The County of San Diego

Planning Commission Hearing Report

Date:	July 9, 2025	**Case/File No.:**	Cottonwood Sand Mine; PDS2018-MUP-18-023, PDS2018-RP-18-001, PDS2018-ER-18-19-007
Place:	County Operations Center (COC) Hearing Room 5520 Overland Avenue San Diego, CA 92123	**Project:**	Mining and Reclamation
Time:	9:00 a.m.	**Location:**	3121 Willow Glen Drive, El Cajon, CA 92019
Agenda Item:	#3	**General Plan:**	Open Space-Recreation (OS-R)
Appeal Status:	Appealable to the Board of Supervisors	**Zoning:**	Open Space (S80), Specific Plan (S88) and Holding Area (S90)
Applicant/Owner:	Cottonwood Cajon ES LLC	**Community:**	Valle De Oro Community Plan Area
Environmental:	Environmental Impact Report	**APN:**	APNs: 506-021-19; 506-020-52; 518-012-13, 14; 518-030-05, 06, 07, 08, 10, 12; 518-030-13, 15, 21, 22; 519-010-15, 17, 20, 21; 519-010-33, 34, 37; 519-011-07

A. OVERVIEW

The purpose of this report is to provide the Planning Commission with the information necessary to consider the proposed Major Use Permit (MUP) and Reclamation Plan. The Project is a request to conduct mining activities by converting most of the Cottonwood Golf Course site for sand extraction purposes. A maximum total of 570,000 tons would be produced each year for sale over a ten-year period with an additional two years for reclamation. Once mining is completed, each phase of the site must be reclaimed in accordance with the California Surface Mining and Reclamation Act of 1975 (SMARA). The project site is located at 3121 Willow Glen Drive in the Valle De Oro Community Plan Area and is zoned Open Space (S80), Specific Plan (S88) and Holding Area (S90). The Land Use Designation is Open Space-Recreation (OS-R).

The sections contained in this report describe the following: requested actions, project background, regional setting, development proposal, analysis and discussion, California Environmental Quality Act

(CEQA) information, community planning group and public input, and the Planning & Development Services (PDS) recommendation.

PDS analyzed the Project for consistency with the General Plan, Valle De Oro Community Plan, Zoning Ordinance, and other applicable regulations, policies and ordinances including CEQA. The Project includes a Final Environmental Impact Report (FEIR) with Findings of Overriding Considerations prepared by the project applicant. The view of the proposed sand mine operation would create significant adverse aesthetic impacts requiring the adoption of Overriding Considerations if the EIR were to be certified.

Additionally, when processing a MUP, Section 7358 of the County Zoning Ordinance requires that Findings be made for a project's compatibility with surrounding land uses. Findings must be made as follows:

a. That the location, size, design, and operating characteristics of the proposed use will be compatible with adjacent uses, residents, buildings, or structures with consideration given to:
    1. harmony in scale, bulk and coverage
    2. the availability of adequate public facilities, services and utilities,
    3. harmful effect on the desired neighborhood character,
    4. the generation of traffic and the capacity and physical character of surrounding streets, and
    5. the suitability of the site for the type and intensity of use or development which is proposed, and to
    6. any other relevant impact of the proposed use.

With regard to MUP Findings a. 3 and a. 5, PDS found the Project to have a harmful effect on desirable neighborhood character and that the site would not be suitable for the proposed type of development, as detailed in the Analysis section of this report. Therefore, PDS recommends denial of the Project.

B. REQUESTED ACTIONS

This is a request for the Planning Commission to evaluate the Cottonwood Sand Mine Major Use Permit and determine if required findings can be made and, if not, take the following actions:

1. Deny Major Use Permit PDS2018-MUP-18-023.

2. Deny Reclamation Plan PDS2018-RP-18-001.

3. Find that this action is not subject to environmental review under Section 21080(b)(5) of the California Environmental Quality Act (CEQA) and CEQA Guidelines Section 15270 because CEQA does not apply to projects which a public agency rejects or disapproves.

The Applicant has submitted separate materials supporting that the required findings can be made. The Planning Commission may approve the Major Use Permit and the Reclamation Plan based on the Applicant's materials.

C. PROJECT BACKGROUND

Prior to the 1940s, the Project site and surrounding lands of the Jamacha Valley were predominately used for commercial ranching and agriculture, most of which had ended by the 1950s. A 1953 aerial photograph

of the Project site indicates that the floodplain of the Sweetwater River was primarily undeveloped with the presence of a small, wooden house/structure adjacent to Willow Glen Drive to the west of Steele Canyon Road. A portion of the site was also being mined for construction aggregates on the south side of the river and west of Steele Canyon Road. Mineral extraction uses in this area had expanded to the east side of Steele Canyon Road by the early 1960s.

The first permit on record for the site, Special Use Permit/MUP No. 61-090 W2M1, approved January 16, 1962, described a Commercial Sport and Recreational Enterprise, consisting of and including a golf course, driving range, restaurant, bar, putting green, pro shop, swimming pool, and other ancillary facilities. Grading plans have been approved over the years associated with golf course improvement. The most recent grading plan amendment was approved June 6, 2016. Several minor deviations were made to the original Special Use Permit between 1972 and 1989 and two modifications followed in 1992 and 1994.

A separate MUP (P83-55) for a Mining and Processing/Reclamation Plan was approved on May 30, 1984, to allow the periodic removal of sand, temporary stockpiling, preliminary screening of foreign matter, and transport of sand deposits from the Sweetwater River on the property as necessary to properly maintain free-flowing conditions. This permit was approved for a 15-year period with review periods every five years. The MUP limited the maximum number of weekly two-way truck trips to the subject property to 100.

Since 1963, the property has been used as two public golf courses. Facilities at the golf club consist of the active Ivanhoe Golf Course with a large parking lot, a clubhouse, and practice areas. Golf play on the Lakes Course was suspended indefinitely in 2017.

D. REGIONAL SETTING AND PROJECT LOCATION

The Project is proposed at the site of the privately-owned Cottonwood Golf Course at 3121 Willow Glen Drive within the floodplain of the Sweetwater River (see Figure 1, Vicinity Map). The property is within the Valle De Oro Community Planning Area of the unincorporated area of San Diego County. The subject property is surrounded by suburban development such as detached single-family homes and public facilities such as schools including the Jamacha Elementary School, located approximately one-quarter mile to the south, Steele Canyon High School approximately one-half mile to the south, Valhalla High School approximately three-quarters of a mile to the northwest, Hillsdale Middle School approximately one-half mile to the west, and Cuyamaca College approximately two-thirds of a mile to the west. Other developments and facilities include a healthcare facility (now closed) less than a quarter mile to the south and three parks within a half mile from the project site. The site extends west to east from approximately 600 feet east of the intersection of Willow Glen Drive and Jamacha Road, to approximately a quarter mile west of the intersection of Willow Glen Drive and Hillsdale Drive. Willow Glen Drive parallels the north side of the Project site and Steele Canyon Road bisects the western portion of the site. The Project is near the McGinty Mountain Ecological Reserve and Steel Canyon Golf Course to the east and adjacent to the San Diego National Wildlife Refuge to the southwest and is located southwest of land governed by the Sycuan Band of the Kumeyaay Nation.

