOTAL	**$ 316,394.35**
				Per LF	**$ 632.79**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Generic - 8" Water Line					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 20,060.25
2	1000	LF	8” Water Main	$ 170.00	$ 170,000.00
3	500	LF	2” PE Water Service Lateral	$ 85.00	$ 42,500.00
4	4	EA	Water Service	$ 3,250.00	$ 13,000.00
5	2	EA	Fire Hydrant	$ 9,300.00	$ 18,600.00
6	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 13,000.00
8	50	HRS	Rock Excavation	$ 1,500.00	$ 75,000.00
9	5000	SF	AC Pavement and Base (trench restoration)	$ 10.00	$ 50,000.00
10	1	LS	All Other Work Required by the Contract Documents	$ 19,105.00	$ 19,105.00
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 421,265.25
				Contingency (10%)	$ 42,126.53
				Engineering/Planning (10%)	$ 42,126.53
				Engineering Inspection (20%)	$ 101,103.66
				Land Acquisition	$ -
				Legal (5%)	$ 21,063.26
				Permitting (5%)	$ 21,063.26
				TOTAL	**$ 648,748.49**
				Per LF	**$ 648.75**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Generic - 10" Water Line					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 11,358.38
2	500	LF	10” Water Main	$ 176.00	$ 88,000.00
3	250	LF	2” PE Water Service Lateral	$ 85.00	$ 21,250.00
4	4	EA	Water Service	$ 3,250.00	$ 13,000.00
5	2	EA	Fire Hydrant	$ 9,300.00	$ 18,600.00
6	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 13,000.00
8	25	HRS	Rock Excavation	$ 1,500.00	$ 37,500.00
9	2500	SF	AC Pavement and Base (trench restoration)	$ 10.00	$ 25,000.00
10	1	LS	All Other Work Required by the Contract Documents	$ 10,817.50	$ 10,817.50
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 238,525.88
				Contingency (10%)	$ 23,852.59
				Engineering/Planning (10%)	$ 23,852.59
				Engineering Inspection (20%)	$ 57,246.21
				Land Acquisition	$ -
				Legal (5%)	$ 11,926.29
				Permitting (5%)	$ 11,926.29
				TOTAL	**$ 367,329.85**
				Per LF	**$ 734.66**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Generic - 12" Pipeline					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 17,126.81
2	750	LF	12” Water Main	$ 208.00	$ 156,000.00
3	375	LF	2” PE Water Service Lateral	$ 85.00	$ 31,875.00
4	4	EA	Water Service	$ 3,250.00	$ 13,000.00
5	2	EA	Fire Hydrant	$ 9,300.00	$ 18,600.00
6	2	EA	Connection to Existing Pipe	$ 6,500.00	$ 13,000.00
8	38	HRS	Rock Excavation	$ 1,500.00	$ 56,250.00
9	3750	SF	AC Pavement and Base (trench restoration)	$ 10.00	$ 37,500.00
10	1	LS	All Other Work Required by the Contract Documents	$ 16,311.25	$ 16,311.25
11					$ -
12					$ -
13					$ -
14					$ -
15					$ -
				Total Construction Estimate	$ 359,663.06
				Contingency (10%)	$ 35,966.31
				Engineering/Planning (10%)	$ 35,966.31
				Engineering Inspection (20%)	$ 86,319.14
				Land Acquisition	$ -
				Legal (5%)	$ 17,983.15
				Permitting (5%)	$ 17,983.15
				TOTAL	**$ 553,881.12**
				Per LF	**$ 738.51**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

3 EA - 25 HP Generic Pump Station Upgrade					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 36,900.00
2	1	LS	Demolition	$ 50,000.00	$ 50,000.00
3	1	LS	Sitework	$ 40,000.00	$ 40,000.00
4	3	EA	New 25 HP Pumps/Piping	$ 45,000.00	$ 135,000.00
5	600	SF	New Pump Station (Masonry Bldg - 20 x 30)	$ 650.00	$ 390,000.00
6	1	LS	Electrical	$ 123,000.00	$ 123,000.00
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
				Total Construction Estimate	$ 774,900.00
				Contingency (10%)	$ 77,490.00
				Engineering/Planning (10%)	$ 77,490.00
				Engineering Inspection (20%)	$ 185,976.00
				Land Acquisition	$ -
				Legal (5%)	$ 38,745.00
				Permitting (5%)	$ 38,745.00
				TOTAL	**$ 1,193,346.00**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

4 EA - 100 HP Generic Pump Station Upgrade					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 55,080.00
2	1	LS	Demolition	$ 50,000.00	$ 50,000.00
3	1	LS	Sitework	$ 40,000.00	$ 40,000.00
4	4	EA	New 100 HP Pumps/Piping	$ 90,000.00	$ 360,000.00
5	720	SF	New Pump Station (Masonry Bldg - 20 x 30)	$ 650.00	$ 468,000.00
6	1	LS	Electrical	$ 183,600.00	$ 183,600.00
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
				Total Construction Estimate	$ 1,156,680.00
				Contingency (10%)	$ 115,668.00
				Engineering/Planning (10%)	$ 115,668.00
				Engineering Inspection (20%)	$ 277,603.20
				Land Acquisition	$ -
				Legal (5%)	$ 57,834.00
				Permitting (5%)	$ 57,834.00
				TOTAL	**$ 1,781,287.20**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

4 EA - 150 HP Generic Pump Station Upgrade					
Item	**Quantity**	**Unit**	**Description**	**Unit Price**	**Total Price**
1	1	LS	Mob/Demob	5%	$ 59,880.00
2	1	LS	Demolition	$ 50,000.00	$ 50,000.00
3	1	LS	Sitework	$ 40,000.00	$ 40,000.00
4	4	EA	New 150 HP Pumps/Piping	$ 110,000.00	$ 440,000.00
5	720	SF	New Pump Station (Masonry Bldg - 20 x 30)	$ 650.00	$ 468,000.00
6	1	LS	Electrical	$ 199,600.00	$ 199,600.00
7					$ -
8					$ -
9					$ -
10					$ -
11					$ -
12					$ -
13					$ -
14					$ -
				Total Construction Estimate	$ 1,257,480.00
				Contingency (10%)	$ 125,748.00
				Engineering/Planning (10%)	$ 125,748.00
				Engineering Inspection (20%)	$ 301,795.20
				Land Acquisition	$ -
				Legal (5%)	$ 62,874.00
				Permitting (5%)	$ 62,874.00
				TOTAL	**$ 1,936,519.20**

* Note - Estimate is based on 2020/2021 Labor/Equipment/Material costs. No escalation is included here. Escalation, if needed, will be added on the CIP Summary Page

Appendix E
Detailed Cost Estimates

Cost Report

Biditem

5

4" Water Line

Takeoff Qty: 280.000 LF

Bid Qty: 280.000 LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	8.81	8.39	17.20	5.11	29.25	0.85	8.52	60.94
Total	2,467.34	2,348.80	4,816.14	1,432.16	8,191.38	237.82	2,385.00	17,062.50

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
70.0000	4.0000	0.2500	243.7500	35.2477	68.8020	14.0000

Activity: 5.1 Sawcut Quantity: 560 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.23	0.22	0.45	0.12	0.00	0.04	0.00	0.61
Total	128.98	122.03	251.01	67.52	0.00	21.62	0.00	340.15

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
0.5688	0.0036	280.0000	159.2650	0.2500	2,240.0000	0.0004	1,360.6000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
4.0000	140.0000	0.0071	62.7525	0.2303

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 2.00 Equipment Pcs: 2.00

Notes: Assume an average of 4" pavement depth.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3MISCTOOL	Misc Tool Allowance	1.00	2.00	HR	10.00	108.10	10.81	21.62
8231	SAW CONCRETE 20-29HP SELF PR	1.00	2.00	HR	22.90	108.10	24.76	49.52
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LAB4	Labor Foreman	1.00	2.00	MH	34.00	100.00	64.91	129.81
LABORER	Laborer	1.00	2.00	MH	30.49	100.00	60.60	121.20

Activity: 5.2 Excavate/Install/Backfill Quantity: 280 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	4.35	4.05	8.39	2.97	0.00	0.39	6.57	18.32
Total	1,216.96	1,133.20	2,350.16	830.26	0.00	108.10	1,840.00	5,128.52

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
11.3586	0.0286	35.0000	397.5525	1.0000	280.0000	0.0036	5,128.5200

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
32.0000	8.7500	0.1143	73.4425	4.3463

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TRAFFICPLAT	Traffic Plate	1.00	2.00	EA/D	50.00	108.10	54.05	108.10
4HAUL	Hauling - Sub	1.00	16.00	HR	115.00	100.00	115.00	1,840.00
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	8.00	HR	37.47	108.10	40.50	324.01
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	8.00	HR	50.21	108.10	54.28	434.25
8UTLPU	Utility Pickup	1.00	8.00	HR	9.00	100.00	9.00	72.00
LABORER	Laborer	2.00	16.00	MH	30.49	100.00	60.60	969.58
OPER4	Operator Foreman	1.00	8.00	MH	48.00	100.00	89.27	714.13
OPERATOR	Operator	1.00	8.00	MH	43.14	100.00	83.31	666.45

Activity: 5.3 AC Patch Paving Quantity: 840 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.46	0.43	0.90	0.55	2.68	0.00	0.48	4.61
Total	390.52	363.64	754.16	462.38	2,252.80	0.00	405.00	3,874.34

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1.3582	0.0024	420.0000	570.4350	0.2500	3,360.0000	0.0003	15,497.3600

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
10.0000	84.0000	0.0119	75.4160	0.4649

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: BKFL Backfill Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 5.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2A	ASPHALT	1.00	27.00	TON	72.00	108.10	77.83	2,101.46
2TACKCOAT	Tack Coat	1.00	280.00	LF	0.50	108.10	0.54	151.34
4HAUL	Hauling - Sub	1.00	27.00	TON	15.00	100.00	15.00	405.00
8034	ROLLER 41-49" VIB SINGLE DRU	1.00	2.00	HR	60.26	108.10	65.14	130.27
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8324	TRUCK WATER 2000-2999 GALLON	1.00	2.00	HR	60.07	108.10	64.94	129.88
8BITCHPOT	Bitch Pot	1.00	2.00	HR	35.00	108.10	37.84	75.67
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	2.00	4.00	MH	43.14	100.00	83.31	333.22

Activity: 5.4 Striping & Signage Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Notes: Assume approx 50% of all trench will require re-striping

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4STRIPE	Striping - Sub	1.00	140.00	LF	1.00	100.00	1.00	140.00

Activity: 5.5 Traffic Control Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91
Total	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,532.8100	8.0000	0.1250	191.6013	1.0000	1.0000	1.0000	1,640.9100

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	60.8671	730.8800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TCMTL	Traffic Control Materials	1.00	1.00	DAY	100.00	108.10	108.10	108.10
8UTLPU	Utility Pickup	1.00	8.00	HR	9.00	100.00	9.00	72.00
FLAG	Flagger	2.00	16.00	MH	28.68	100.00	58.85	941.58
LAB4	Labor Foreman	1.00	8.00	MH	34.00	100.00	64.90	519.23

Activity: 5.6 Street Reconstruction Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4PAVE	AC Paving	1.00	0.00	LS	13,053.21	100.00	0.00	0.00

Activity: 5.9 Materials Quantity: 280 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	21.21	0.00	0.00	21.21
Total	0.00	0.00	0.00	0.00	5,938.58	0.00	0.00	5,938.58

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
24"FITTING	4" MJ Fitting	1.00	1.00	EA	365.89	108.10	395.53	395.53
24"H2O	4" Waterline - C-900	1.05	300.00	LF	7.19	108.10	7.77	2,331.72
24"MEGALUG	4" Megalug	1.00	2.00	EA	38.12	108.10	41.21	82.42
2BASE	Base Rock	1.00	60.00	TON	9.75	108.10	10.54	632.39
2PIPEACC	Pipe Accessories	1.00	280.00	LF	1.60	108.10	1.73	484.29
2PIPEALLOW	Misc Pipe Matl Allowance	1.00	6,213.83	LS	0.10	108.10	0.11	671.72
2SAND	Bedding Sand - FOB Plant	1.00	40.00	TON	6.00	108.10	6.49	259.44
2VALVEALLOW	Valve Allowance	1.00	0.50	EA	2,162.14	100.00	2,162.14	1,081.07

