4.6 Measures and Controls to Limit Adverse Impacts During Construction

Sections 4.1 through 4.5 and Section 4.7S identify potential adverse environmental impacts that may result from construction of STP 3 & 4 and measures and controls to limit those impacts. The proposed measures and controls comply with:

- Applicable local, state, and federal ordinances, laws, and regulations intended to prevent or minimize adverse environmental effects.
- Applicable requirements of environmental permits and licenses.
- STP procedures and processes.

Table 4.6-1 is a summary of the adverse impacts due to construction of STP 3 & 4, as identified in previous sections, the significance level of the impacts, and the possible mitigation measures to be implemented beyond those identified above.

Table 4.6-1 Summary of Potentially Adverse Impacts of Construction

Impact	Description of Potential Impact	Potential Impact Significance [1]	Planned Control Program
4.0 Land Use Impacts			
4.1.1 The Site and Vicinity	Ground-disturbing activities including installation of a slurry wall, excavating and recontouring the landscape.[2]	S	Conduct construction activities using best management practices (BMP) in accordance with regulatory and permit requirements. Implement environmental controls required in the SWPPP (Storm Water Pollution Prevention Plan) such as weekly compliance inspections, documentation of runoff controls, etc.
	Removal of vegetation within the temporary and permanent impact areas.[2]	S	Clean up and dispose of waste debris at designated location. Temporary impact area will be graded, landscaped to match the surrounding area, and revegetated.
	Stockpiling of soils on site including spoil mounds and borrow pit soils.[2]	S	Restrict stockpiling to designated areas. Stabilize all loose soils on site through the use of approved erosion control methodologies and soil erosion and sediment control plan.
	Construction of new permanent structures and the creation of impervious surface within the existing STP Site (i.e., the haul road and the parking area). The site is designated for industrial land use. [2]	S	Restrict construction to the designated areas within the STP site.
	Impacts to wetlands and other surface waters e.g. removal of onsite drainage ditch.	S	Avoid jurisdictional wetlands. Use appropriate erosion control measures to prevent turbid water, soil deposition, vegetation removal, etc., from impacting drainage features, wetlands and downstream areas through the approved SWPPP.
	Construction activities conducted within the Coastal Management Zone.[2]	S-M	~~Comply~~ Proposed project is consistent with the Texas Coastal Management Plan.
	Construction activities (e.g., crossing of a pipeline, installation of discharge pipe, etc.) conducted within the designated flood zone and other sensitive areas.	S	Avoid these areas where possible. Comply with regulatory and permit requirements.

Table 4.6-1 Summary of Potentially Adverse Impacts of Construction (Continued)

	Potential short-term land use changes in the vicinity of the project due to development of employee housing.[2]	S-M	The temporary housing facilities, if constructed, would be converted to pre-project conditions upon completion of construction.
	The increase in traffic during shift change and increased truck deliveries will impact traffic on existing roads during peak times.	S	Stagger work shifts and truck delivery times to reduce the additional traffic during peak hours.
4.1.2 Transmission Corridors and Off-Site Areas	Potential short-term physical land use changes due to the addition of a 345 Kilovolt switchyard and rerouting of one 345 kV transmission line that is currently connected to Bay No. 1 of the existing switchyard for STP 1 & 2.	S	Minimization of land use impacts through the use of existing access points and ROW roads. Limit construction activities associated with the new onsite switchyard and connecting transmission lines to those areas previously disturbed for construction activities associated with STP 1 & 2.
4.1.3 Historic Properties	Ground-disturbing activities including grading, excavation, recontouring, and construction may expose historic resources ~~(Note – based on SHPO determination, this is unlikely)~~.	S	Take appropriate actions ~~(e.g. stop work, contact appropriate regulatory agencies)~~as required by site procedures following discovery of potential historic or archaeological resources.

Table 4.6-1 Summary of Potentially Adverse Impacts of Construction (Continued)

4.2 Water-Related Impacts			
4.2.1 Hydrologic Alterations	Impacts to onsite surface water drainage flows by diverting or filling several unnamed onsite drainage features.[2]	S	New drainage ditches and other features such as sediment filters would be used to accommodate surface water runoff from altered drainage areas and the newly constructed impervious areas. Avoid all jurisdictional wetlands. Appropriate erosion control measures will be taken on all drainage features and wetlands to prevent turbid water, soil deposition, vegetation removal, etc., from occurring within those areas or downstream areas through the approved SWPPP.
	Increase in surface water as a result of dewatering and excavation activities. [2]	S	To decrease the volume of surface water runoff created during dewatering/excavating activities of the deeply excavated areas, a groundwater control system will be installed consisting of a slurry wall and perimeter circuit of deep wells in conjunction with sand drains. All other surface water runoff created during the excavation/dewatering activities will be controlled by a series of ditches that drain the water away from construction activities. Proper erosion controls will be used to contain sediments found in the runoff before it is discharged into any jurisdictional water.
	Impacts to local hydrology resulting from the excavation through the shallow aquifer, and subsequent dewatering of the shallow aquifer.[2]	S	Local drinking water wells found in the vicinity of the construction area will be unaffected because they are located in the deeper aquifer which is isolated by surficial clays. Dewatering would occur within the shallow aquifer in a limited area for a short period of time. Upon completion of construction, groundwater in the shallow aquifer will return to natural elevations.
4.2.2 Water Use Impacts	Potential for water pressure reduction within the local water table due to dewatering activities for dust abatement, concrete mixing, potable water use. [2]	S	Limit dewatering activities to only those necessary for construction.