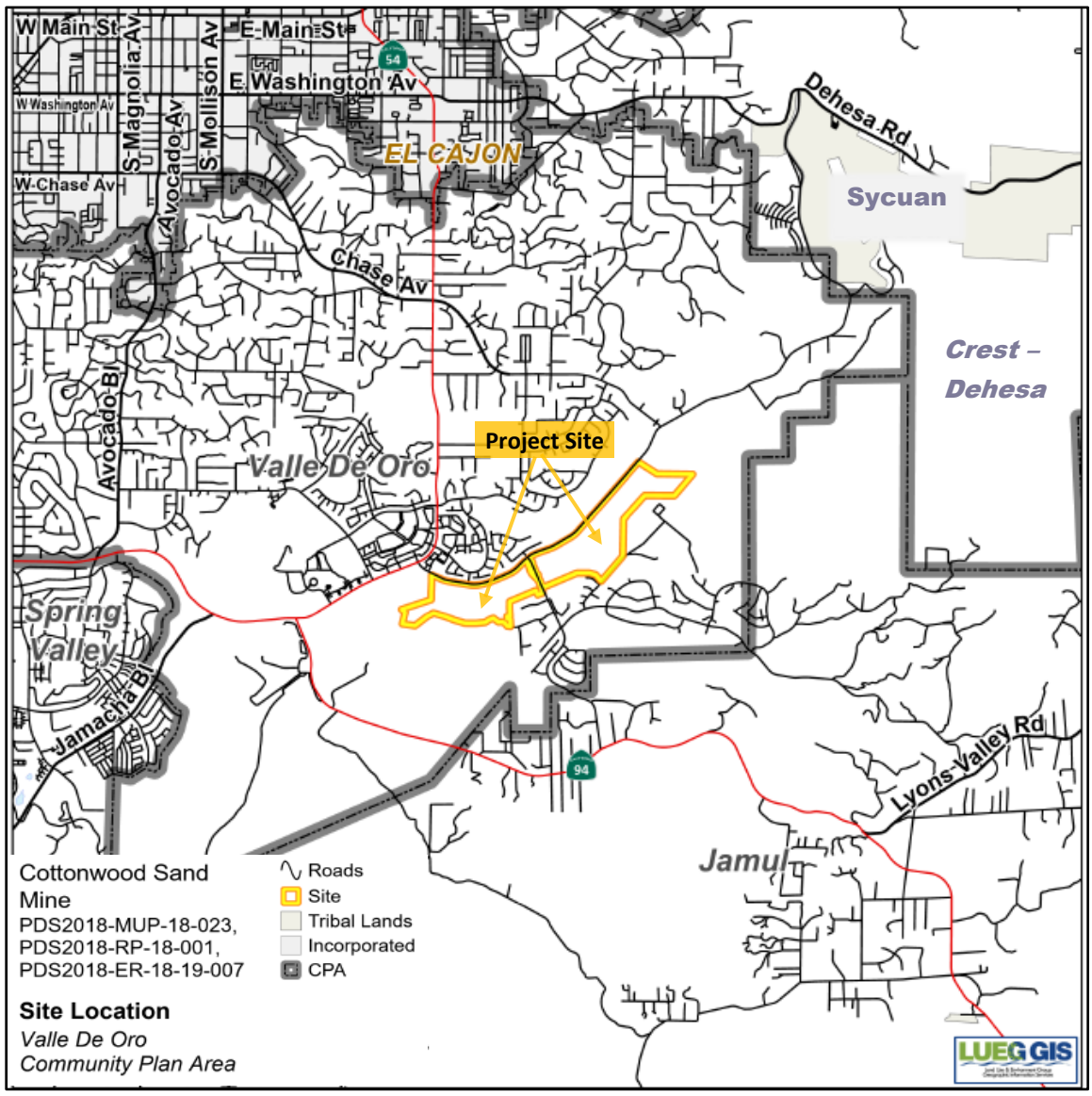


Figure 1: Vicinity map

The General Plan Regional Category is Semi-Rural, and the Land Use Designation is Open Space-Recreation (OS-R). This designation is applied to large, existing recreational areas. This designation allows for active and passive recreational uses such as parks, athletic fields and golf courses. The zoning regulations for this site are Open Space (S80), Specific Plan (S88) and Holding Area (S90). Extractive use can be permitted within the S80 and S90 zones with approval of a Major Use Permit. The S88 use regulation restricts extractive uses to site preparation, which allows the off-site removal of materials when it is secondary to the future use of the site. Although the zoning allows extractive uses in the S80 and S90 zones with a Major Use Permit, Staff could not make all the Findings required to recommend approval of an extractive use in this area.

In its current condition, the Cottonwood Golf Course consists of the Lakes Course in the western portion of the property and the Ivanhoe Course in the eastern portion of the property. In 2017, golf play at the

Lakes Course was suspended indefinitely to focus all operational efforts on the 18-hole Ivanhoe Course (See Figures 2, 3 and 4).



Figure 2: Aerial map



Figure 3: View of Golf Course, looking east from Steele Canyon Road bridge towards Project site



Figure 4: View to the Northeast, from the Upper Segment of the San Diego Wildlife Refuge Loop Trail

Please refer to **Attachment A** – Planning Documentation for maps of surrounding land uses and zoning designations.

Table 1: Surrounding Land Uses and Zoning

Location	General Plan	Zoning	Adjacent Streets	Description
North	Specific Plan Area; Village Residential (VR-4.3); Semi-Rural Residential (SR-0.5); Rural Lands (RL-20); Public Agency Lands	Open Space (S80); Specific Plan (S88); Rural Residential (RR); Single Family Residential (RS); General Commercial (C36)	Willow Glen Drive; Medinah Drive ; (cross street); Muirfield Drive (cross street)	Residential neighborhoods served by SR-54 and schools (Hillsdale Middle, Vallhalla HS); Hester's Quarry
East	Semi-Rural Residential (SR-10, SR-2, SR-1); Specific Plan Area	Open Space (S80); Specific Plan (S88); Limited Agricultural Use (A70); Recreation Oriented Residential (RRO)	Cottonwood View Drive; Heatherwood Drive; Ivanhoe Ranch Road	Residential neighborhoods; Steele Canyon Golf Club; Enclave at Ivanhoe (pending GPA/TM); Jamul
South	Public Agency Lands; Semi-Rural Residential; (SR-1, SR-2, SR-10); Specific Plan Area	Specific Plan (S88); Limited Agricultural Use (A70); Recreation Oriented Residential (RRO); Rural Residential (RR); Single Family Residential (RS)	Cottonwood View Drive; Steele Canyon Road; Heatherwood Drive; Ivanhoe Ranch Road	Residential neighborhoods served by SR-94; Jamul Drive; Schools (Jamacha Elementary, Steele Canyon HS); Enclave at Ivanhoe (Pending GPA/TM); Valle De Oro
West	Public Agency Lands; Specific Plan Area; Village Residential (VR-4.3); Semi-Rural Residential (SR-0.5)	Open Space (S80); Specific Plan (S88); General Commercial (C36); Rural Residential (RR); Single Family Residential (RS)	Willow Glen Drive	Vacant lands including Sweetwater River and San Diego National Wildlife Refuge; Cuyamaca College; Rancho San Diego Town Center

E. DEVELOPMENT PROPOSAL

The Project, submitted in 2018, is a request for Cottonwood Canyon ES LLC (Applicant) to construct and operate a sand mine. San Diego County currently has a high demand for construction aggregate, including sand. The Project includes mobile off-road equipment for excavation; raw material extraction, loading, and transport; conveyors for material transport; plant processing equipment; on-site haul trucks and associated loading equipment; and on-road haul trucks. SMARA requires that mining operations establish financial assurances prior to commencing operations.

Extraction Operations and Phasing

Approximately 214.4 acres of the approximately 280-acre site are proposed for extractive use and restoration. Sand excavation and processing plant operations would occur Monday through Friday, between the hours of 7:00 a.m. and 5:00 p.m. The maximum excavation depth is proposed to be 40 feet

below the existing land surface outside the river channel. The average depth of excavation is expected to be approximately 20 feet. The Project's mining operation would extract, process, and transport aggregate using conventional earth moving and processing equipment. The Project would extract approximately 4.3 million cubic yards of sand suitable for Portland cement concrete, with approximately 3.8 million cubic yards produced for market use over a 10-year period with an additional two-year reclamation period. The time limits prescribed for the Major Use Permit decision may be extended by the Planning Commission with the approval of a Major Use Permit Modification.

The Project would be developed in three continuous phases, with three to four subphases of less than 30 acres each, and a fourth phase for clean-up, equipment removal, and final reclamation. Topsoil removal and vegetation clearing would occur in each sub-phase prior to excavation. Project operations would involve excavation area grading (including stockpile creation), material extraction, and reclamation for each individual sub-phase. Excavation in each sub-phase would be completed before moving conveyor and excavation equipment to the next sub-phase.

Raw materials would be excavated throughout the site using a total of two front-end loaders and a tracked excavator, which would then load material onto the conveyor belt for transport to the processing area. A dump truck may also be used if additional material transport to the start of the conveyor belt is required. Operations would commence west of the Steel Canyon Road bridge, and then generally proceed in a southwest-to-northeast direction across the Project site. There is an existing utility corridor that bisects the Project area and is located just east of Steele Canyon Road. This corridor currently provides access for overhead San Diego Gas and Electric high voltage power lines to remain. The existing Sweetwater River low-flow channel would be maintained throughout the life of the Project, preserving the on-site water resource.