Biditem

10

6" Water Line

Takeoff Qty: 250.000 LF

Bid Qty: 250.000 LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	9.87	9.40	19.26	5.70	41.24	0.95	9.31	76.46
Total	2,467.34	2,348.80	4,816.14	1,424.21	10,310.59	237.82	2,326.65	19,115.41

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
70.0000	3.5714	0.2800	273.0773	35.2477	68.8020	12.5000

Activity: 10.1 Sawcut Quantity: 500 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.26	0.24	0.50	0.14	0.00	0.04	0.00	0.68
Total	128.98	122.03	251.01	67.52	0.00	21.62	0.00	340.15

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
0.6371	0.0040	250.0000	159.2650	0.2500	2,000.0000	0.0005	1,360.6000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
4.0000	125.0000	0.0080	62.7525	0.2580

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 2.00 Equipment Pcs: 2.00

Notes: Assume an average of 4" pavement depth.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3MISCTOOL	Misc Tool Allowance	1.00	2.00	HR	10.00	108.10	10.81	21.62
8231	SAW CONCRETE 20-29HP SELF PR	1.00	2.00	HR	22.90	108.10	24.76	49.52
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LAB4	Labor Foreman	1.00	2.00	MH	34.00	100.00	64.91	129.81
LABORER	Laborer	1.00	2.00	MH	30.49	100.00	60.60	121.20

Activity: 10.2 Excavate/Install/Backfill Quantity: 250 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	4.87	4.53	9.40	3.32	0.00	0.43	7.36	20.51
Total	1,216.96	1,133.20	2,350.16	830.26	0.00	108.10	1,840.00	5,128.52

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
12.7217	0.0320	31.2500	397.5525	1.0000	250.0000	0.0040	5,128.5200

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
32.0000	7.8125	0.1280	73.4425	4.8678

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TRAFFICPLAT	Traffic Plate	1.00	2.00	EA/D	50.00	108.10	54.05	108.10
4HAUL	Hauling - Sub	1.00	16.00	HR	115.00	100.00	115.00	1,840.00
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	8.00	HR	37.47	108.10	40.50	324.01
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	8.00	HR	50.21	108.10	54.28	434.25
8UTLPU	Utility Pickup	1.00	8.00	HR	9.00	100.00	9.00	72.00
LABORER	Laborer	2.00	16.00	MH	30.49	100.00	60.60	969.58
OPER4	Operator Foreman	1.00	8.00	MH	48.00	100.00	89.27	714.13
OPERATOR	Operator	1.00	8.00	MH	43.14	100.00	83.31	666.45

Activity: 10.3 AC Patch Paving Quantity: 750 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.52	0.48	1.01	0.61	2.68	0.00	0.48	4.78
Total	390.52	363.64	754.16	454.43	2,011.66	0.00	361.65	3,581.90

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1.5212	0.0027	375.0000	570.4350	0.2500	3,000.0000	0.0003	14,327.6000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
10.0000	75.0000	0.0133	75.4160	0.5207

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: BKFL Backfill Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 5.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2A	ASPHALT	1.00	24.11	TON	72.00	108.10	77.83	1,876.53
2TACKCOAT	Tack Coat	1.00	250.00	LF	0.50	108.10	0.54	135.13
4HAUL	Hauling - Sub	1.00	24.11	TON	15.00	100.00	15.00	361.65
8034	ROLLER 41-49" VIB SINGLE DRU	1.00	2.00	HR	60.26	108.10	65.14	130.27
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8324	TRUCK WATER 2000-2999 GALLON	1.00	2.00	HR	60.07	108.10	64.94	129.88
8BITCHPOT	Bitch Pot	1.00	1.79	HR	35.00	108.10	37.83	67.72
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	2.00	4.00	MH	43.14	100.00	83.31	333.22

Activity: 10.4 Striping & Signage Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Notes: Assume approx 50% of all trench will require re-striping

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4STRIPE	Striping - Sub	1.00	125.00	LF	1.00	100.00	1.00	125.00

Activity: 10.5 Traffic Control Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91
Total	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,532.8100	8.0000	0.1250	191.6013	1.0000	1.0000	1.0000	1,640.9100

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	60.8671	730.8800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TCMTL	Traffic Control Materials	1.00	1.00	DAY	100.00	108.10	108.10	108.10
8UTLPU	Utility Pickup	1.00	8.00	HR	9.00	100.00	9.00	72.00
FLAG	Flagger	2.00	16.00	MH	28.68	100.00	58.85	941.58
LAB4	Labor Foreman	1.00	8.00	MH	34.00	100.00	64.90	519.23

Activity: 10.6 Street Reconstruction Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4PAVE	AC Paving	1.00	0.00	LS	13,053.21	100.00	0.00	0.00

Activity: 10.9 Materials Quantity: 250 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	33.20	0.00	0.00	33.20
Total	0.00	0.00	0.00	0.00	8,298.93	0.00	0.00	8,298.93

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
26"H2O	6" Waterline	1.00	280.00	LF	14.05	108.10	15.19	4,252.65
2BASE	Base Rock	1.00	54.00	TON	9.75	108.10	10.54	569.15
2MEGALUG	MJ Megalug Pack	1.00	2.00	EA	56.95	108.10	61.57	123.13
2MJFITTING	MJ Fitting	1.00	1.00	EA	498.83	108.10	539.24	539.24
2PIPEACC	Pipe Accessories	1.00	250.00	LF	1.60	108.10	1.73	432.40
2PIPEALLOW	Misc Pipe Matl Allowance	1.00	8,546.30	LS	0.10	108.10	0.11	923.86
2SAND	Bedding Sand - FOB Plant	1.00	40.00	TON	6.00	108.10	6.49	259.44
2VALVEALLOW	Valve Allowance	1.00	0.50	EA	2,398.11	100.00	2,398.12	1,199.06

Biditem

20

8" Water Line

Takeoff Qty: 250.000 LF

Bid Qty: 250.000 LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	11.25	10.68	21.93	11.84	61.75	0.95	9.84	106.31
Total	2,812.46	2,670.12	5,482.58	2,959.05	15,437.26	237.82	2,460.00	26,576.71

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
78.0000	3.2051	0.3120	340.7271	36.0572	70.2895	12.5000

Activity: 20.1 Sawcut Quantity: 500 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.26	0.24	0.50	0.14	0.00	0.04	0.00	0.68
Total	128.98	122.03	251.01	67.52	0.00	21.62	0.00	340.15

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
0.6371	0.0040	250.0000	159.2650	0.2500	2,000.0000	0.0005	1,360.6000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
4.0000	125.0000	0.0080	62.7525	0.2580

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 2.00 Equipment Pcs: 2.00

Notes: Assume an average of 4" pavement depth.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3MISCTOOL	Misc Tool Allowance	1.00	2.00	HR	10.00	108.10	10.81	21.62

8231	SAW CONCRETE 20-29HP SELF PR	1.00	2.00	HR	22.90	108.10	24.76	49.52
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LAB4	Labor Foreman	1.00	2.00	MH	34.00	100.00	64.91	129.81
LABORER	Laborer	1.00	2.00	MH	30.49	100.00	60.60	121.20

Activity: 20.2 Excavate/Install/Backfill Quantity: 250 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	6.25	5.82	12.07	9.37	0.00	0.43	7.36	29.23
Total	1,562.08	1,454.52	3,016.60	2,342.39	0.00	108.10	1,840.00	7,307.09

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
21.4360	0.0320	31.2500	669.8738	1.0000	250.0000	0.0040	7,307.0900

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
40.0000	6.2500	0.1600	75.4150	6.2483

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TRAFFICPLAT	Traffic Plate	1.00	2.00	EA/D	50.00	108.10	54.05	108.10
4HAUL	Hauling - Sub	1.00	16.00	HR	115.00	100.00	115.00	1,840.00
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	8.00	HR	37.47	108.10	40.50	324.01
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	103.25	108.10	111.61	892.86
8276	EXCAVATOR 35000-39999#	1.00	8.00	HR	130.15	108.10	140.69	1,125.52
LABORER	Laborer	2.00	16.00	MH	30.49	100.00	60.60	969.58
OPER4	Operator Foreman	1.00	8.00	MH	48.00	100.00	89.27	714.13
OPERATOR	Operator	2.00	16.00	MH	43.14	100.00	83.31	1,332.89

Activity: 20.3 AC Patch Paving Quantity: 1000 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.39	0.36	0.75	0.48	2.70	0.00	0.50	4.43
Total	390.52	363.64	754.16	477.14	2,703.59	0.00	495.00	4,429.89

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1.1409	0.0020	500.0000	570.4350	0.2500	4,000.0000	0.0003	17,719.5600

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
10.0000	100.0000	0.0100	75.4160	0.3905

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: BKFL Backfill Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 5.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2A	ASPHALT	1.00	33.00	TON	72.00	108.10	77.83	2,568.46
2TACKCOAT	Tack Coat	1.00	250.00	LF	0.50	108.10	0.54	135.13
4HAUL	Hauling - Sub	1.00	33.00	TON	15.00	100.00	15.00	495.00
8034	ROLLER 41-49" VIB SINGLE DRU	1.00	2.00	HR	60.26	108.10	65.14	130.27
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8324	TRUCK WATER 2000-2999 GALLON	1.00	2.00	HR	60.07	108.10	64.94	129.88
8BITCHPOT	Bitch Pot	1.00	2.39	HR	35.00	108.10	37.84	90.43
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	2.00	4.00	MH	43.14	100.00	83.31	333.22

Activity: 20.4 Striping & Signage Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Notes: Assume approx 50% of all trench will require re-striping

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4STRIPE	Striping - Sub	1.00	125.00	LF	1.00	100.00	1.00	125.00

Activity: 20.5 Traffic Control Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91
Total	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,532.8100	8.0000	0.1250	191.6013	1.0000	1.0000	1.0000	1,640.9100

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	60.8671	730.8800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TCMTL	Traffic Control Materials	1.00	1.00	DAY	100.00	108.10	108.10	108.10
8UTLPU	Utility Pickup	1.00	8.00	HR	9.00	100.00	9.00	72.00
FLAG	Flagger	2.00	16.00	MH	28.68	100.00	58.85	941.58
LAB4	Labor Foreman	1.00	8.00	MH	34.00	100.00	64.90	519.23

Activity: 20.6 Street Reconstruction Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4PAVE	AC Paving	1.00	0.00	LS	13,053.21	100.00	0.00	0.00

Activity: 20.9 Materials Quantity: 250 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	50.93	0.00	0.00	50.93
Total	0.00	0.00	0.00	0.00	12,733.67	0.00	0.00	12,733.67

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
28"H2O	8" Water Line	1.00	280.00	LF	24.13	108.10	26.08	7,303.67
2BASE	Base Rock	1.00	72.00	TON	9.75	108.10	10.54	758.86
2MEGALUG	MJ Megalug Pack	1.00	2.00	EA	69.36	108.10	74.98	149.96
2MJFITTING	MJ Fitting	1.00	1.00	EA	740.00	108.10	799.94	799.94
2PIPEACC	Pipe Accessories	1.00	250.00	LF	1.60	108.10	1.73	432.40
2PIPEALLOW	Misc Pipe Matl Allowance	1.00	12,950.26	LS	0.10	108.10	0.11	1,399.92
2SAND	Bedding Sand - FOB Plant	1.00	42.00	TON	6.00	108.10	6.49	272.41
2VALVEALLOW	Valve Allowance	1.00	0.50	EA	3,233.02	100.00	3,233.02	1,616.51

Biditem

30

10" Water Line

Takeoff Qty: 230.000 LF

Bid Qty: 230.000 LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	12.23	11.61	23.84	12.83	87.08	1.03	10.46	135.24
Total	2,812.46	2,670.12	5,482.58	2,951.48	20,027.90	237.82	2,405.00	31,104.78