Table 4.6-1 Summary of Potentially Adverse Impacts of Construction (Continued)

4.2.3 Water-Quality Impacts	Potential impacts on surface water quality from accidental release of fuel, oils, or other chemicals associated with construction activities into onsite wetlands and drainage features.	S	Develop and implement a construction SWPPP and spill response plan.
	A potential impact to Little Robbins Slough, Kelly's Pond, and subsequently the Colorado River due to turbidity and sedimentation caused by soil erosion from ground disturbance.[2]	S	Adhere to applicable regulations and permit requirements found in the TPDES permit. Implement BMPs to prevent the movement of pollutants (including sediments) into wetlands and water bodies via storm water runoff. BMPs will include the use of erosion control measures such as silt fences to prevent sedimentation and turbid water discharge. Use of vegetated land buffers between water bodies and the construction site will minimize sedimentation impacts.
4.3 Ecological Impacts			
4.3.1 Terrestrial Ecosystems	Construction activities will result in habitat loss and will displace animals such as birds and mammals that currently inhabit the construction site. The mortality rate of less mobile animals may increase.[2]	S	Limit vegetation removal to only those areas needed for construction. Restoration of the temporary impact areas will be completed in a timely manner upon completion of construction.
	Filling of drainage areas and ditches may impact foraging and roosting habits of wetland-dependent species.[2]	S	Restore the habitat by relocating and revegetating of drainage areas.
	Impacts to biota from use of wetlands as laydown areas or spoil areas. [2]	S	Avoid wetland areas during construction activities.
	Potential impacts to local bird population from bird collisions with man-made structures (cranes, buildings) during construction.	S	The likelihood of this impact is low and when considered with the availability of the resource on a regional basis, mitigation is not necessary.
	Wildlife may be startled or frightened away by construction noises.[2]	S	Animal displacement due to noise should be temporary in nature. Animals should return upon completion of construction.
	Potential disturbance to nesting birds caused by noise/movement during transmission line upgrades. The disturbance impacts will increase during the nesting season.	S	Scheduling work during non-nesting periods would minimize these impacts.

Table 4.6-1 Summary of Potentially Adverse Impacts of Construction (Continued)

4.3.2 Aquatic Ecosystems-Construction Impacts	Potential impacts on aquatic ecology from accidental release of fuel, oils, or other chemicals associated with construction activities in to onsite wetlands and drainage features.	S	Develop and implement a construction SWPPP and spill response plan.
	Potential impacts to aquatic plants, benthic macroinvertebrates, and fish as a result of water turbidity and sedimentation caused by soil erosion from construction activities such as road construction, excavation, grading, temporary storage of soil piles, and use of heavy machinery.[2]	S	Develop and implement erosion and sediment control plans that incorporate recognized BMPs such as covering all disturbed areas, keeping to a minimum the length of time disturbed soil is exposed to weather, and intercepting and retaining sediment via retention ponds and drainage ditches. Upon completion of construction along stream banks or drainage features, disturbed areas will be rip-rapped or seeded to establish a perennial vegetative cover to prevent erosion.
	Impacts to the benthic community resulting from suspended sediments from erosion of surface soil. Impacts may include blockage of light for photosynthesis, interference in respiration in invertebrates, smothering of eggs, and degradation of the quality of spawning grounds.	S	Divert excess surface water caused by construction activities into sediment settling ponds prior to release into on site drainage features.
	Impacts to fish populations due to the loss of invertebrates from suspended sediments.	S	Develop and implement erosion and sediment control plans as mentioned above.
	Displacement of fish, aquatic species, crustaceans, and insects due to filling of drainage features on site.[2]	S	The impacted acreage of this non-jurisdictional area is small and the type of habitat is not unique to the area. Due to the availability of this resource on a regional basis and because no important species are found onsite, mitigation is not necessary.
	Temporary decline in insect population from rerouting of onsite drainage features.[2]	S	Restore the habitat by relocating and revegetating the drainage feature.