Phase 1

Pre-mining activities proposed prior to the initiation of Phase 1 would include the improvement of Willow Glen Drive to four lanes from Steele Canyon Road to the Project egress driveway, improvements to the access point from Willow Glen Drive to the Phase 1 excavation area, and installation of screening landscaping. Operations would begin with the placement of the processing plant and the conveyor line from the plant to the western portion of the property where Phase 1 would commence. Aggregate extraction during Phase 1 would be located within the area currently occupied by the closed 18-hole "Lakes" golf course at the western portion of the Project. Phase 1 will begin by clearing existing vegetation, stock piling turf and topsoil for later use in site reclamation and removing the sand and aggregate underlining the 1st and 18th fairways of the Lakes course.

Phases 2 through 4

Phase 2 would be in the center of the site, east of Steele Canyon Road, on the currently operating Ivanhoe course. Public use of the Ivanhoe golf course would cease upon approval of the Project. The existing golf clubhouse would be demolished near the end of Phase 2 mining. Phase 3 mining operations would encompass the remaining acreage of the Project site located to the east of Phase 2. Phase 4 would consist of removal of the processing plant, grading to final contours, final reclamation and revegetation efforts, cleanup, and equipment removal. The final landform is proposed to be a relatively

flat plain that gently slopes downward from east to west, with a widened river channel bisecting the length of the site. Revegetation monitoring will continue after this final phase. (See Figure 5, Mine Phasing Map)

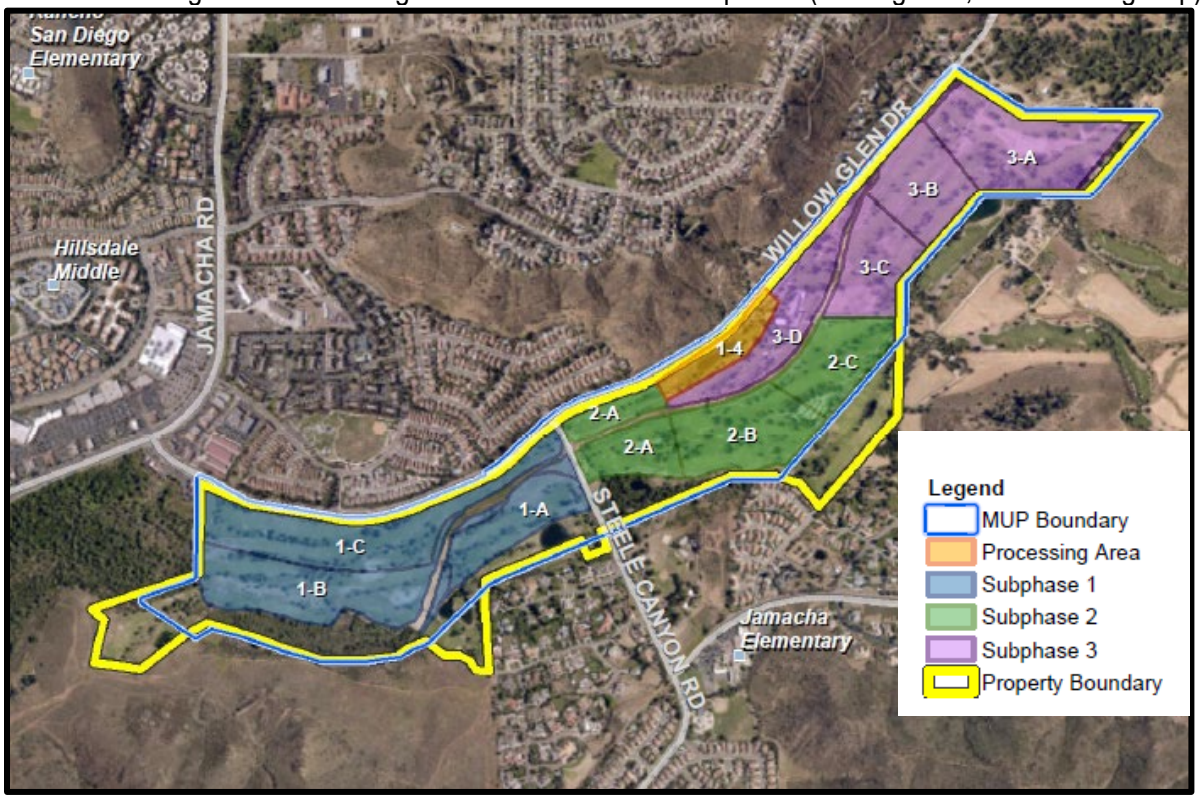


Figure 5: Mine Phasing Map

Processing Plant Site, Settling Ponds, Movable Conveyor Belt, and Stockpiles

Material processing would occur at a constant location at the processing plant for the duration of Project operations. At the processing plant, a screening machine would be used to separate granulated ore into multiple grades by particle size. The screening machine would consist of a wet blade mill fed by the incoming materials belt to break up material clumps, a drive to induce vibration, a wet screen media to induce particle separation, and a deck to hold the screen media and drive. The screen would feed into a wet screw to finish washing and remove fine materials. Aggregate material extracted from the site would consist primarily of washed sand suitable for Portland cement concrete (PCC), but may also include fill sand, gravel, and rock.

Byproducts (wash fines) produced from the processing plant would be gathered in three settling ponds located near the plant that would be 300 feet-long, 50 feet wide, and 10 feet deep. When ponds are cleaned, wash fines (silt, clay, and organic material) would either be sold as a soil amendment or returned to excavation areas that have been completed to be used as backfill or incorporated into the surface.

A conveyor belt would be used to transport mined raw material from the excavation area to the processing plant area. In Phase 1, the conveyor line would initially run parallel to Willow Glen Drive and cross beneath Steele Canyon Road near the northern edge of the bridge that crosses Sweetwater River. The conveyor line would be relocated eastward in Phase 2 and, subsequently further eastward in Phase 3 as mining operations proceed into these phases.

Aggregate material would be processed, sized and stored in stockpiles up to 25 feet in height near the plant. Several topsoil stockpiles are also proposed. These would be placed in a linear fashion in perimeter areas north - near the Willow Glen Drive corridor - or south of the excavation areas. One of the stockpiles to the southeast of the SDG&E tower pad is near existing homes sited near the south property boundary. The first six inches of topsoil at the beginning of excavation activities would be cut, hydroseeded and retained on site for reuse as each subphase is reclaimed and revegetated.

On-site Haul Truck Loading

Upon completion of processing, the construction grade aggregate would be loaded onto haul trucks for transport off site for market sale. Haul trucks are heavy duty dump trucks used in mining to carry material like crushed rock. The project proposes eighty-eight (88) trucks for export of saleable material and 58 additional truck trips for import of backfill material. There would be 146 truckloads per day, or approximately 23 truckloads per hour, between the hours of 9:00 a.m. and 3:30 p.m. Haul trucks would arrive at the site's processing plant via Willow Glen Drive, turn off onto a looped on-site driveway, be loaded with aggregate product by loader, and depart the site back onto Willow Glen Drive.

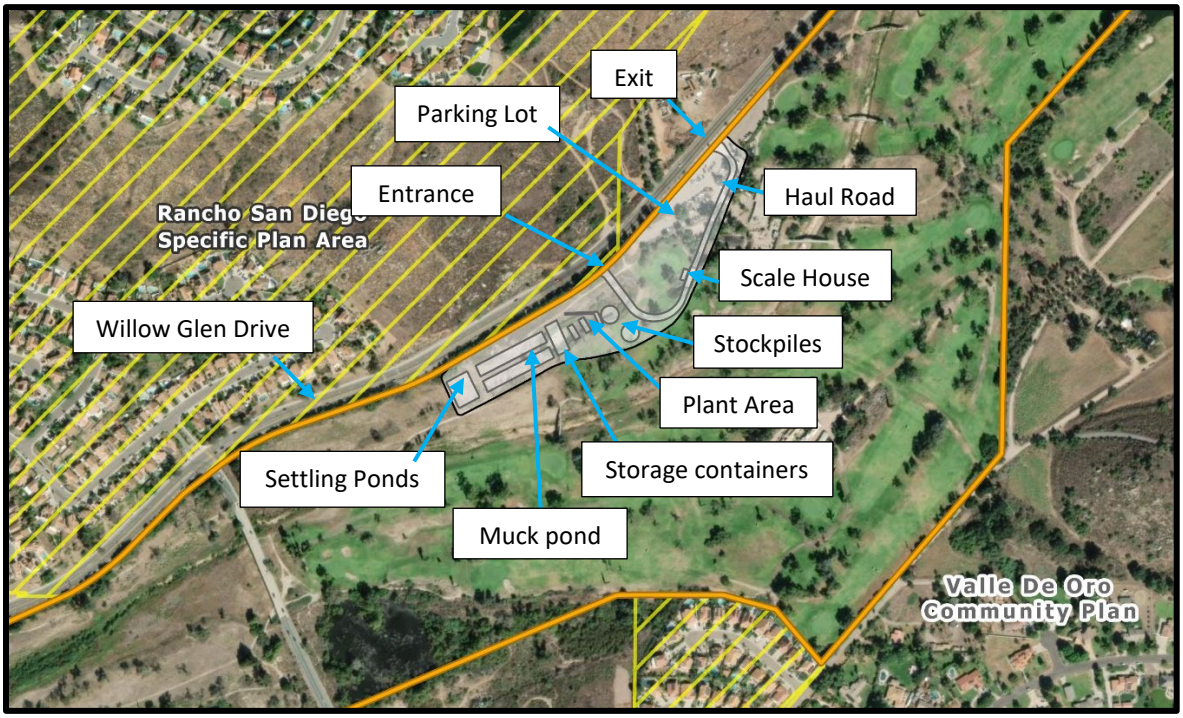


Figure 6: Processing Area Layout.