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
78.0000	2.9487	0.3391	398.7792	36.0572	70.2895	11.5000

Activity: 30.1 Sawcut Quantity: 460 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total

U. Cost	0.28	0.27	0.55	0.15	0.00	0.05	0.00	0.74
Total	128.98	122.03	251.01	67.52	0.00	21.62	0.00	340.15

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
0.6925	0.0043	230.0000	159.2650	0.2500	1,840.0000	0.0005	1,360.6000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
4.0000	115.0000	0.0087	62.7525	0.2804

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 2.00 Equipment Pcs: 2.00

Notes: Assume an average of 4" pavement depth.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3MISCTOOL	Misc Tool Allowance	1.00	2.00	HR	10.00	108.10	10.81	21.62
8231	SAW CONCRETE 20-29HP SELF PR	1.00	2.00	HR	22.90	108.10	24.76	49.52
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LAB4	Labor Foreman	1.00	2.00	MH	34.00	100.00	64.91	129.81
LABORER	Laborer	1.00	2.00	MH	30.49	100.00	60.60	121.20

Activity: 30.2 Excavate/Install/Backfill Quantity: 230 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	6.79	6.32	13.12	10.18	0.00	0.47	8.00	31.77
Total	1,562.08	1,454.52	3,016.60	2,342.39	0.00	108.10	1,840.00	7,307.09

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
23.3000	0.0348	28.7500	669.8738	1.0000	230.0000	0.0043	7,307.0900

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
40.0000	5.7500	0.1739	75.4150	6.7917

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TRAFFICPLAT	Traffic Plate	1.00	2.00	EA/D	50.00	108.10	54.05	108.10
4HAUL	Hauling - Sub	1.00	16.00	HR	115.00	100.00	115.00	1,840.00
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	8.00	HR	37.47	108.10	40.50	324.01
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	103.25	108.10	111.61	892.86
8276	EXCAVATOR 35000-39999#	1.00	8.00	HR	130.15	108.10	140.69	1,125.52
LABORER	Laborer	2.00	16.00	MH	30.49	100.00	60.60	969.58
OPER4	Operator Foreman	1.00	8.00	MH	48.00	100.00	89.27	714.13
OPERATOR	Operator	2.00	16.00	MH	43.14	100.00	83.31	1,332.89

Activity: 30.3 AC Patch Paving Quantity: 920 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.42	0.40	0.82	0.51	2.81	0.00	0.49	4.63
Total	390.52	363.64	754.16	469.57	2,583.59	0.00	450.00	4,257.32

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1.2401	0.0022	460.0000	570.4350	0.2500	3,680.0000	0.0003	17,029.2800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
10.0000	92.0000	0.0109	75.4160	0.4245

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: BKFL Backfill Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 5.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2A	ASPHALT	1.00	30.00	TON	72.00	108.10	77.83	2,334.96
2TACKCOAT	Tack Coat	1.00	460.00	LF	0.50	108.10	0.54	248.63

4HAUL	Hauling - Sub	1.00	30.00	TON	15.00	100.00	15.00	450.00
8034	ROLLER 41-49" VIB SINGLE DRU	1.00	2.00	HR	60.26	108.10	65.14	130.27
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8324	TRUCK WATER 2000-2999 GALLON	1.00	2.00	HR	60.07	108.10	64.94	129.88
8BITCHPOT	Bitch Pot	1.00	2.19	HR	35.00	108.10	37.84	82.86
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	2.00	4.00	MH	43.14	100.00	83.31	333.22

Activity: 30.4 Striping & Signage Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Notes: Assume approx 50% of all trench will require re-striping

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4STRIPE	Striping - Sub	1.00	115.00	LF	1.00	100.00	1.00	115.00

Activity: 30.5 Traffic Control Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91
Total	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,532.8100	8.0000	0.1250	191.6013	1.0000	1.0000	1.0000	1,640.9100

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	60.8671	730.8800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TCMTL	Traffic Control Materials	1.00	1.00	DAY	100.00	108.10	108.10	108.10
8UTLPU	Utility Pickup	1.00	8.00	HR	9.00	100.00	9.00	72.00
FLAG	Flagger	2.00	16.00	MH	28.68	100.00	58.85	941.58
LAB4	Labor Foreman	1.00	8.00	MH	34.00	100.00	64.90	519.23

Activity: 30.6 Street Reconstruction Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4PAVE	AC Paving	1.00	0.00	LS	13,053.21	100.00	0.00	0.00

Activity: 30.9 Materials Quantity: 230 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	75.84	0.00	0.00	75.84
Total	0.00	0.00	0.00	0.00	17,444.31	0.00	0.00	17,444.31

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
210"H2O	10" Water Line	1.00	260.00	LF	36.70	108.10	39.67	10,314.90
2BASE	Base Rock	1.00	60.00	TON	9.75	108.10	10.54	632.39
2MEGALUG	MJ Megalug Pack	1.00	2.00	EA	166.90	108.10	180.42	360.84
2MJFITTING	MJ Fitting	1.00	1.00	EA	1,441.18	108.10	1,557.92	1,557.92
2PIPEACC	Pipe Accessories	1.00	230.00	LF	1.60	108.10	1.73	397.81
2PIPEALLOW	Misc Pipe Matl Allowance	1.00	17,567.27	LS	0.10	108.10	0.11	1,899.02
2SAND	Bedding Sand - FOB Plant	1.00	40.00	TON	6.00	108.10	6.49	259.44
2VALVEALLOW	Valve Allowance	1.00	0.50	EA	4,043.97	100.00	4,043.98	2,021.99

Biditem

40

12" Water Line

Takeoff Qty: 230.000 LF

Bid Qty: 230.000 LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	12.23	11.61	23.84	12.83	113.69	1.03	14.46	165.85
Total	2,812.46	2,670.12	5,482.58	2,951.48	26,148.03	237.82	3,325.00	38,144.91

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
78.0000	2.9487	0.3391	489.0373	36.0572	70.2895	11.5000

Activity: 40.1 Sawcut Quantity: 460 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.28	0.27	0.55	0.15	0.00	0.05	0.00	0.74
Total	128.98	122.03	251.01	67.52	0.00	21.62	0.00	340.15

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
0.6925	0.0043	230.0000	159.2650	0.2500	1,840.0000	0.0005	1,360.6000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
4.0000	115.0000	0.0087	62.7525	0.2804

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 2.00 Equipment Pcs: 2.00

Notes: Assume an average of 4" pavement depth.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3MISCTOOL	Misc Tool Allowance	1.00	2.00	HR	10.00	108.10	10.81	21.62
8231	SAW CONCRETE 20-29HP SELF PR	1.00	2.00	HR	22.90	108.10	24.76	49.52
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LAB4	Labor Foreman	1.00	2.00	MH	34.00	100.00	64.91	129.81
LABORER	Laborer	1.00	2.00	MH	30.49	100.00	60.60	121.20

Activity: 40.2 Excavate/Install/Backfill Quantity: 230 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	6.79	6.32	13.12	10.18	0.00	0.47	12.00	35.77
Total	1,562.08	1,454.52	3,016.60	2,342.39	0.00	108.10	2,760.00	8,227.09

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
23.3000	0.0348	28.7500	669.8738	1.0000	230.0000	0.0043	8,227.0900

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
40.0000	5.7500	0.1739	75.4150	6.7917

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TRAFFICPLAT	Traffic Plate	1.00	2.00	EA/D	50.00	108.10	54.05	108.10
4HAUL	Hauling - Sub	1.00	24.00	HR	115.00	100.00	115.00	2,760.00
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	8.00	HR	37.47	108.10	40.50	324.01
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	103.25	108.10	111.61	892.86
8276	EXCAVATOR 35000-39999#	1.00	8.00	HR	130.15	108.10	140.69	1,125.52
LABORER	Laborer	2.00	16.00	MH	30.49	100.00	60.60	969.58
OPER4	Operator Foreman	1.00	8.00	MH	48.00	100.00	89.27	714.13
OPERATOR	Operator	2.00	16.00	MH	43.14	100.00	83.31	1,332.89

Activity: 40.3 AC Patch Paving Quantity: 920 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total

U. Cost	0.42	0.40	0.82	0.51	2.81	0.00	0.49	4.63
Total	390.52	363.64	754.16	469.57	2,583.59	0.00	450.00	4,257.32

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1.2401	0.0022	460.0000	570.4350	0.2500	3,680.0000	0.0003	17,029.2800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
10.0000	92.0000	0.0109	75.4160	0.4245

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: BKFL Backfill Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 5.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2A	ASPHALT	1.00	30.00	TON	72.00	108.10	77.83	2,334.96
2TACKCOAT	Tack Coat	1.00	460.00	LF	0.50	108.10	0.54	248.63
4HAUL	Hauling - Sub	1.00	30.00	TON	15.00	100.00	15.00	450.00
8034	ROLLER 41-49" VIB SINGLE DRU	1.00	2.00	HR	60.26	108.10	65.14	130.27
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8324	TRUCK WATER 2000-2999 GALLON	1.00	2.00	HR	60.07	108.10	64.94	129.88
8BITCHPOT	Bitch Pot	1.00	2.19	HR	35.00	108.10	37.84	82.86
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	2.00	4.00	MH	43.14	100.00	83.31	333.22

Activity: 40.4 Striping & Signage Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Notes: Assume approx 50% of all trench will require re-striping

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4STRIPE	Striping - Sub	1.00	115.00	LF	1.00	100.00	1.00	115.00

Activity: 40.5 Traffic Control Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91
Total	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,532.8100	8.0000	0.1250	191.6013	1.0000	1.0000	1.0000	1,640.9100

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	60.8671	730.8800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TCMTL	Traffic Control Materials	1.00	1.00	DAY	100.00	108.10	108.10	108.10
8UTLPU	Utility Pickup	1.00	8.00	HR	9.00	100.00	9.00	72.00
FLAG	Flagger	2.00	16.00	MH	28.68	100.00	58.85	941.58
LAB4	Labor Foreman	1.00	8.00	MH	34.00	100.00	64.90	519.23

Activity: 40.6 Street Reconstruction Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4PAVE	AC Paving	1.00	0.00	LS	13,053.21	100.00	0.00	0.00

Activity: 40.9 Materials Quantity: 230 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total

U. Cost	0.00	0.00	0.00	0.00	102.45	0.00	0.00	102.45
Total	0.00	0.00	0.00	0.00	23,564.44	0.00	0.00	23,564.44

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
212"H2O	12" Water Line	1.00	260.00	LF	51.87	108.10	56.07	14,578.58
2BASE	Base Rock	1.00	60.00	TON	9.75	108.10	10.54	632.39
2MEGALUG	MJ Megalug Pack	1.00	2.00	EA	115.82	108.10	125.20	250.40
2MJFITTING	MJ Fitting	1.00	1.00	EA	1,935.30	108.10	2,092.06	2,092.06
2PIPEACC	Pipe Accessories	1.00	230.00	LF	2.20	108.10	2.38	546.99
2PIPEALLOW	Misc Pipe Matl Allowance	1.00	23,574.84	LS	0.10	108.10	0.11	2,548.44
2SAND	Bedding Sand - FOB Plant	1.00	55.00	TON	6.00	108.10	6.49	356.73
2VALVEALLOW	Valve Allowance	1.00	0.50	EA	4,734.22	108.10	5,117.70	2,558.85

Biditem

50

14" Water Line

Takeoff Qty: 220.000 LF

Bid Qty: 220.000 LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	12.78	12.14	24.92	13.38	140.24	1.08	11.32	190.94
Total	2,812.46	2,670.12	5,482.58	2,944.29	30,851.99	237.82	2,490.00	42,006.68

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
78.0000	2.8205	0.3545	538.5472	36.0572	70.2895	11.0000

Activity: 50.1 Sawcut Quantity: 440 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.29	0.28	0.57	0.15	0.00	0.05	0.00	0.77
Total	128.98	122.03	251.01	67.52	0.00	21.62	0.00	340.15