Table 4.6-1 Summary of Potentially Adverse Impacts of Construction (Continued)

4.4 Socioeconomic Impacts			
4.4.1 Physical Impacts	Potential temporary impacts to construction workers, STP personnel, people living or working adjacent to the construction area, and transient populations caused by exposure to elevated noise levels. [2]	S	Construction workers would use hearing protection. The public will be notified of impending construction activities that may exceed acceptable noise levels. Perform all construction activities in compliance with local, state, and federal regulations. Emergency first-aid care would be available at the construction site, and regular health and safety monitoring will be conducted during construction.
	Potential temporary impacts to construction workers, STP personnel, people living or working adjacent to the construction area, and transient populations caused by fugitive dust and fine particulate matter emissions.[2]	S	Minimize the potential for these emissions by using local, state, and federal regulations. Prepare a dust control plan containing dust control measures such as watering, stabilization of disturbed areas, phased grading to minimize disturbance acreage, covering haul truck beds, etc. Emergency first-aid care would be available at the construction site, and regular health and safety monitoring will be conducted during construction.
	Potential temporary impacts to construction workers, STP personnel people living or working adjacent to the construction area and transient populations caused by exhaust emissions.[2]	S	Equipment will be serviced regularly. Equipment will be operated in accordance with local, state, and federal emission requirements. Construction activities will be phased to minimize peak hour degradation of local ambient air quality. Emergency first-aid care would be available at the construction site, and regular health and safety monitoring will be conducted during construction.
	Degradation of roads in the vicinity of the project due to increased traffic and an increase in heavy, wide-bodied trucks and equipment.[2]	S	Alert local government agencies and complete road repairs and improvements (i.e., patching cracks and potholes, adding turn lanes, reinforcing soft shoulders) in a timely manner.

Table 4.6-1 Summary of Potentially Adverse Impacts of Construction (Continued)

4.4.2 Social and Economic Impacts	Increased traffic congestion in the vicinity of STP due to construction activities.[2]	M-L	Develop and implement a construction traffic management plan that would include such measures as turn lane installation where necessary, establishing a centralized parking area with shuttle service, encouraging carpools, and staggering shifts.
	Potential short-term housing shortage in Matagorda County.[2]	M-L	Mitigation efforts will be market-driven over time. Construction employment will increase gradually with a peak after 2 or 3 years. This will allow time for construction of new housing. Temporary housing could be constructed as needed.
	Water shortages in Matagorda County as a result of the in-migrating construction workforce.[2]	M-L	Maintain communication with local government and planning officials so that ample time is given to plan for the influx. Mitigation strategies could include reuse, seawater desalination, conservation, and the Lower Colorado River Authority/San Antonio Water System Project.
	Shortage of waste water treatment plants in Matagorda County as a result of the in-migrating construction workforce.[2]	M-L	Maintain communication with local government and planning officials so that ample time is given to plan for the influx.
	Potential impacts to police and fire services in Matagorda County. [2]	M	Maintain communication with local government officials so that expansions in police and fire services could be coordinated, planned, and funded in a timely manner. Funding for this expansion will be provided through the increased tax revenues from the construction project.
	Potential impacts to medical services in Matagorda County. [2]	S	Projected increase in the population during construction would not stress the current capacity; therefore mitigation would not be warranted.

Table 4.6-1 Summary of Potentially Adverse Impacts of Construction (Continued)

	Potential impacts to social services in Matagorda County.[2]	S	Construction could be beneficial to the disadvantaged population by creating jobs therefore decreasing the need for social services. Impacts to social services should be small and not warrant further mitigation.
	Potential impact on the short-term ability of schools in Matagorda County to accommodate the increase in student population.[2]	M-L	Short-term solutions can be implemented in the form of adding modular classrooms and hiring additional teachers to existing schools. Funding for additional resources will be provided through the increased tax revenues from the construction project.
4.4.3 Environmental Justice	Low-income rental housing rates could increase due to increased demand for housing, potentially displacing low-income renters in Matagorda County. [2]	S	Analysis of housing availability in Matagorda County determined that the probability of this being an issue is low. Because of this, control efforts would not be necessary.
4.5 Radiation Exposure to Construction Workers	Construction workers may be exposed to radiation sources (through direct radiation, gaseous effluents, or liquid effluents) from the routine operations of STP 1 & 2.[2]	S	Conduct continual monitoring the STP site for radiation exposure. The construction activities on the site will be in accordance with all radiation safety regulations to ensure that the construction workers are protected.
4.7S Non-Radiological Health Impacts	Potential of construction accidents requiring first aid or medical treatment.	S	Provide job training and implement procedures to ensure a safe working environment. Provide first-aid capabilities at the construction site.

[1] The assigned significance levels [(S)mall, (M)oderate, or (L)arge] are based on the assumption that for each impact, the associated proposed mitigation measures and controls (or equivalents) will be implemented (10 CFR 51, Appendix B, Table B-1, Footnote 3)

[2] The mitigation measure specified for this impact is insufficient to reduce the impact to insignificant. No other practical measures for mitigation of this impact are available. Therefore, these impacts will be considered in the evaluation of unavoidable adverse impacts (Section 10.1).