Willow Glen Drive, Muirfield Drive and Steele Canyon Road Improvements

As part of the Willow Glen Drive improvements, a new, paved access ramp off Willow Glen Drive would be provided to the west of the existing parking lot driveways. This would serve as the primary access for mining operations, material sales, employees, and vendors. This road would continue to a new egress point in the existing parking lot. A second access road would be installed on the western edge of the Project at the intersection of Muirfield Drive and Willow Glen Drive. The new driveway would be restricted to servicing the

mining operations. A new access point to the property from Willow Glen Drive west of Steele Canyon Road (Phase 1 area) would be necessary, as the clearance height of the bridge that crosses the Sweetwater River on Steele Canyon Road would not allow most large trucks or heavy equipment used for mining operations to pass beneath the bridge. This access would be used primarily for mobilization/demobilization, servicing heavy equipment and reclamation for the Phase 1 area west of Steele Canyon Road.

Existing traffic signs along Willow Glen Drive will remain, with signs added to the site entrance and exit as required. Small safety signs will be placed on fences around the Project area as required by the Mine Safety and Health Administration.

The Project would include three types of fencing:

i) Proposed decorative lodgepole fencing will remain along the Willow Glen Drive frontage, with proposed meandering sidewalk and landscaping near the processing plant.
ii) Existing six-foot tall chain link perimeter fencing to secure the site; and
iii) Four-foot-tall fencing designed to allow wildlife movement is proposed adjacent to the San Diego National Wildlife Refuge (SDNWR) to the southwest.

In addition, noise barriers would be installed with each subphase, required to reduce noise impacts when mining occurs within 400 feet of a noise sensitive land use.

Reclamation Plan

Areas disturbed by resource extraction would be progressively reclaimed as operations within a given sub-phase are completed. Reclamation of the site would include the removal of all manmade structures, grading to achieve final slopes and landforms, incorporation of accumulated wash fines and salvaged topsoil and revegetation including installation of irrigation lines, revegetation of the channel and slopes using appropriate native species, weed control, and monitoring. Although portions of the property will not be mined, such areas may be disturbed as part of the reclamation effort for the property. Conceptual trail and pathway alignments, to be finalized in collaboration with the Parks and Recreation Department, are also part of the Reclamation Plan.

SMARA requires mining operators to provide financial assurances to guarantee the reclamation of mined lands, including bonds, letters of credit, or trust funds. The financial assurance amount is based on the cost to reclaim the site. SMARA mandates that mining operators provide financial guarantees to cover the costs of reclaiming mined lands, ensuring they are returned to a safe and usable condition after mining operations cease.

Trails

A pedestrian pathway would be provided along the northern Project frontage/Willow Glen Drive east of Steele Canyon Road to provide pedestrian access within the Project vicinity where there are no existing sidewalks. A publicly accessible community trail is also proposed to be constructed within the Project site after reclamation. The multi-use trail is intended to connect to the pedestrian pathway. Specifically, trail construction would be completed in segments and would begin in a phase area when mining activities have been completed in the phase area and reclamation has begun in the final subphase of that area.

Revegetation

At the completion of each subphase, consisting of 30 acres or less, the subphase area would be reclaimed. In phase four, expected to last approximately 8 to 10 months after the end of extraction activities in Phase 3, the processing plant and related structures used for mining purposes would be removed. The last portions of the site to be reclaimed would be graded to final contours, and revegetation would occur in accordance with a revegetation plan and wetland mitigation plan. All final reclamation activities will be completed by year twelve. Revegetation monitoring would continue after this final phase for five years or until revegetation standards are met after this final phase. The on-site open space areas would connect to the San Diego National Wildlife Refuge to the southwest.

Open Space Easement

Should the Project be approved, the Applicant is required to preserve approximately 150 acres of permanent open space through the recordation of a biological open space easement. The open space easement would apply to the land in perpetuity and restrict future uses to protect the biological value of the site. Once mining operations are completed, the revegetation and restoration would include coastal sage scrub and wetland and riparian-associated habitat. Two acres within the easement site area would consist of other uses such as riprap areas and the SDG&E transmission tower.

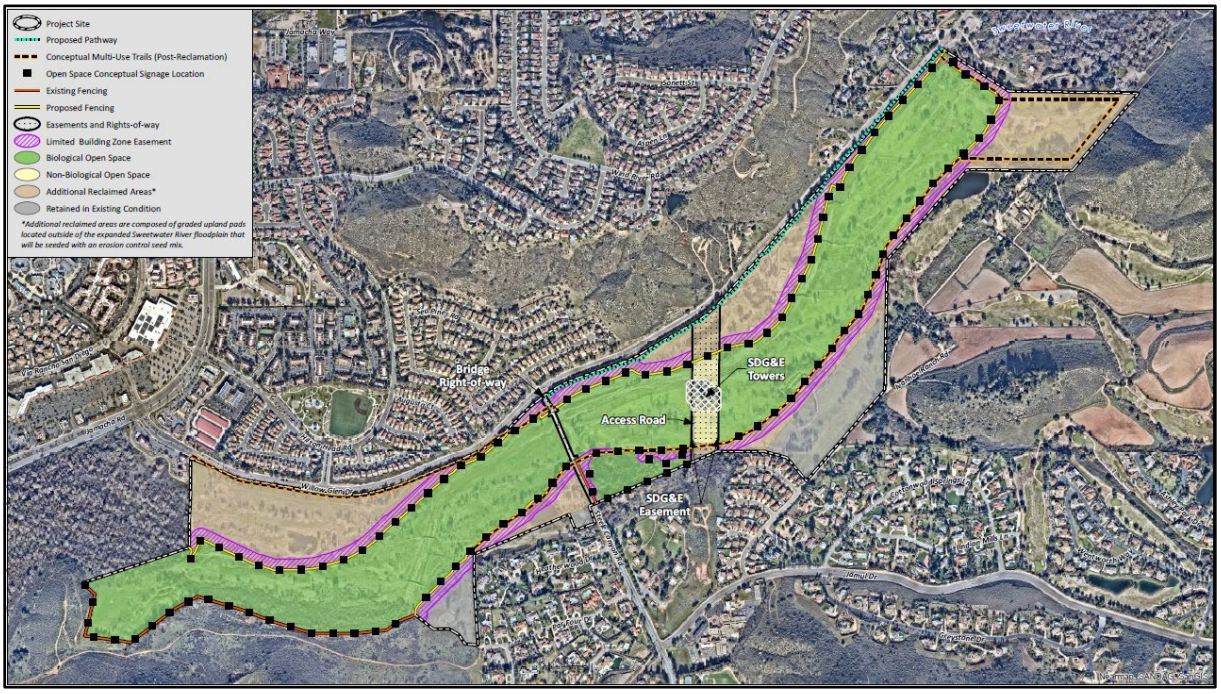


Figure 7: Open Space Exhibit

Design Exception Requests

The first DER relates to improvements along Willow Glen Drive. The Public Road Standards require a half-width minimum improvement of 39 feet. The Department of Public Works approved the DER to allow a reduction in half-width improvements to vary from 25 to 35 feet along the project frontage, east of Steel Canyon Road. The approval is based on the mining operation not being the ultimate condition of the project site, and that full-width improvements will be required once the ultimate use of the project site is determined.