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
0.7239	0.0045	220.0000	159.2650	0.2500	1,760.0000	0.0006	1,360.6000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
4.0000	110.0000	0.0091	62.7525	0.2931

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 2.00 Equipment Pcs: 2.00

Notes: Assume an average of 4" pavement depth.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3MISCTOOL	Misc Tool Allowance	1.00	2.00	HR	10.00	108.10	10.81	21.62
8231	SAW CONCRETE 20-29HP SELF PR	1.00	2.00	HR	22.90	108.10	24.76	49.52
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LAB4	Labor Foreman	1.00	2.00	MH	34.00	100.00	64.91	129.81
LABORER	Laborer	1.00	2.00	MH	30.49	100.00	60.60	121.20

Activity: 50.2 Excavate/Install/Backfill Quantity: 220 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	7.10	6.61	13.71	10.65	0.00	0.49	8.36	33.21
Total	1,562.08	1,454.52	3,016.60	2,342.39	0.00	108.10	1,840.00	7,307.09

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
24.3590	0.0364	27.5000	669.8738	1.0000	220.0000	0.0045	7,307.0900

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
40.0000	5.5000	0.1818	75.4150	7.1004

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TRAFFICPLAT	Traffic Plate	1.00	2.00	EA/D	50.00	108.10	54.05	108.10
4HAUL	Hauling - Sub	1.00	16.00	HR	115.00	100.00	115.00	1,840.00
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	8.00	HR	37.47	108.10	40.50	324.01
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	103.25	108.10	111.61	892.86
8276	EXCAVATOR 35000-39999#	1.00	8.00	HR	130.15	108.10	140.69	1,125.52
LABORER	Laborer	2.00	16.00	MH	30.49	100.00	60.60	969.58
OPER4	Operator Foreman	1.00	8.00	MH	48.00	100.00	89.27	714.13
OPERATOR	Operator	2.00	16.00	MH	43.14	100.00	83.31	1,332.89

Activity: 50.3 AC Patch Paving Quantity: 1100 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.36	0.33	0.69	0.42	2.76	0.00	0.49	4.36
Total	390.52	363.64	754.16	462.38	3,039.77	0.00	540.00	4,796.31

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1.0372	0.0018	550.0000	570.4350	0.2500	4,400.0000	0.0002	19,185.2400

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
10.0000	110.0000	0.0091	75.4160	0.3550

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: BKFL Backfill Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 5.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2A	ASPHALT	1.00	36.00	TON	72.00	108.10	77.83	2,801.95
2TACKCOAT	Tack Coat	1.00	440.00	LF	0.50	108.10	0.54	237.82
4HAUL	Hauling - Sub	1.00	36.00	TON	15.00	100.00	15.00	540.00
8034	ROLLER 41-49" VIB SINGLE DRU	1.00	2.00	HR	60.26	108.10	65.14	130.27
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8324	TRUCK WATER 2000-2999 GALLON	1.00	2.00	HR	60.07	108.10	64.94	129.88
8BITCHPOT	Bitch Pot	1.00	2.00	HR	35.00	108.10	37.84	75.67
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	2.00	4.00	MH	43.14	100.00	83.31	333.22

Activity: 50.4 Striping & Signage Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Notes: Assume approx 50% of all trench will require re-striping

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4STRIPE	Striping - Sub	1.00	110.00	LF	1.00	100.00	1.00	110.00

Activity: 50.5 Traffic Control Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91
Total	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,532.8100	8.0000	0.1250	191.6013	1.0000	1.0000	1.0000	1,640.9100

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	60.8671	730.8800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TCMTL	Traffic Control Materials	1.00	1.00	DAY	100.00	108.10	108.10	108.10
8UTLPU	Utility Pickup	1.00	8.00	HR	9.00	100.00	9.00	72.00
FLAG	Flagger	2.00	16.00	MH	28.68	100.00	58.85	941.58
LAB4	Labor Foreman	1.00	8.00	MH	34.00	100.00	64.90	519.23

Activity: 50.6 Street Reconstruction Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4PAVE	AC Paving	1.00	0.00	LS	13,053.21	100.00	0.00	0.00

Activity: 50.9 Materials Quantity: 220 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	126.42	0.00	0.00	126.42
Total	0.00	0.00	0.00	0.00	27,812.22	0.00	0.00	27,812.22

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
214"H2O	14" Water Line	1.00	240.00	LF	67.43	108.10	72.89	17,494.04
2BASE	Base Rock	1.00	60.00	TON	9.75	108.10	10.54	632.39
2MEGALUG	MJ Megalug Pack	1.00	2.00	EA	166.90	108.10	180.42	360.84
2MJFITTING	MJ Fitting	1.00	1.00	EA	2,500.00	108.10	2,702.50	2,702.50
2PIPEACC	Pipe Accessories	1.00	220.00	LF	2.20	108.10	2.38	523.20
2PIPEALLOW	Misc Pipe Matl Allowance	1.00	27,573.82	LS	0.10	108.10	0.11	2,980.73
2SAND	Bedding Sand - FOB Plant	1.00	58.00	TON	6.00	108.10	6.49	376.19
2VALVEALLOW	Valve Allowance	1.00	0.50	EA	5,484.66	100.00	5,484.66	2,742.33

Biditem

60

16" Water Line

Takeoff Qty: 200.000 LF

Bid Qty: 200.000 LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	13.93	13.23	27.16	15.17	191.55	1.01	9.55	244.45
Total	2,786.66	2,645.70	5,432.36	3,034.92	38,309.86	202.69	1,909.45	48,889.28

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
77.2000	2.5907	0.3860	633.2808	36.0966	70.3674	10.2041

Activity: 60.1 Sawcut Quantity: 400 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.26	0.24	0.50	0.14	0.00	0.04	0.00	0.68
Total	103.18	97.61	200.79	54.01	0.00	17.30	0.00	272.10

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
0.6370	0.0040	250.0000	159.2500	0.2000	2,000.0000	0.0005	1,360.5000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
3.2000	125.0000	0.0080	62.7469	0.2580

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 0.2 Eff: 100.00 Crew Hrs: 1.60 Labor Pcs: 2.00 Equipment Pcs: 2.00

Notes: Assume an average of 4" pavement depth.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3MISCTOOL	Misc Tool Allowance	1.00	1.60	HR	10.00	108.10	10.81	17.30
8231	SAW CONCRETE 20-29HP SELF PR	1.00	1.60	HR	22.90	108.10	24.76	39.61
8UTLPU	Utility Pickup	1.00	1.60	HR	9.00	100.00	9.00	14.40

LAB4	Labor Foreman	1.00	1.60	MH	34.00	100.00	64.90	103.84
LABORER	Laborer	1.00	1.60	MH	30.49	100.00	60.59	96.95

Activity: 60.2 Excavate/Install/Backfill Quantity: 200 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	7.81	7.27	15.08	12.23	0.00	0.39	6.57	34.27
Total	1,562.08	1,454.52	3,016.60	2,446.53	0.00	77.29	1,314.45	6,854.87

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
27.3157	0.0400	25.0000	682.8913	1.0000	200.0000	0.0050	6,854.8700

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
40.0000	5.0000	0.2000	75.4150	7.8104

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TRAFFICPLAT	Traffic Plate	1.00	1.43	EA/D	50.00	108.10	54.05	77.29
4HAUL	Hauling - Sub	1.00	11.43	HR	115.00	100.00	115.00	1,314.45
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	8.00	HR	37.47	108.10	40.50	324.01
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	103.25	108.10	111.61	892.86
8277	EXCAVATOR 40000-42999#	1.00	8.00	HR	142.19	108.10	153.71	1,229.66
LABORER	Laborer	2.00	16.00	MH	30.49	100.00	60.60	969.58
OPER4	Operator Foreman	1.00	8.00	MH	48.00	100.00	89.27	714.13
OPERATOR	Operator	2.00	16.00	MH	43.14	100.00	83.31	1,332.89

Activity: 60.3 AC Patch Paving Quantity: 1000 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.39	0.36	0.75	0.46	2.78	0.00	0.50	4.50
Total	390.52	363.64	754.16	462.38	2,784.66	0.00	495.00	4,496.20

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1.1409	0.0020	500.0000	570.4350	0.2500	4,000.0000	0.0003	17,984.8000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
10.0000	100.0000	0.0100	75.4160	0.3905

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: BKFL Backfill Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 5.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2A	ASPHALT	1.00	33.00	TON	72.00	108.10	77.83	2,568.46
2TACKCOAT	Tack Coat	1.00	400.00	LF	0.50	108.10	0.54	216.20
4HAUL	Hauling - Sub	1.00	33.00	TON	15.00	100.00	15.00	495.00
8034	ROLLER 41-49" VIB SINGLE DRU	1.00	2.00	HR	60.26	108.10	65.14	130.27
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8324	TRUCK WATER 2000-2999 GALLON	1.00	2.00	HR	60.07	108.10	64.94	129.88
8BITCHPOT	Bitch Pot	1.00	2.00	HR	35.00	108.10	37.84	75.67
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	2.00	4.00	MH	43.14	100.00	83.31	333.22

Activity: 60.4 Striping & Signage Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Notes: Assume approx 50% of all trench will require re-striping

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4STRIPE	Striping - Sub	1.00	100.00	LF	1.00	100.00	1.00	100.00

Activity: 60.5 Traffic Control Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91
Total	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,532.8100	8.0000	0.1250	191.6013	1.0000	1.0000	1.0000	1,640.9100

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	60.8671	730.8800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TCMTL	Traffic Control Materials	1.00	1.00	DAY	100.00	108.10	108.10	108.10
8UTLPU	Utility Pickup	1.00	8.00	HR	9.00	100.00	9.00	72.00
FLAG	Flagger	2.00	16.00	MH	28.68	100.00	58.85	941.58
LAB4	Labor Foreman	1.00	8.00	MH	34.00	100.00	64.90	519.23

Activity: 60.6 Street Reconstruction Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4PAVE	AC Paving	1.00	0.00	LS	13,053.21	100.00	0.00	0.00

Activity: 60.9 Materials Quantity: 200 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	177.63	0.00	0.00	177.63
Total	0.00	0.00	0.00	0.00	35,525.20	0.00	0.00	35,525.20

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
216"H2O	16" Water Line	1.00	220.00	LF	89.70	108.10	96.97	21,332.45
2BASE	Base Rock	1.00	66.00	TON	9.75	108.10	10.54	695.62
2MEGALUG	MJ Megalug Pack	1.00	2.00	EA	239.18	108.10	258.56	517.11
2MJFITTING	MJ Fitting	1.00	1.00	EA	3,491.77	108.10	3,774.60	3,774.60
2PIPEACC	Pipe Accessories	1.00	200.00	LF	2.50	108.10	2.70	540.50
2PIPEALLOW	Misc Pipe Matl Allowance	1.00	36,025.27	LS	0.10	108.10	0.11	3,894.33
2SAND	Bedding Sand - FOB Plant	1.00	58.00	TON	6.00	108.10	6.49	376.19
2VALVEALLOW	Valve Allowance	1.00	0.50	EA	8,788.80	100.00	8,788.80	4,394.40

Biditem

70

8" PRV

Takeoff Qty: 1.000 EA

Bid Qty: 1.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	3,124.16	2,909.04	6,033.20	4,360.77	21,378.13	0.00	920.00	32,692.10
Total	3,124.16	2,909.04	6,033.20	4,360.77	21,378.13	0.00	920.00	32,692.10

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
80.0000	0.0125	80.0000	408.6513	39.0520	75.4150	0.0625

Activity: 70.1 PRV Materials Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	21,272.73	0.00	0.00	21,272.73
Total	0.00	0.00	0.00	0.00	21,272.73	0.00	0.00	21,272.73