The second DER is to waive undergrounding of utilities along the project frontage. Board Policy I-92, "Undergrounding of Utilities – Waiver Requests," provides three criteria for reviewing waivers to underground existing and new utilities. The waiver of undergrounding criteria are shown below in italics, along with the staff response:

a. *All other properties in the immediate area are completely "built out" to planned densities and uses and the established utility system for that area is overhead, OR*

   Staff Response: Not all the properties in the immediate area are completely built out. There are other discretionary permits in process, such as the Ivanhoe Tentative Map, that are directly adjacent to the project boundary.

b. *Undergrounding would result in no reduction in the number of poles on or adjacent to the project, OR*

   Staff Response: There are currently 32 utility poles that are along Willow Glen Drive. The number of poles would be reduced with undergrounding utilities.

c. *The cost of undergrounding is prohibitively high based on utility company estimates.*

Staff Response: The cost provided by the applicant in the undergrounding utility waiver request was $83,044. This rather low estimate may be due to the applicant's expectation that only five poles would be removed at the project entrance in keeping with their plans. However, staff believes that the true cost of undergrounding all poles along the frontage would be substantially more.

Each request of a waiver is considered on its own merit, evaluated on site-specific circumstances. Since the majority of the site will be designated as open space once the extraction of sand has been completed, no future private development project will be processed to underground the utility poles along the project frontage.

Prior to granting a waiver of undergrounding, any request is sent to the local planning/sponsor group for review and recommendation On March 18, 2025, the Valle de Oro Community Planning Group voted to unanimously deny the waiver request for the following reasons: lack of cost analysis or viable alternatives; the proposal does not align with the Community Plan; and visual resource and public safety concerns.

Based on the findings of Board Policy I-92, the Department of Public Works and Planning and Development Services recommend the project enter into a Lien Agreement to underground the existing and new utilities prior to the completion of the use permit. The applicant is requesting the Planning Commission not approve staff's recommendation and to waive the requirement to underground utilities along the project frontage.

F. ANALYSIS AND DISCUSSION

The Project has been reviewed for conformance with all relevant ordinances and guidelines, including the San Diego County General Plan, the Valle de Oro Community Plan, Rancho San Diego Specific Plan, the County Zoning Ordinance, and CEQA Guidelines. A discussion of the Project's consistency with applicable codes, policies, and ordinances is described on the following pages. A discussion with the project's conformance with CEQA can be found in the CEQA section of the report.

1. Analysis

The public has had significant concerns with the project since the application was submitted in November of 2018. Their concerns ranged from air quality to wildfire evacuation. Concerns have been raised not just by residents in the vicinity of the Project, but by individuals of the surrounding communities of Spring Valley and Jamul. In addition, commentators include agencies, tribes, and organizations. The majority of comments address traffic, fire safety and evacuation, biological resources, noise, air quality and greenhouse gas emissions. These comments are addressed in the "**California Environmental Quality Act (CEQA) Compliance"** section of this report.

The analysis below addresses some of these topics as they relate to the required Major Use Permit Findings. The MUP findings discussed in the following section are distinct from CEQA and are contained in the Zoning Ordinance, while the findings that are required to certify an EIR are established in CEQA and the CEQA Guidelines. The purpose of CEQA is to assess a Project's impact on the environment.

By contrast, the purpose of the County's Zoning Ordinance, in which the Major Use Permit findings are enumerated, is intended to ensure orderly growth and protect the public health, safety and welfare of the communities of San Diego County.

Major Use Permit Findings

County Staff reviewed the Project considering the Major Use Permit Findings required to be made pursuant to the County's Zoning Ordinance. Staff has determined that some of these findings cannot be made for the Project. Specifically, staff has concluded that Finding 3, regarding the harmful effect on the neighborhood character, and Finding 5, regarding the suitability of the site for this type of development, cannot be made. The findings that cannot be made are discussed below.

Finding 3: The harmful effect, if any, upon desirable neighborhood character. The proposed mining Project will have a harmful effect upon desirable neighborhood character because it will add haul trucks on the roads, increase potential sources of noise, change the way the site looks for residents and visitors, and create a nuisance from dust. The Sweetwater River Valley is home to residents, locally serving commercial uses, and recreational areas including trails used daily by hikers and equestrians. The nature of sand mining, involving heavy machinery and truck hauling, is incompatible with nearby uses. Truck traffic would undermine the rural character and introduce noise and a more industrial effect on the nearby roads.

The Project is a major extraction operation that includes a central processing plant and large haulage trucks to transport materials. The trucks are proposed to operate five days each week for a minimum of ten years. The Project proposes eighty-eight (88) trucks for export of saleable material and 58 additional truck trips for import of backfill material. There would be 146 truckloads per day, or approximately 23 truckloads per hour, between the hours of 9:00 a.m. and 3:30 p.m.

The existing noise on the site consists of noise associated with a golf course. Although the Project was found to be less than significant with respect to noise per the CEQA thresholds by implementing noise attenuation measures, the types of sound coming from the Project will be different from the current sounds in the neighborhood. While residents of the homes south of the site currently hear noises such as leaf blowers, helicopters, traffic, Golf Couse carts, chatter, and ambient noise from nature, if the mining project were to be approved, they would be hearing noise from a processing plant, material extraction and grading, and haul trucks. Haul trucks would create on-going noise from the Project operations with designated haul routes from 9:00 a.m. to 3:30 p.m. every weekday. Also, because equipment that has an obstructed view to the rear must be provided with a back-up alarm, the alarms will be a source of intermittent noise. The Project would generate noise during operations from mobile off-road equipment for excavation area grading; raw material extraction, loading, and transport; material transport; processing plant equipment; and associated loading equipment. This would change the neighborhood character which currently does not contain these noise sources. In addition, the noise would be present for the residents of this neighborhood during the life of the Project—five days a week for a minimum of ten years.

The Project further results in a harmful effect upon desirable neighborhood character because it will change the way the site looks to residents and visitors who are driving by or who live near the site. Currently, the neighborhood is suburban in nature and primarily comprised of residential neighborhoods and the golf course with natural features of the river corridor and surrounding hillsides and mountainous

landforms. The Project would convert this existing state into an extractive use in an otherwise suburban setting. The Project will be required to install 8-foot and 12-foot noise barriers, which would be relocated with each phase. Also, six-foot high chain link fencing with screening mesh will be installed along Willow Glen Drive, a County scenic highway, and 3-foot-high fencing with screening mesh will be installed on the northbound Steele Canyon Road Bridge railing to help screen the processing plant and exposed soils and mining activities in Phases 1 and 2 from motorists and cyclists. These screens may be installed and removed sequentially during the adjacent actively mined subphase areas and will limit the existing views from the scenic highway (see Figures 8 and 9). Also, if a resident were to stand on Wind River Road today looking out to the valley, they would see a valley with a golf course and trees. During the mining operation, they would see acres of disturbed land(see Figures 10 and 11).

The Project will introduce new sources of dust to the site and immediate vicinity. The Project will create dust during the daily operations. While mitigation measures will be implemented to reduce air quality impacts to less than significant under CEQA, there will still be a new source of dust from Project operations and odor from diesel emissions that currently does not exist with the current golf course use. Whereas the current golf course use generates few emissions, the Project will add heavy trucks and equipment.



Figure 8: Existing View from Willow Glen Drive, Looking Toward the Project Site



Figure 9: View from Willow Glen Drive, During Operations



Figure 10: Existing View to the Southeast, from the Wind River Road Lookout



Figure 11: View to the Southeast, from the Wind River Road Lookout (Project Operations, Subphase 3B)

Finding 5: The suitability of the site for the type and intensity of use or development which is proposed. The site is not suitable for the proposed mining operation due to its location within a suburban setting. The site is situated in a river valley near a variety of existing residences, schools, a health care facility (now closed), and open space. Therefore, although the site contains a useful resource (sand), the nature of sand mining involves heavy machinery and truck hauling which is incompatible with these nearby uses.

Residential development in the area includes over 150 homes. The valley is home to several subdivisions consisting of single-family dwellings. These include homes on the north side of Willow Glen Drive and homes located to the south of the golf course. To the north are homes such as those along and around Emerald Point Court and Sawgrass Street near Hilton Head County Park. To the south are homes located off Ivanhoe Ranch Road and Steele Canyon Road, some of which abut the golf course. Many of these homes were built around a golf course, and residents assumed that they would be living near a quiet golf course. However, proposed mining operation will introduce trucks, noise, dust pollution and heavy machinery into an established neighborhood.