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2BNGKIT	Bolt/Nut/Gasket Kit	1.00	2.00	EA	125.00	108.10	135.13	270.25
2PIPEALLOW	Misc Pipe Matl Allowance	1.00	19,197.48	LS	0.10	108.10	0.11	2,075.25
2PIPESPOOL	Pipe Spool	1.00	2.00	EA	748.00	108.10	808.59	1,617.18
2PRV	Pressure Reducing Valve	1.00	1.00	EA	7,513.00	108.10	8,121.55	8,121.55
2PRVVAULT	Precast PRV Vault	1.00	1.00	EA	8,500.00	108.10	9,188.50	9,188.50

Activity: 70.2 Install PRV Vault Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,562.08	1,454.52	3,016.60	2,342.39	105.40	0.00	920.00	6,384.39
Total	1,562.08	1,454.52	3,016.60	2,342.39	105.40	0.00	920.00	6,384.39

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
5,358.9900	8.0000	0.1250	669.8738	1.0000	1.0000	1.0000	6,384.3900

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
40.0000	0.0250	40.0000	75.4150	1,562.0800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2BASE	Base Rock	1.00	10.00	TON	9.75	108.10	10.54	105.40
4HAUL	Hauling - Sub	1.00	8.00	HR	115.00	100.00	115.00	920.00
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	8.00	HR	37.47	108.10	40.50	324.01
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	103.25	108.10	111.61	892.86
8276	EXCAVATOR 35000-39999#	1.00	8.00	HR	130.15	108.10	140.69	1,125.52
LABORER	Laborer	2.00	16.00	MH	30.49	100.00	60.60	969.58
OPER4	Operator Foreman	1.00	8.00	MH	48.00	100.00	89.27	714.13
OPERATOR	Operator	2.00	16.00	MH	43.14	100.00	83.31	1,332.89

Activity: 70.3 Install PRV Piping/Valve Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,562.08	1,454.52	3,016.60	2,018.38	0.00	0.00	0.00	5,034.98
Total	1,562.08	1,454.52	3,016.60	2,018.38	0.00	0.00	0.00	5,034.98

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
5,034.9800	8.0000	0.1250	629.3725	1.0000	1.0000	1.0000	5,034.9800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
40.0000	0.0250	40.0000	75.4150	1,562.0800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 5.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	103.25	108.10	111.61	892.86
8276	EXCAVATOR 35000-39999#	1.00	8.00	HR	130.15	108.10	140.69	1,125.52
LABORER	Laborer	2.00	16.00	MH	30.49	100.00	60.60	969.58
OPER4	Operator Foreman	1.00	8.00	MH	48.00	100.00	89.27	714.13
OPERATOR	Operator	2.00	16.00	MH	43.14	100.00	83.31	1,332.89

Biditem

71

12" PRV

Takeoff Qty: 1.000 EA

Bid Qty: 1.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total

U. Cost	3,124.16	2,909.04	6,033.20	4,360.77	28,111.28	0.00	920.00	39,425.25
Total	3,124.16	2,909.04	6,033.20	4,360.77	28,111.28	0.00	920.00	39,425.25

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
80.0000	0.0125	80.0000	492.8156	39.0520	75.4150	0.0625

Activity: 71.1 PRV Materials Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	28,005.88	0.00	0.00	28,005.88
Total	0.00	0.00	0.00	0.00	28,005.88	0.00	0.00	28,005.88

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2BNGKIT	Bolt/Nut/Gasket Kit	1.00	2.00	EA	125.00	108.10	135.13	270.25
2PIPEALLOW	Misc Pipe Matl Allowance	1.00	25,273.78	LS	0.10	108.10	0.11	2,732.10
2PIPESPOOL	Pipe Spool	1.00	2.00	EA	748.00	108.10	808.59	1,617.18
2PRV	Pressure Reducing Valve	1.00	1.00	EA	12,134.00	108.10	13,116.85	13,116.85
2PRVVAULT	Precast PRV Vault	1.00	1.00	EA	9,500.00	108.10	10,269.50	10,269.50

Activity: 71.2 Install PRV Vault Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,562.08	1,454.52	3,016.60	2,342.39	105.40	0.00	920.00	6,384.39
Total	1,562.08	1,454.52	3,016.60	2,342.39	105.40	0.00	920.00	6,384.39

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
5,358.9900	8.0000	0.1250	669.8738	1.0000	1.0000	1.0000	6,384.3900

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
40.0000	0.0250	40.0000	75.4150	1,562.0800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2BASE	Base Rock	1.00	10.00	TON	9.75	108.10	10.54	105.40
4HAUL	Hauling - Sub	1.00	8.00	HR	115.00	100.00	115.00	920.00
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	8.00	HR	37.47	108.10	40.50	324.01
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	103.25	108.10	111.61	892.86
8276	EXCAVATOR 35000-39999#	1.00	8.00	HR	130.15	108.10	140.69	1,125.52
LABORER	Laborer	2.00	16.00	MH	30.49	100.00	60.60	969.58
OPER4	Operator Foreman	1.00	8.00	MH	48.00	100.00	89.27	714.13
OPERATOR	Operator	2.00	16.00	MH	43.14	100.00	83.31	1,332.89

Activity: 71.3 Install PRV Piping/Valve Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,562.08	1,454.52	3,016.60	2,018.38	0.00	0.00	0.00	5,034.98
Total	1,562.08	1,454.52	3,016.60	2,018.38	0.00	0.00	0.00	5,034.98

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
5,034.9800	8.0000	0.1250	629.3725	1.0000	1.0000	1.0000	5,034.9800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
40.0000	0.0250	40.0000	75.4150	1,562.0800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 5.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	103.25	108.10	111.61	892.86
8276	EXCAVATOR 35000-39999#	1.00	8.00	HR	130.15	108.10	140.69	1,125.52

LABORER	Laborer	2.00	16.00	MH	30.49	100.00	60.60	969.58
OPER4	Operator Foreman	1.00	8.00	MH	48.00	100.00	89.27	714.13
OPERATOR	Operator	2.00	16.00	MH	43.14	100.00	83.31	1,332.89

Biditem

90

Water Meter

Takeoff Qty: 1.000 EA

Bid Qty: 1.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	304.24	283.31	587.55	207.56	2,291.54	0.00	0.00	3,086.65
Total	304.24	283.31	587.55	207.56	2,291.54	0.00	0.00	3,086.65

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
8.0000	0.1250	8.0000	385.8313	38.0300	73.4438	0.5000

Activity: 90.1 Water Meter Materials Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	2,291.54	0.00	0.00	2,291.54
Total	0.00	0.00	0.00	0.00	2,291.54	0.00	0.00	2,291.54

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
21"POLY	1" Poly Pipe	1.00	20.00	LF	1.06	108.10	1.15	22.92
2CORP	Corp Stop	1.00	1.00	EA	68.58	108.10	74.13	74.13
2PIPEALLOW	Misc Pipe Matl Allowance	1.00	2,067.99	LS	0.10	108.10	0.11	223.55
2PITSET	Pit Setter	1.00	1.00	EA	1,648.25	108.10	1,781.76	1,781.76
2SADDLE	Pipe Saddle	1.00	1.00	EA	175.00	108.10	189.18	189.18

Activity: 90.2 Install Lateral/Pit Setter Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	304.24	283.31	587.55	207.56	0.00	0.00	0.00	795.11
Total	304.24	283.31	587.55	207.56	0.00	0.00	0.00	795.11

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
795.1100	2.0000	0.5000	397.5550	0.2500	4.0000	0.2500	3,180.4400

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
8.0000	0.1250	8.0000	73.4438	304.2400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	2.00	HR	37.47	108.10	40.50	81.00
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	1.00	2.00	MH	43.14	100.00	83.31	166.61

Biditem

100

Fire Hydrant

Takeoff Qty: 1.000 EA

Bid Qty: 1.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	912.72	849.91	1,762.63	595.10	6,647.98	0.00	0.00	9,005.71
Total	912.72	849.91	1,762.63	595.10	6,647.98	0.00	0.00	9,005.71

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
24.0000	0.0417	24.0000	375.2379	38.0300	73.4429	0.1667

Activity: 100.1 FH Materials Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	6,566.90	0.00	0.00	6,566.90
Total	0.00	0.00	0.00	0.00	6,566.90	0.00	0.00	6,566.90

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
26"H20	6" Water Line	1.00	20.00	LF	14.05	108.10	15.19	303.76
26"PVC	6" PVC	1.00	5.00	LF	7.50	108.10	8.11	40.54
2FIREHYD	Fire Hydrant	1.00	1.00	EA	4,428.00	108.10	4,786.67	4,786.67
2G5	G5 Valve Box	1.00	1.00	EA	78.00	108.10	84.32	84.32
2GATEVLV	Gate Valve	1.00	1.00	EA	836.23	108.10	903.96	903.96
2PIPEALLOW	Misc Pipe Matl Allowance	1.00	8,282.11	LS	0.05	108.10	0.05	447.65

Activity: 100.2 Install Lateral/Hydrant Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	608.48	566.60	1,175.08	415.13	0.00	0.00	0.00	1,590.21
Total	608.48	566.60	1,175.08	415.13	0.00	0.00	0.00	1,590.21

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,590.2100	4.0000	0.2500	397.5525	0.5000	2.0000	0.5000	3,180.4200

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
16.0000	0.0625	16.0000	73.4425	608.4800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 0.5 Eff: 100.00 Crew Hrs: 4.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	4.00	HR	37.47	108.10	40.50	162.00
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	4.00	HR	50.21	108.10	54.28	217.13
8UTLPU	Utility Pickup	1.00	4.00	HR	9.00	100.00	9.00	36.00
LABORER	Laborer	2.00	8.00	MH	30.49	100.00	60.60	484.79
OPER4	Operator Foreman	1.00	4.00	MH	48.00	100.00	89.27	357.07
OPERATOR	Operator	1.00	4.00	MH	43.14	100.00	83.31	333.22

Activity: 100.3 Raise/Collar Valve Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60
Total	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
767.5200	2.0000	0.5000	383.7600	0.2500	4.0000	0.2500	3,394.4000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
8.0000	0.1250	8.0000	73.4438	304.2400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 4.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	0.50	CY	150.00	108.10	162.16	81.08
8001	COMPRESSOR 155-175 CFM DIESE	1.00	2.00	HR	15.93	108.10	17.22	34.44
8016	BREAKER PAVEMENT AIR 90#	1.00	2.00	HR	8.77	108.10	9.49	18.97
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40

OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	1.00	2.00	MH	43.14	100.00	83.31	166.61

Biditem

105

4" Valve

Takeoff Qty: 1.000 EA

Bid Qty: 1.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	456.36	424.97	881.33	283.75	997.06	0.00	0.00	2,162.14
Total	456.36	424.97	881.33	283.75	997.06	0.00	0.00	2,162.14

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
12.0000	0.0833	12.0000	180.1783	38.0300	73.4442	0.3333

Activity: 105.1 Valve Materials Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	915.98	0.00	0.00	915.98
Total	0.00	0.00	0.00	0.00	915.98	0.00	0.00	915.98

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
24"MEGALUG	4" Megalug	1.00	2.00	EA	38.12	108.10	41.21	82.42
24"MJVLV	4" MJ Gate Valve	1.00	1.00	EA	655.60	108.10	708.70	708.70
26"PVC	6" PVC	1.00	5.00	LF	7.50	108.10	8.11	40.54
2G5	G5 Valve Box	1.00	1.00	EA	78.00	108.10	84.32	84.32

Activity: 105.2 Install Valve Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	152.12	141.66	293.78	103.78	0.00	0.00	0.00	397.56
Total	152.12	141.66	293.78	103.78	0.00	0.00	0.00	397.56

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
397.5600	1.0000	1.0000	397.5600	0.1250	8.0000	0.1250	3,180.4800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
4.0000	0.2500	4.0000	73.4450	152.1200

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 0.125 Eff: 100.00 Crew Hrs: 1.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	1.00	HR	37.47	108.10	40.50	40.50
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	1.00	HR	50.21	108.10	54.28	54.28
8UTLPU	Utility Pickup	1.00	1.00	HR	9.00	100.00	9.00	9.00
LABORER	Laborer	2.00	2.00	MH	30.49	100.00	60.60	121.20
OPER4	Operator Foreman	1.00	1.00	MH	48.00	100.00	89.27	89.27
OPERATOR	Operator	1.00	1.00	MH	43.14	100.00	83.31	83.31