2. Zoning Ordinance Consistency

The Project site is zoned Holding Area (S90), Specific Plan (S88) and Open Space (S80). These zones are further described in the following table:

Table 2: Site Zoning Regulation

S80 zone (4.01 acres)	The S80 (Open Space) zone is used to provide appropriate controls for areas considered unsuitable for intensive development, including hazard or resource areas, public lands, recreation sites, or lands subject to open space easements or similar restrictions.

S88 Zone (32 acres)	The S88 (Specific Planning Area) zone applies to 32 acres in the southwestern portion of the Project site that are not used for golf course operations. *This area will not be mined. However, it will be used for site preparation which is allowed per the zone.*
S90 Zone (243.78 acres)	The S90 (Holding Area) designation is intended to prevent isolated or premature land uses from occurring on lands for which adequate public services and facilities are unavailable, or for which the determination of the appropriate zoning regulations is precluded by contemplated or adopted planning proposals or by a lack of economic, demographic, geographic, or other data. *Extractive use can be permitted within the S80 and S90 classifications with approval of a Major Use Permit.*

The County Zoning Ordinance also identifies a Special Area Designator that applies to the Project site, Special Area Designator F (Flood Plain). Special Area Designators are applied to areas with special interest or unusual value; the Special Area Designator F (Flood Plain) is intended to protect the public health, safety, and welfare from flooding.

3. California Environmental Quality Act (CEQA)

The Project has been reviewed for compliance with the CEQA, and an Environmental Impact Report (EIR) has been prepared for the processing of the Project.

The Notice of Preparation (NOP) of the Draft EIR was circulated for public review from October 24, 2019, to November 22, 2019. During this time, input on the scope and content of the environmental information to be contained in the Draft EIR was received from the public and agencies. A Public Scoping Meeting was held at Hillsdale Middle School on November 4, 2019. Public comments made during the notice of EIR preparation (NOP) and NOP scoping meeting provided information on topics that the EIR should address.

The Draft EIR for the Cottonwood Sand Mining Project was circulated for public review from December 16, 2021, to February 28, 2022. An online/phone-in public meeting/teleconference was held on Wednesday, January 19, 2022, from 7:00 p.m. until 9:30 p.m. During the EIR notice of availability process (NOA), formal written comments were submitted specific to the draft EIR and spurred revisions included in the recirculation of the draft EIR. Specifically, new information regarding the need for additional soil import to achieve final reclamation elevations and the number of truck haul trips generated by the Project to accommodate this import was added to the Project description. New information regarding the potential for significant impacts to biological resources, the findings of additional biological surveys, and additional mitigation measures were added to the biological resources analysis. An in-person public meeting was held on the Recirculated Draft EIR on July 25, 2023, from 6:30 p.m. to 8:30 p.m. at Hillsdale Middle School in El Cajon. The Recirculated Draft EIR for the Cottonwood Sand Mining Project was available for public review from June 29, 2023, to August 21, 2023.

Comments were received from individuals, organizations, and agencies and tribal interests during the public review period of the Draft REIR. Most comments addressed traffic and trails, air and water quality, health effects related to Valley Fever, fire safety and evacuation, cultural and tribal cultural resources, noise, biological resource concerns, visual character and land use compatibility. These comments are addressed in response to comments included within the Final EIR.

On May, 20, 2025, the Final EIR (FEIR) was made available on the Planning & Development Services website for public access

Environmental Effects and Significant Impacts

The Draft EIR and Recirculated Draft EIR identify significant environmental impacts to the following environmental factors: Aesthetics; Biological Resources; Cultural Resources; Noise, Paleontological Resources, and Tribal Cultural Resources. Impacts to Aesthetics, even with mitigation measures, would remain significant and unavoidable. All other potential significant impacts would be reduced to less than significant with implementation of mitigation measures. The following discussion includes some of the CEQA subject areas that generated the most interest and concern from the community.

Aesthetics

The CEQA analysis contained in Chapter 2.1 of the FEIR discusses existing viewsheds and key vantage points, County thresholds of significance, and impacts. The Project site is visible from nearby open space areas, public roadways and residential subdivisions. Motorists have views onto the Project site traveling along Willow Glen Drive and along the bridge span over Sweetwater River on Steele Canyon Road. Project site areas are visible from certain homes in the area, including residential development located north of Willow Glen Drive, further east and at higher elevations above the valley, and south of the Project site.

Several Project design features, such as installation of new landscaping (i.e., the landscape screening and entrances plan), fencing, mesh screening, box trees along the western and southern boundary of the processing plant, painting of mining equipment to blend with the color of the exposed soil, and limiting the height of stockpiles to 25 feet (see Chapter 7.0 for all design considerations), would help to reduce the visual impacts and enhance screening of Project components during active mining of the site. However, due to the anticipated strong contrasts associated with Project effects to terrain and vegetation; visibility of effects from roads, trails, and residences; and the duration of mining and reclamation activities (i.e., up to 12 years), impacts would be significant and unmitigable.

While impacts to sensitive vegetation communities would be limited, the riparian corridor of the Sweetwater River including the golf course is a major scenic resource of the community and is considered visually notable at the local level. Therefore, implementation of the Project would result in the loss of these features during mining, which would be considered a significant and unmitigable impact relative to the loss of on-site sensitive vegetation and trees within the Sweetwater River corridor.

The Valle de Oro Community Plan identifies Willow Glen Drive as a scenic highway corridor. The visual quality of the scenic landscape visible from Willow Glen Drive would be degraded as mining activities would impact existing intactness, unity, and memorability. Thus, scenic vista impacts from Willow Glen Drive would be significant and unmitigable.The anticipated impacts to existing views from elevated portions of the Wildlife Refuge Loop Trail would be significant and unmitigable. and potential impacts to views across the Project site from the Sweetwater Regional Trail would be significant and unmitigable.

Noise

The EIR discusses noise, County thresholds of significance, and impacts. The current dominant noise source in the vicinity of the Project site is the traffic along Willow Glen Drive and Steele Canyon Road. To determine the existing daytime noise environment, short-term ambient daytime noise measurements were conducted on Thursday, January 3, 2019, at locations adjacent to or near the Project site. Additional long-term (24-hour) ambient noise measurements were conducted at locations adjacent to the Project site to determine the existing noise levels at Noise Sensitive Land Use (NSLU) locations near the Project site. NSLUs include any residence, hospital, school, hotel, resort, library, or other facilities where lower noise levels are an important attribute of the environment. Potential NSLUs immediately surrounding the Project site that would be subject to noise from the Project's mining operations include single-family residences, Hilton Head County Park and the now closed Adeona Healthcare facility.

Due to the large number of residential properties adjacent to the Project site, surrounding residences were categorized into eleven "Residential Groups" based on general location and anticipated proximity to the Project's various mining operations. Based upon the noise analysis, it was determined that noise levels could exceed the 60 dB CNEL maximum allowable noise level for eight of the eleven Residential Groups surrounding the Project site.

To decrease noise impacts associated with the Proposed Project, mitigation is required. The mitigation is to construct noise barriers and excavate to the lowest feasible elevation within the Project's excavation areas such that the topography provides noise attenuation to off-site properties. For certain residential locations an 8-foot-high or 12-foot-high solid noise barrier is required when excavation is occurring within 400 feet. When mining activities are occurring at distances greater than 400 feet from a given location, a barrier would not be required. The EIR concluded that implementation of these mitigation measures will ensure the Project has a less than significant impact for noise.

Traffic

For compliance with CEQA, a Transportation Impact Analysis was conducted for the project and concluded that there is a less than significant transportation impact. The project is subject to Senate Bill (SB) 743 which led to Vehicle Miles Traveled (VMT) being the metric required for determining transportation impacts for CEQA. The Governor's Office of Planning and Research (OPR) in their Technical Advisory for VMT implementation stated that local agencies may develop project specific thresholds for unique land-use projects.

The Project-Specific VMT threshold proposed for the project is a 15% net reduction in Annual VMT. This is appropriate as CEQA requires that lead agencies must estimate the net change in total VMT with and without the project. This is accomplished by looking at the miles traveled to and from the project site in the context of how the project is likely to divert existing trips, and what the impact of those diversions will be on total VMT.

The analysis demonstrated that the project would result in a 35.8% reduction in VMT as it would provide a local supply of sand, reducing the need for imported sand from more distant sources resulting in a less than significant impact for transportation.