Activity: 105.3 Raise/Collar Valve Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60
Total	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
767.5200	2.0000	0.5000	383.7600	0.2500	4.0000	0.2500	3,394.4000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
8.0000	0.1250	8.0000	73.4438	304.2400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 4.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	0.50	CY	150.00	108.10	162.16	81.08
8001	COMPRESSOR 155-175 CFM DIESE	1.00	2.00	HR	15.93	108.10	17.22	34.44
8016	BREAKER PAVEMENT AIR 90#	1.00	2.00	HR	8.77	108.10	9.49	18.97
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	1.00	2.00	MH	43.14	100.00	83.31	166.61

Biditem

110

6" Valve

Takeoff Qty: 1.000 EA

Bid Qty: 1.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	456.36	424.97	881.33	283.75	1,233.03	0.00	0.00	2,398.11
Total	456.36	424.97	881.33	283.75	1,233.03	0.00	0.00	2,398.11

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
12.0000	0.0833	12.0000	199.8425	38.0300	73.4442	0.3333

Activity: 110.1 Valve Materials Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	1,151.95	0.00	0.00	1,151.95
Total	0.00	0.00	0.00	0.00	1,151.95	0.00	0.00	1,151.95

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
26"PVC	6" PVC	1.00	5.00	LF	7.50	108.10	8.11	40.54
2G5	G5 Valve Box	1.00	1.00	EA	78.00	108.10	84.32	84.32
2GATEVLV	Gate Valve	1.00	1.00	EA	836.23	108.10	903.96	903.96
2MEGALUG	MJ Megalug Pack	1.00	2.00	EA	56.95	108.10	61.57	123.13

Activity: 110.2 Install Valve Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	152.12	141.66	293.78	103.78	0.00	0.00	0.00	397.56
Total	152.12	141.66	293.78	103.78	0.00	0.00	0.00	397.56

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
397.5600	1.0000	1.0000	397.5600	0.1250	8.0000	0.1250	3,180.4800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
4.0000	0.2500	4.0000	73.4450	152.1200

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 0.125 Eff: 100.00 Crew Hrs: 1.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	1.00	HR	37.47	108.10	40.50	40.50
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	1.00	HR	50.21	108.10	54.28	54.28
8UTLPU	Utility Pickup	1.00	1.00	HR	9.00	100.00	9.00	9.00
LABORER	Laborer	2.00	2.00	MH	30.49	100.00	60.60	121.20
OPER4	Operator Foreman	1.00	1.00	MH	48.00	100.00	89.27	89.27
OPERATOR	Operator	1.00	1.00	MH	43.14	100.00	83.31	83.31

Activity: 110.3 Raise/Collar Valve Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60
Total	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
767.5200	2.0000	0.5000	383.7600	0.2500	4.0000	0.2500	3,394.4000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
8.0000	0.1250	8.0000	73.4438	304.2400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 4.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	0.50	CY	150.00	108.10	162.16	81.08
8001	COMPRESSOR 155-175 CFM DIESE	1.00	2.00	HR	15.93	108.10	17.22	34.44
8016	BREAKER PAVEMENT AIR 90#	1.00	2.00	HR	8.77	108.10	9.49	18.97
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	1.00	2.00	MH	43.14	100.00	83.31	166.61

Biditem

120

8" Valve

Takeoff Qty: 1.000 EA

Bid Qty: 1.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	499.50	465.13	964.63	472.77	1,795.62	0.00	0.00	3,233.02
Total	499.50	465.13	964.63	472.77	1,795.62	0.00	0.00	3,233.02

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
13.0000	0.0769	13.0000	248.6938	38.4231	74.2023	0.3333

Activity: 120.1 Valve Materials Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	1,714.54	0.00	0.00	1,714.54
Total	0.00	0.00	0.00	0.00	1,714.54	0.00	0.00	1,714.54

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
26"PVC	6" PVC	1.00	5.00	LF	7.50	108.10	8.11	40.54
2G5	G5 Valve Box	1.00	1.00	EA	78.00	108.10	84.32	84.32
2GATEVLV	Gate Valve	1.00	1.00	EA	1,331.84	108.10	1,439.72	1,439.72
2MEGALUG	MJ Megalug Pack	1.00	2.00	EA	69.36	108.10	74.98	149.96

Activity: 120.2 Install Valve Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	195.26	181.82	377.08	292.80	0.00	0.00	0.00	669.88
Total	195.26	181.82	377.08	292.80	0.00	0.00	0.00	669.88

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
669.8800	1.0000	1.0000	669.8800	0.1250	8.0000	0.1250	5,359.0400

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
5.0000	0.2000	5.0000	75.4160	195.2600

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 0.125 Eff: 100.00 Crew Hrs: 1.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	1.00	HR	37.47	108.10	40.50	40.50
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	1.00	HR	103.25	108.10	111.61	111.61
8276	EXCAVATOR 35000-39999#	1.00	1.00	HR	130.15	108.10	140.69	140.69
LABORER	Laborer	2.00	2.00	MH	30.49	100.00	60.60	121.20
OPER4	Operator Foreman	1.00	1.00	MH	48.00	100.00	89.27	89.27
OPERATOR	Operator	2.00	2.00	MH	43.14	100.00	83.31	166.61

Activity: 120.3 Raise/Collar Valve Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60
Total	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
767.5200	2.0000	0.5000	383.7600	0.2500	4.0000	0.2500	3,394.4000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
8.0000	0.1250	8.0000	73.4438	304.2400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 4.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	0.50	CY	150.00	108.10	162.16	81.08
8001	COMPRESSOR 155-175 CFM DIESE	1.00	2.00	HR	15.93	108.10	17.22	34.44
8016	BREAKER PAVEMENT AIR 90#	1.00	2.00	HR	8.77	108.10	9.49	18.97
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	1.00	2.00	MH	43.14	100.00	83.31	166.61

Biditem

130

10" Valve

Takeoff Qty: 1.000 EA

Bid Qty: 1.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	499.50	465.13	964.63	472.77	2,606.57	0.00	0.00	4,043.97
Total	499.50	465.13	964.63	472.77	2,606.57	0.00	0.00	4,043.97

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
13.0000	0.0769	13.0000	311.0746	38.4231	74.2023	0.3333

Activity: 130.1 Valve Materials Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	2,525.49	0.00	0.00	2,525.49
Total	0.00	0.00	0.00	0.00	2,525.49	0.00	0.00	2,525.49

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
26"PVC	6" PVC	1.00	5.00	LF	7.50	108.10	8.11	40.54
2G5	G5 Valve Box	1.00	1.00	EA	78.00	108.10	84.32	84.32
2GATEVLV	Gate Valve	1.00	1.00	EA	2,076.59	108.10	2,244.79	2,244.79
2MEGALUG	MJ Megalug Pack	1.00	2.00	EA	72.08	108.10	77.92	155.84

Activity: 130.2 Install Valve Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total

U. Cost	195.26	181.82	377.08	292.80	0.00	0.00	0.00	669.88
Total	195.26	181.82	377.08	292.80	0.00	0.00	0.00	669.88

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
669.8800	1.0000	1.0000	669.8800	0.1250	8.0000	0.1250	5,359.0400

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
5.0000	0.2000	5.0000	75.4160	195.2600

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 0.125 Eff: 100.00 Crew Hrs: 1.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	1.00	HR	37.47	108.10	40.50	40.50
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	1.00	HR	103.25	108.10	111.61	111.61
8276	EXCAVATOR 35000-39999#	1.00	1.00	HR	130.15	108.10	140.69	140.69
LABORER	Laborer	2.00	2.00	MH	30.49	100.00	60.60	121.20
OPER4	Operator Foreman	1.00	1.00	MH	48.00	100.00	89.27	89.27
OPERATOR	Operator	2.00	2.00	MH	43.14	100.00	83.31	166.61

Activity: 130.3 Raise/Collar Valve Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60
Total	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
767.5200	2.0000	0.5000	383.7600	0.2500	4.0000	0.2500	3,394.4000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
8.0000	0.1250	8.0000	73.4438	304.2400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 4.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	0.50	CY	150.00	108.10	162.16	81.08
8001	COMPRESSOR 155-175 CFM DIESE	1.00	2.00	HR	15.93	108.10	17.22	34.44
8016	BREAKER PAVEMENT AIR 90#	1.00	2.00	HR	8.77	108.10	9.49	18.97
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	1.00	2.00	MH	43.14	100.00	83.31	166.61

Biditem

140

12" Valve

Takeoff Qty: 1.000 EA

Bid Qty: 1.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	499.50	465.13	964.63	472.77	3,296.82	0.00	0.00	4,734.22
Total	499.50	465.13	964.63	472.77	3,296.82	0.00	0.00	4,734.22

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
13.0000	0.0769	13.0000	364.1708	38.4231	74.2023	0.3333

Activity: 140.1 Valve Materials Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	3,215.74	0.00	0.00	3,215.74
Total	0.00	0.00	0.00	0.00	3,215.74	0.00	0.00	3,215.74

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
26"PVC	6" PVC	1.00	5.00	LF	7.50	108.10	8.11	40.54
2G5	G5 Valve Box	1.00	1.00	EA	78.00	108.10	84.32	84.32
2GATEVLV	Gate Valve	1.00	1.00	EA	2,627.64	108.10	2,840.48	2,840.48
2MEGALUG	MJ Megalug Pack	1.00	2.00	EA	115.82	108.10	125.20	250.40

Activity: 140.2 Install Valve Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	195.26	181.82	377.08	292.80	0.00	0.00	0.00	669.88
Total	195.26	181.82	377.08	292.80	0.00	0.00	0.00	669.88

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
669.8800	1.0000	1.0000	669.8800	0.1250	8.0000	0.1250	5,359.0400

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
5.0000	0.2000	5.0000	75.4160	195.2600

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 0.125 Eff: 100.00 Crew Hrs: 1.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	1.00	HR	37.47	108.10	40.50	40.50
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	1.00	HR	103.25	108.10	111.61	111.61
8276	EXCAVATOR 35000-39999#	1.00	1.00	HR	130.15	108.10	140.69	140.69
LABORER	Laborer	2.00	2.00	MH	30.49	100.00	60.60	121.20
OPER4	Operator Foreman	1.00	1.00	MH	48.00	100.00	89.27	89.27
OPERATOR	Operator	2.00	2.00	MH	43.14	100.00	83.31	166.61

Activity: 140.3 Raise/Collar Valve Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60
Total	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
767.5200	2.0000	0.5000	383.7600	0.2500	4.0000	0.2500	3,394.4000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
8.0000	0.1250	8.0000	73.4438	304.2400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 4.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	0.50	CY	150.00	108.10	162.16	81.08
8001	COMPRESSOR 155-175 CFM DIESE	1.00	2.00	HR	15.93	108.10	17.22	34.44
8016	BREAKER PAVEMENT AIR 90#	1.00	2.00	HR	8.77	108.10	9.49	18.97
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	1.00	2.00	MH	43.14	100.00	83.31	166.61

Biditem

150

14" Valve

Takeoff Qty: 1.000 EA

Bid Qty: 1.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total

U. Cost	694.76	646.95	1,341.71	765.57	3,377.38	0.00	0.00	5,484.66
Total	694.76	646.95	1,341.71	765.57	3,377.38	0.00	0.00	5,484.66

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
18.0000	0.0556	18.0000	304.7033	38.5978	74.5394	0.2500

Activity: 150.1 Valve Materials Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	3,296.30	0.00	0.00	3,296.30
Total	0.00	0.00	0.00	0.00	3,296.30	0.00	0.00	3,296.30

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
24"MEGALUG	4" Megalug	1.00	2.00	EA	166.90	108.10	180.42	360.84
24"MJVLV	4" MJ Gate Valve	1.00	1.00	EA	2,600.00	108.10	2,810.60	2,810.60
26"PVC	6" PVC	1.00	5.00	LF	7.50	108.10	8.11	40.54
2G5	G5 Valve Box	1.00	1.00	EA	78.00	108.10	84.32	84.32