A Local Mobility Analysis was conducted for the project that analyzed roadway operations near the project site. As stated in the FEIR, the Project would meet the County's standards set forth for roadway design and avoidance of traffic hazards. This is because the Project includes improvements to Willow Glen Drive, including:

- Restriping Willow Glen Drive between Steele Canyon Road and the Project ingress driveway to provide Class II buffered bike lanes on both sides of the roadway per County Roadway Standards.
- To facilitate deceleration of right-turning vehicles into the Project ingress driveway, a dedicated right-turn lane would be constructed, which would serve as the primary access for mining operations, material sales, employees, and vendors. A new egress point would be established in the approximate center of the existing parking lot. Construction of a two-way left-turn lane between the ingress and egress driveways, which would serve as a refuge lane for trucks to complete their outbound maneuver.

Two sets of traffic counts were taken for the Project, one pre-dating the pandemic and one post-dating the pandemic. The counts were taken during peak hours (i.e. 7:00 to 9:00 AM and 4:00 to 6:00 PM) which is the "worst case" traffic condition when the most vehicles would be on the road. The proposed mining project would generate 766 average daily trips (ADT). To calculate average daily traffic, a passenger car equivalence factor is applied to these trucks, for a total of 730 ADT from truck traffic. In addition to the heavy vehicle trips, 14 employee and visitor light vehicles and four vendors (e.g., fuel, supplies, service companies, etc.) were assumed to access the Project site on a typical day making two trips per vehicle, for an overall total of 766 ADT. i

Air Quality and GHG

As part of the EIR, an Air Quality Technical Report, and subsequent addendum, were completed for the project. As described in EIR, the Project would incorporate Best Management Practices (BMPs) to reduce fugitive dust consistent with SDAPCD Rule 55 – Fugitive Dust Control during construction and mine operation and reclamation. This includes actions to stabilize storage piles, enforcement of 15-mph speeds on unpaved surfaces, twice daily watering of exposed areas and termination of activities if winds exceed 25 mph. On- and off-road equipment would be required to comply with Best Available Control Technology (BACT) for reduction of exhaust particulate matter, involving replacement of older equipment with equipment meeting the U.S. Environmental Protection Agency (USEPA) Tier-4 specifications or retrofitting equipment with diesel particulate filters, in accordance with California Air Resources Board (CARB) regulations and implementation schedules. All of these actions would reduce air quality impacts to a less than significant impact.

Construction of the Project would generate GHG emissions from the use of off-road equipment and from vehicles traveling to and from the site on public roads (sand delivery trucks, work vehicles, and vendor vehicles). The majority of the Project's operational GHG emissions would be associated with truck trips for hauling sand and backfill material. Aggregate material (including sand) produced by San Diego County mines and quarries are typically used by construction projects. Because of the high weight and bulk of aggregate materials, a significant portion the cost of aggregate material is associated with delivery to the end use site. Therefore, construction project managers will typically purchase necessary aggregate products from the closest available source with acceptable quality. It is reasonable to assume that production of PCC-grade sand on the Project site would result in a reduction in regional mobile-source

GHG emissions. The results of the VMT analysis contained within the Traffic Impact Analysis also confirmed this. By reducing regional truck VMT, the Project would result in an overall net reduction in mobile source GHG emissions. The Project would result in a peak annual net increase of 3,707 MT CO2e per year, which is below the screening level for industrial sources of 10,000 MT CO2e per year. Therefore, the Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and the impact would be less than significant.

Fire Severity

The project site is served by the San Miguel Consolidated Fire Protection District. The closest fire station to the project site, Station 22, is located approximately 0.3 mile to the north near the intersection of Brabham Street and Via Rancho San Diego. According to the Fire Protection Plan (FPP) prepared for the Project, the Project site is within an area designated as a Moderate Fire Hazard Severity Zone and is bordered to the south by an area designated as a Very High Fire Hazard Severity Zone. Based on the past and current use of the Project site as golf courses, the site does not contain a substantial amount of vegetation that could serve as fire fuel. In addition, as the Project's mining operations progress over the 10-year mining period, flammable vegetation would be removed and the potential for onsite fire would diminish.

The Project would also adhere to the recommendations outlined in the Fire Protection Plan, which include skirting temporary portable buildings to prevent the accumulation of windblown leaf litter and other combustible debris; maintaining a 100-foot fuel management zone around structures; ensuring that plants within the fuel modification zone are fire resistant; appropriately maintaining existing trees until they are removed as part of the site reclamation activities; ceasing extraction and conveyor operations when wind speed instantaneously exceeds 25 mph or when the wind speed average for 15 minutes is greater than 15 mph; and maintaining and equipping construction equipment with spark arrestors.

Through complying with the applicable recommendations, the Project would minimize hazards related to fires and would not generate increased demand for fire protection or place a significant strain on the existing fire protection facilities. Further, through complying with applicable regulations related to workplace safety, such as those governed by the Mine Safety and Health Administration (MSHA) and Occupational Safety and Health Administration (OSHA), the anticipated number of events requiring emergency response is anticipated to be very low. The construction of new fire facilities and expansion of existing facilities would not be required to serve the Project. Therefore, the Project would not affect fire protection response times or substantially increase demand and impacts would be less than significant.

G. COMMUNITY PLANNING GROUP

On March 18, 2025, the Valle de Oro Community Planning Group (CPG) reviewed the Project. The CPG recommended denial of the Major Use Permit and Reclamation Plan by a vote of 11-0-0-4 (11-Yes, 0-No, 0-Abstain, 4-Vacant/Absent).

In the same meeting, the Valle de Oro Community Planning Group voted to recommend denial of the applicant's request for a Design Exception Review involving the waiver of the requirement to underground an AT&T overhead line along Willow Glen Drive by a vote of 10-0-1-4 (10-Yes, 0-No, 1-Abstain, 4-Vacant/Absent).

The Valle de Oro Community Planning Group Recommendation Forms and correspondence can be found in **Attachment C** – Public Documentation.

In addition to Valle de Oro, the Spring Valley and Jamul Community Planning Groups expressed opposition to the Project in written comments provided during the public comment periods of the draft EIR and draft Recirculated EIR.

H. PUBLIC INPUT

There is extensive public input on this Project. The public input includes written correspondence in the form of letters and e-mail from agencies, organizations, tribal interests and individuals, as well as signed citizen petitions. Community meetings were held in Valle De Oro that also involved extensive public commentary. Most comments addressed CEQA topics including: Air quality and fugitive dust, biological resource concerns and impacts on wildlife, cultural / tribal cultural resource impacts, Emergency response, fire safety and evacuation, health effects related to Valley Fever, noise, traffic including road damage, visual character and land use compatibility and water quality impacts including contamination of groundwater and drinking water in the Sweetwater reservoir.

The FEIR contains Appendices A through Z prepared not only to address the requirements of CEQA but also to address topics of concern by the community. In addition to responses to agencies, organizations, tribal interests and individuals, the FEIR includes responses to comments covering 12 topics listed as follows:

Table 3: Topical Response to Comments

1	Reason for the Recirculation of the DEIR and the Recirculated DEIR Process
2	CEQA Requirements for Responding to Comments
3	EIR Errata and Updated Technical Reports
4	Reclamation Process, Timing, and Final Use
5	Imported Material and Backfilling Process
6	Public Health Effects
7	Noise Impacts
8	Traffic Impacts
9	Wildlife Corridors and Species Connectivity Impacts
10	Cumulative Impacts
11	Consistence with Plans and Policies
12	Flood Control and Bridge Design

Each public comment was responded to in the FEIR which is available on the County website at this link: *https://www.sandiegocounty.gov/pds/ceqa/MUP-18-023.html*

I. RECOMMENDATIONS

Staff recommends that the Planning Commission take the following actions:

a. Find that this action is not subject to environmental review under Section 21080(b)(5) of the California Environmental Quality Act (CEQA) and CEQA Guidelines Section 15270 because CEQA does not apply to projects which a public agency rejects or disapproves.

b. Deny Major Use Permit PDS2018-MUP-18-023 due to the inability to make Major Use Permit Findings 3 and 5, as discussed above.

c. Deny Reclamation Plan PDS2018-RP-18-001.