Activity: 150.2 Install Valve Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	390.52	363.64	754.16	585.60	0.00	0.00	0.00	1,339.76
Total	390.52	363.64	754.16	585.60	0.00	0.00	0.00	1,339.76

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,339.7600	2.0000	0.5000	669.8800	0.2500	4.0000	0.2500	5,359.0400

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
10.0000	0.1000	10.0000	75.4160	390.5200

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	2.00	HR	37.47	108.10	40.50	81.00
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	2.00	HR	103.25	108.10	111.61	223.22
8276	EXCAVATOR 35000-39999#	1.00	2.00	HR	130.15	108.10	140.69	281.38
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	2.00	4.00	MH	43.14	100.00	83.31	333.22

Activity: 150.3 Raise/Collar Valve Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60
Total	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
767.5200	2.0000	0.5000	383.7600	0.2500	4.0000	0.2500	3,394.4000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
8.0000	0.1250	8.0000	73.4438	304.2400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 4.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	0.50	CY	150.00	108.10	162.16	81.08
8001	COMPRESSOR 155-175 CFM DIESE	1.00	2.00	HR	15.93	108.10	17.22	34.44
8016	BREAKER PAVEMENT AIR 90#	1.00	2.00	HR	8.77	108.10	9.49	18.97
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00

LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	1.00	2.00	MH	43.14	100.00	83.31	166.61

Biditem

160

16" Valve

Takeoff Qty: 1.000 EA

Bid Qty: 1.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	560.48	525.35	1,085.83	484.19	7,218.78	0.00	0.00	8,788.80
Total	560.48	525.35	1,085.83	484.19	7,218.78	0.00	0.00	8,788.80

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
15.0000	0.0667	15.0000	585.9200	37.3653	72.3887	0.2500

Activity: 160.1 Valve Materials Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	7,137.70	0.00	0.00	7,137.70
Total	0.00	0.00	0.00	0.00	7,137.70	0.00	0.00	7,137.70

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
26"PVC	6" PVC	1.00	5.00	LF	7.50	108.10	8.11	40.54
2G5	G5 Valve Box	1.00	1.00	EA	78.00	108.10	84.32	84.32
2GATEVLV	Gate Valve	1.00	1.00	EA	6,009.00	108.10	6,495.73	6,495.73
2MEGALUG	MJ Megalug Pack	1.00	2.00	EA	239.18	108.10	258.56	517.11

Activity: 160.2 Install Valve Quantity: 1 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	256.24	242.04	498.28	304.22	0.00	0.00	0.00	802.50
Total	256.24	242.04	498.28	304.22	0.00	0.00	0.00	802.50

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
802.5000	2.0000	0.5000	401.2500	0.2500	4.0000	0.2500	3,210.0000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
7.0000	0.1429	7.0000	71.1829	256.2400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMBF Small Backfill Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 3.50 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8031	ROLLER 18-29" WALKBEHIND DBL	1.00	2.00	HR	37.47	108.10	40.50	81.00
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	2.00	HR	103.25	108.10	111.61	223.22
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	0.50	1.00	MH	48.00	100.00	89.27	89.27
OPERATOR	Operator	1.00	2.00	MH	43.14	100.00	83.31	166.61

Activity: 160.3 Raise/Collar Valve Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60
Total	304.24	283.31	587.55	179.97	81.08	0.00	0.00	848.60

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
767.5200	2.0000	0.5000	383.7600	0.2500	4.0000	0.2500	3,394.4000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
8.0000	0.1250	8.0000	73.4438	304.2400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 0.25 Eff: 100.00 Crew Hrs: 2.00 Labor Pcs: 4.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	0.50	CY	150.00	108.10	162.16	81.08
8001	COMPRESSOR 155-175 CFM DIESE	1.00	2.00	HR	15.93	108.10	17.22	34.44
8016	BREAKER PAVEMENT AIR 90#	1.00	2.00	HR	8.77	108.10	9.49	18.97
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	2.00	HR	50.21	108.10	54.28	108.56
8UTLPU	Utility Pickup	1.00	2.00	HR	9.00	100.00	9.00	18.00
LABORER	Laborer	2.00	4.00	MH	30.49	100.00	60.60	242.40
OPER4	Operator Foreman	1.00	2.00	MH	48.00	100.00	89.27	178.54
OPERATOR	Operator	1.00	2.00	MH	43.14	100.00	83.31	166.61

Biditem 170

(Non Additive) Standby Generator

Takeoff Qty: *1.000 EA*

Bid Qty: *1.000 EA*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	8,229.52	7,055.04	15,284.56	1,721.64	273,281.66	324.30	54,712.50	345,324.66
Total	8,229.52	7,055.04	15,284.56	1,721.64	273,281.66	324.30	54,712.50	345,324.66

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
192.0000	0.0052	192.0000	1,798.5659	42.8621	79.6071	0.0179

Activity: *170.1* *(Non Additive) Equipment Pad* *Quantity:* *1* *Unit:* *LS*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	4,475.76	3,745.40	8,221.16	0.00	2,728.98	324.30	5,312.50	16,586.94
Total	4,475.76	3,745.40	8,221.16	0.00	2,728.98	324.30	5,312.50	16,586.94

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
8,221.1600	24.0000	0.0417	342.5483	3.0000	0.3333	3.0000	5,528.9800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	0.0104	96.0000	85.6371	4,475.7600

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 3 Eff: 100.00 Crew Hrs: 24.00 Labor Pcs: 4.00 Equipment Pcs: 0.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	18.70	CY	135.00	108.10	145.93	2,728.98
3FORMMTL	Form Materials	1.00	120.00	SF	2.50	108.10	2.70	324.30
4REBAR	Rebar	1.00	4,250.00	LB	1.25	100.00	1.25	5,312.50
CARP	Carpenter - Journeyman	2.00	48.00	MH	50.50	100.00	92.14	4,422.87
CARP4	Carpenter Foreman	1.00	24.00	MH	55.00	100.00	97.66	2,343.91
LABORER	Laborer	1.00	24.00	MH	30.49	100.00	60.60	1,454.38

Activity: *170.2* *(Non Additive) Generator Supply* *Quantity:* *1* *Unit:* *LS*

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Notes: Generator Supply includes assumed 1150 kVa genset with house and ATS

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2GENERATOR	Generator	1.00	1.00	LS	250,000.00	108.10	270,250.00	270,250.00

Activity: *170.3* *(Non Additive) Install Generator* *Quantity:* *1* *Unit:* *LS*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	2,087.84	1,703.50	3,791.34	853.14	302.68	0.00	4,400.00	9,347.16
Total	2,087.84	1,703.50	3,791.34	853.14	302.68	0.00	4,400.00	9,347.16

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
4,644.4800	16.0000	0.0625	290.2800	2.0000	0.5000	2.0000	4,673.5800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
48.0000	0.0208	48.0000	78.9863	2,087.8400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM Small Mechanical Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 3.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2AB	Anchor Bolts	1.00	8.00	EA	35.00	108.10	37.84	302.68
4CRANE	Sub Crane Allowance	1.00	8.00	HR	550.00	100.00	550.00	4,400.00
8*FORK8	Reach Forklift - 8000 lb	1.00	16.00	HR	41.00	108.10	44.32	709.14
8UTLPU	Utility Pickup	1.00	16.00	HR	9.00	100.00	9.00	144.00
LABORER	Laborer	1.00	16.00	MH	30.49	100.00	60.60	969.58
MECHHLP	Mech Helper/Oiler	1.00	16.00	MH	45.00	100.00	85.40	1,366.35
MILLWR	Millwright	1.00	16.00	MH	55.00	100.00	90.96	1,455.41

Activity: 170.4 (Non Additive) Electrical Allowance Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4ELEC	Electric - Sub	1.00	1.00	LS	45,000.00	100.00	45,000.00	45,000.00

Activity: 170.5 (Non Additive) Electrical Support Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,665.92	1,606.14	3,272.06	868.50	0.00	0.00	0.00	4,140.56
Total	1,665.92	1,606.14	3,272.06	868.50	0.00	0.00	0.00	4,140.56

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
4,140.5600	16.0000	0.0625	258.7850	2.0000	0.5000	2.0000	2,070.2800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
48.0000	0.0208	48.0000	68.1679	1,665.9200

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	16.00	HR	50.21	108.10	54.28	868.50
LABORER	Laborer	2.00	32.00	MH	30.49	100.00	60.60	1,939.17
OPERATOR	Operator	1.00	16.00	MH	43.14	100.00	83.31	1,332.89

Biditem 180

(Non Additive) Tank Coating

Takeoff Qty: 400,000.000 GAL

Bid Qty: 400,000.000 GAL

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.03	0.02	0.05	0.02	0.00	0.05	0.25	0.37
Total	10,014.40	9,253.28	19,267.68	6,730.06	1,135.05	19,144.51	101,000.00	147,277.30

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
296.0000	1,351.3514	0.0007	497.5584	33.8324	65.0935	3,333.3333

Activity: 180.1 (Non Additive) Drain/Clean Tank Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,519.68	1,457.96	2,977.64	911.06	0.00	0.00	0.00	3,888.70
Total	1,519.68	1,457.96	2,977.64	911.06	0.00	0.00	0.00	3,888.70

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
3,888.7000	16.0000	0.0625	243.0438	2.0000	0.5000	2.0000	1,944.3500

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit

48.0000	0.0208	48.0000	62.0342	1,519.6800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 3.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8088	GENERATOR 19-29 KVA	1.00	16.00	HR	36.01	108.10	38.93	622.83
8205	PUMP 2" ELECTRIC SUBMERSIBLE	1.00	16.00	HR	8.34	108.10	9.01	144.23
8UTLPU	Utility Pickup	1.00	16.00	HR	9.00	100.00	9.00	144.00
LAB4	Labor Foreman	1.00	16.00	MH	34.00	100.00	64.90	1,038.47
LABORER	Laborer	2.00	32.00	MH	30.49	100.00	60.60	1,939.17

Activity: 180.2 (Non Additive) Surface Prep Steel Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	6,078.72	5,831.85	11,910.57	5,459.00	0.00	19,144.51	0.00	36,514.08
Total	6,078.72	5,831.85	11,910.57	5,459.00	0.00	19,144.51	0.00	36,514.08

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
17,369.5700	64.0000	0.0156	271.3995	8.0000	0.1250	8.0000	4,564.2600

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
192.0000	0.0052	192.0000	62.0342	6,078.7200

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 8 Eff: 100.00 Crew Hrs: 64.00 Labor Pcs: 3.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3BLASTSAND	Blast Sand Media	1.00	450.00	BAG	35.00	108.10	37.84	17,025.75
3SANDPOT	Sandblasing Pot	1.00	8.00	DAY	245.00	108.10	264.85	2,118.76
8*BOOM45	45' Boomlift	1.00	64.00	HR	31.00	108.10	33.51	2,144.70
8005	COMPRESSOR 350-450 CFM 150 P	1.00	64.00	HR	39.58	108.10	42.79	2,738.30
8UTLPU	Utility Pickup	1.00	64.00	HR	9.00	100.00	9.00	576.00
LAB4	Labor Foreman	1.00	64.00	MH	34.00	100.00	64.90	4,153.89
LABORER	Laborer	2.00	128.00	MH	30.49	100.00	60.60	7,756.68

Activity: 180.3 (Non Additive) Repair Allowance Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,600.00	1,221.76	2,821.76	144.00	864.80	0.00	1,000.00	4,830.56
Total	1,600.00	1,221.76	2,821.76	144.00	864.80	0.00	1,000.00	4,830.56

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,965.7600	16.0000	0.0625	185.3600	2.0000	0.5000	2.0000	2,415.2800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
32.0000	0.0313	32.0000	88.1800	1,600.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM Small Mechanical Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 2.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2MISCMTL	Misc Materials	1.00	1.00	LS	800.00	108.10	864.80	864.80
4WELD	Welding Sub	1.00	8.00	HR	125.00	100.00	125.00	1,000.00
8UTLPU	Utility Pickup	1.00	16.00	HR	9.00	100.00	9.00	144.00
MECHHLP	Mech Helper/Oiler	1.00	16.00	MH	45.00	100.00	85.40	1,366.35
MILLWR	Millwright	1.00	16.00	MH	55.00	100.00	90.96	1,455.41

Activity: 180.4 (Non Additive) Coating Quantity: 1 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4PAINT	Paint Coatings Sub	1.00	3,500.00	SF	20.00	100.00	20.00	70,000.00

Activity: *180.5* *(Non Additive) Inspection/Testing* *Quantity:* *1* *Unit:* *LS*

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4NACETEST	NACE Testing QA/QC	1.00	10.00	DAY	2,500.00	100.00	2,500.00	25,000.00

Activity: *180.6* *(Non Additive) Touch-up* *Quantity:* *1* *Unit:* *LS*

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4PAINT	Paint Coatings Sub	1.00	250.00	SF	20.00	100.00	20.00	5,000.00

Activity: *180.7* *(Non Additive) Fill/Disinfect Tank* *Quantity:* *1* *Unit:* *LS*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	816.00	741.71	1,557.71	216.00	270.25	0.00	0.00	2,043.96
Total	816.00	741.71	1,557.71	216.00	270.25	0.00	0.00	2,043.96

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,773.7100	24.0000	0.0417	73.9046	3.0000	0.3333	3.0000	681.3200

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	64.9046	816.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 3 Eff: 100.00 Crew Hrs: 24.00 Labor Pcs: 1.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2MISCMTL	Misc Materials	1.00	1.00	LS	250.00	108.10	270.25	270.25
8UTLPU	Utility Pickup	1.00	24.00	HR	9.00	100.00	9.00	216.00
LAB4	Labor Foreman	1.00	24.00	MH	34.00	100.00	64.90	1,557.71

Biditem

190

(Non Additive) Street Reconstruction

Takeoff Qty: *10,000.000 SF*

Bid Qty: *10,000.000 SF*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.33	0.31	0.64	0.41	2.02	0.01	2.49	5.56
Total	3,265.52	3,100.99	6,366.51	4,084.31	20,160.65	108.10	24,875.00	55,594.57

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
88.8000	112.6126	0.0089	626.0650	36.7739	71.6949	625.0000

Activity: *190.1* *(Non Additive) AC Paving* *Quantity:* *10000* *Unit:* *SF*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.25	0.24	0.49	0.40	2.02	0.00	0.26	3.17
Total	2,534.64	2,371.06	4,905.70	4,012.31	20,160.65	0.00	2,625.00	31,703.66

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
0.7215	0.0008	1,250.0000	901.9163	1.0000	10,000.0000	0.0001	31,703.6600

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.8000	154.3210	0.0065	75.7052	0.2535

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: BKFL Backfill Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 8.10 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2A	ASPHALT	1.05	262.50	TON	68.00	108.10	73.51	19,295.85
2TACKCOAT	Tack Coat	1.00	10,000.00	SF	0.08	108.10	0.09	864.80
4HAUL	Hauling - Sub	1.00	262.50	TON	10.00	100.00	10.00	2,625.00

8036	ROLLER 50-56" VIB SINGLE DRU	2.00	16.00	HR	74.23	108.10	80.24	1,283.86
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	8.00	HR	50.21	108.10	54.28	434.25
8324	TRUCK WATER 2000-2999 GALLON	1.00	8.00	HR	60.07	108.10	64.94	519.52
8BITCHPOT	Bitch Pot	1.00	8.00	HR	35.00	108.10	37.84	302.68
8PAVER	AC Paver	1.00	8.00	HR	175.00	100.00	175.00	1,400.00
8UTLPU	Utility Pickup	1.00	8.00	HR	9.00	100.00	9.00	72.00
LABORER	Laborer	3.00	24.00	MH	30.49	100.00	60.60	1,454.38
OPER4	Operator Foreman	1.10	8.80	MH	48.00	100.00	89.27	785.55
OPERATOR	Operator	4.00	32.00	MH	43.14	100.00	83.31	2,665.77

Activity: 190.2 (Non Additive) Striping & Signage Quantity: 0.52 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	0.00	0.00	6,730.77	6,730.77
Total	0.00	0.00	0.00	0.00	0.00	0.00	3,500.00	3,500.00

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Notes: Assume approx 50% of all trench will require re-striping

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4SIGN	Signage	1.00	2.00	EA	750.00	100.00	750.00	1,500.00
4STRIPE	Striping - Sub	1.00	2,000.00	LF	1.00	100.00	1.00	2,000.00

Activity: 190.3 (Non Additive) AC Milling Quantity: 10000 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	0.00	0.00	1.88	1.88
Total	0.00	0.00	0.00	0.00	0.00	0.00	18,750.00	18,750.00

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	250.00	TON	15.00	100.00	15.00	3,750.00
4MILL	Asphalt Milling Sub	1.00	10,000.00	SF	1.50	100.00	1.50	15,000.00

Activity: 190.4 (Non Additive) Traffic Control Quantity: 0.52 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,405.54	1,403.71	2,809.25	138.46	0.00	207.88	0.00	3,155.60
Total	730.88	729.93	1,460.81	72.00	0.00	108.10	0.00	1,640.91

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,947.7115	15.3846	0.0650	191.6013	1.0000	0.5200	1.9231	1,640.9100

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0217	46.1538	60.8671	1,405.5385

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 4 Man Labor Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TCMTL	Traffic Control Materials	1.00	1.00	DAY	100.00	108.10	108.10	108.10
8UTLPU	Utility Pickup	1.00	8.00	HR	9.00	100.00	9.00	72.00
FLAG	Flagger	2.00	16.00	MH	28.68	100.00	58.85	941.58
LAB4	Labor Foreman	1.00	8.00	MH	34.00	100.00	64.90	519.23

Biditem

990001

General Account

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total

U. Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Activity: 99 CONTINGENCY Quantity: 1 Unit: LS

Calendar: Code not found. Hrs/Shift: 8 WC: Code not found.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8224*TD	Contingency	1.00	337,954.90	TDC$	0.00	108.10	0.00	0.00

Activity: 999 PROJECT SUPPORT Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Calendar: Code not found. Hrs/Shift: 8 WC: Code not found.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4*CRANESUB	Crane Subcontractor	1.00	0.00	HR	500.00	100.00	0.00	0.00
4*QAQC	QA/QC Testing	1.00	0.00	LS	0.00	100.00	0.00	0.00
4*SURVEY	Land Surveyor	1.00	0.00	HR	165.00	100.00	0.00	0.00
5*CRANE-CRAW	Crawler Crane	1.00	0.00	HR	400.00	100.00	0.00	0.00
5*CRANE-HYDR	Hydrolic Crane	1.00	0.00	HR	200.00	100.00	0.00	0.00
8*BOOM45	45' Boomlift	1.00	0.00	HR	31.00	108.10	0.00	0.00
8*FORK10	Reach Forklift - 10000 lb	1.00	0.00	HR	47.00	108.10	0.00	0.00
8*FORK8	Reach Forklift - 8000 lb	1.00	0.00	HR	41.00	108.10	0.00	0.00
8*SHOPLIFT	Shop Forklift	1.00	0.00	HR	26.00	108.10	0.00	0.00
OPERATOR	Operator	1.00	0.00	MH	43.14	100.00	0.00	0.00
RIGGER	Crane Rigger	1.00	0.00	MH	48.00	100.00	0.00	0.00

Activity: 9999 MOB/DEMOB Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Calendar: Code not found. Hrs/Shift: 8 WC: Code not found.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4*9AXL	9 axel Heavy Equipment Trans	1.00	0.00	HR	175.00	100.00	0.00	0.00
4*TRUCKING	Flat bed material transport	1.00	0.00	HR	110.00	100.00	0.00	0.00

Activity: 9 GENERAL CONDITIONS Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Calendar: Code not found. Hrs/Shift: 8 WC: Code not found.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
1*ADMIN	Project Admin	1.00	0.00	MO	6,000.00	110.00	0.00	0.00
1*APM	Assistant PM	1.00	0.00	MO	12,000.00	110.00	0.00	0.00
1*PE	Project Engineer	1.00	0.00	MO	8,000.00	110.00	0.00	0.00
1*PM	Project Manager	1.00	0.00	MO	14,000.00	110.00	0.00	0.00
1*SAFETY	Safety Professional	1.00	0.00	MO	8,000.00	110.00	0.00	0.00
1*SUPT	Project Superintendent	1.00	0.00	MO	13,000.00	110.00	0.00	0.00
1*TRADESUPT	Trade Superintendent	1.00	0.00	MO	10,000.00	110.00	0.00	0.00
3*AIRPHOTO	Aerial Photography	1.00	0.00	EA	2,000.00	108.10	0.00	0.00
3*COMPUTER	Computer Cost	1.00	0.00	EA	2,500.00	108.10	0.00	0.00
3*CONEX	Conex storage box	1.00	0.00	MO	150.00	108.10	0.00	0.00
3*COPIER	Office Copier	1.00	0.00	MO	250.00	108.10	0.00	0.00

3*DH	SMALL TOOLS & SAFETY SUPPLIE	1.00	817.20	LBHR	0.00	108.10	0.00	0.00
3*DUMPSTER	Dumpster	1.00	0.00	EA	500.00	108.10	0.00	0.00
3*MAIL/FEDEX	Mail/Fedex/Postage	1.00	0.00	MO	250.00	108.10	0.00	0.00
3*OFFICE	Project Office - Per Single	1.00	0.00	MO	800.00	108.10	0.00	0.00
3*OFFICESUP	Office Supplies	1.00	0.00	MO	400.00	108.10	0.00	0.00
3*PHOTOS	Jobsite Photos	1.00	0.00	MO	100.00	108.10	0.00	0.00
3*PRINT	Printing & Copying Service	1.00	0.00	MO	250.00	108.10	0.00	0.00
3*SNOWREMOVE	Snow Removal	1.00	0.00	MO	350.00	108.10	0.00	0.00
3*TC	Gross Receipts Tax	1.00	337,954.90	TOT$	0.00	108.10	0.00	0.00
3*TD	Builders Risk INsurance	1.00	337,954.90	TDC$	0.00	108.10	0.00	0.00
3*TEMPELESET	Temp Electrical Setup	1.00	0.00	LS	1,000.00	108.10	0.00	0.00
3*TEMPELEUSE	Temp Electric Use	1.00	0.00	MO	200.00	108.10	0.00	0.00
3*TEMPFENCE	Temp Fence	1.00	0.00	LF	2.00	108.10	0.00	0.00
3*TEMPH20SET	Temp Water Setup	1.00	0.00	LS	1,000.00	108.10	0.00	0.00
3*TEMPH20USE	Temp Water Usage	1.00	0.00	KGAL	3.00	108.10	0.00	0.00
3*TEMPHEAT	Temp Heat	1.00	0.00	GAL	5.00	108.10	0.00	0.00
3*TEMPTOILET	Temp Toilets	1.00	0.00	MO	125.00	108.10	0.00	0.00
3*WINTERPRO	Winter Protection	1.00	0.00	CY	3.00	108.10	0.00	0.00
8*PICKUP	Admin Pickup	1.00	0.00	MO	1,100.00	108.10	0.00	0.00
9*PERMITS	Permit Fees	1.00	0.00	LS	500.00	100.00	0.00	0.00

Report Summary

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
Total	30,103	28,393	58,496	30,457	228,231	1,630	19,141	337,955

Job Notes

Estimate created on: 03/18/2018 by User#: 0 -
Source estimate used: C:\HEAVYBID\EST\ESTMAST

**********Estimate created on: 06/17/2019 by User#: 0 -
Source estimate used: C:\HEAVYBID\EST\ESTMASTNV

**********Estimate created on: 01/09/2020 by User#: 0 -
Source estimate used: C:\HEAVYBID\EST\2019MSTPWNV

**********Estimate created on: 03/04/2020 by User#: 0 -
Source estimate used: C:\HEAVYBID\EST\2020MSTRNV-W

Calendars Used In Estimate

STD Standard