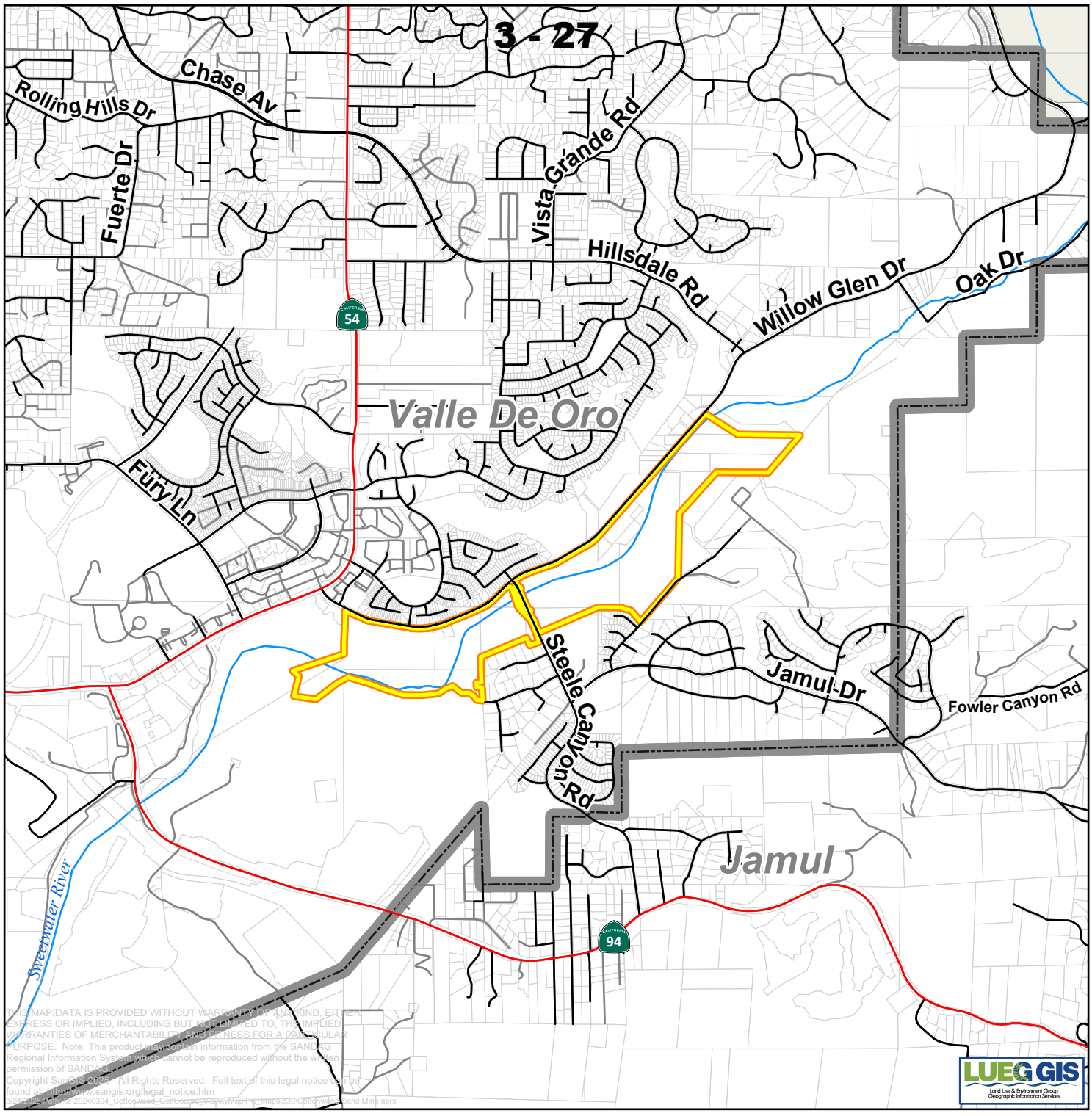
Report Prepared By:	***Report Approved By:***
Chris Jacobs, Project Manager	Vince Nicoletti, Director
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Christopher.Jacobs@sdcounty.ca.gov	Vince.Nicoletti@sdcounty.ca.gov

AUTHORIZED REPRESENTATIVE: Vince Nicoletti

VINCE NICOLETTI, DIRECTOR

ATTACHMENTS:
Attachment A – Planning Documentation
Attachment B – Environmental Documentation (EIR under separate cover)
Attachment C – Public Documentation (other than comments in FEIR)
Attachment D- Environmental Findings
Attachment E – Ownership Disclosure

Attachment A –
Planning Documentation



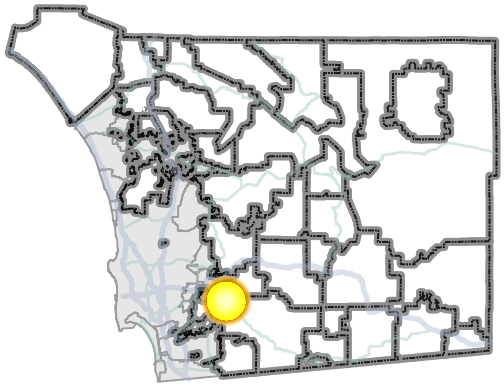
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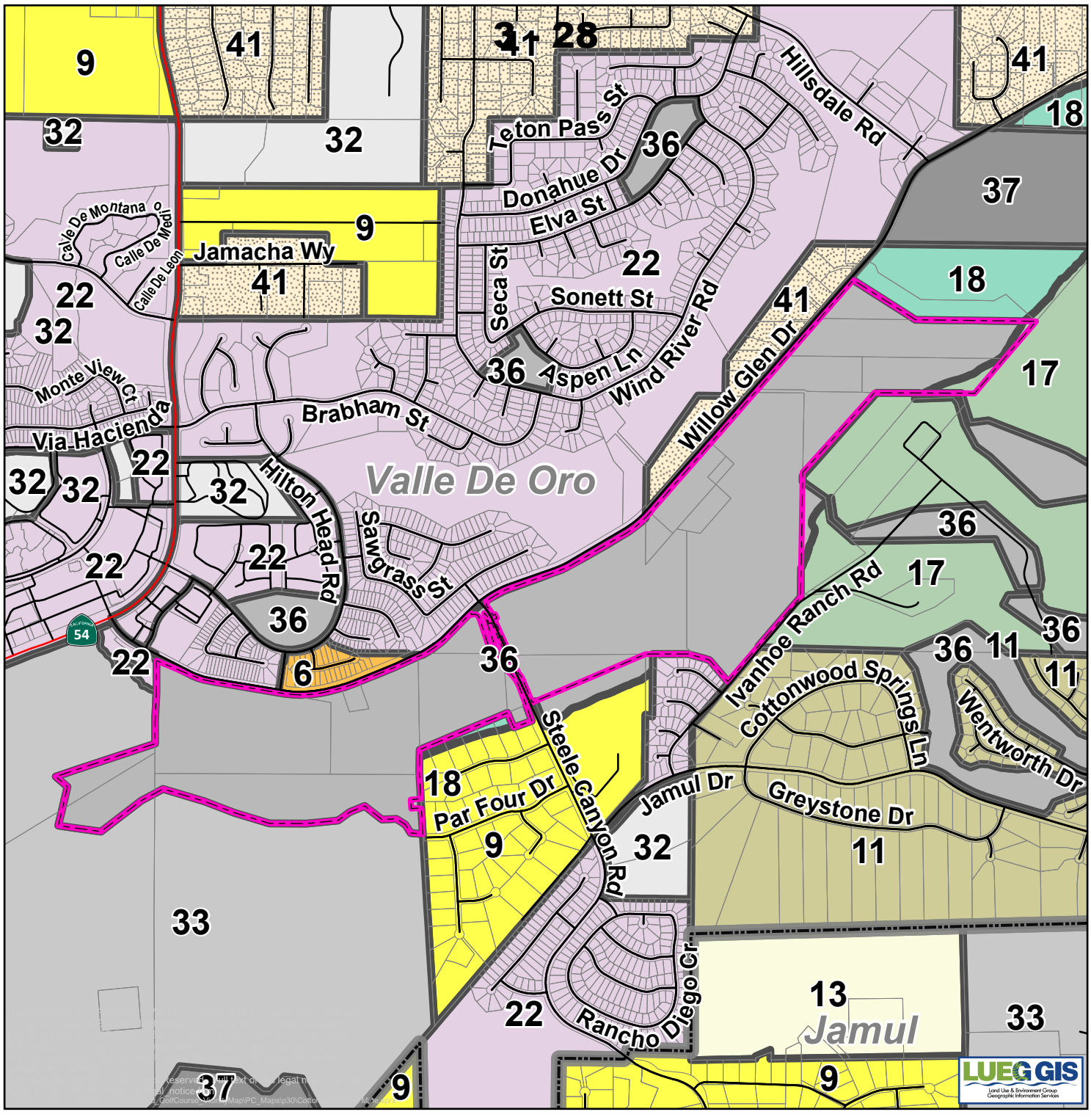
Cottonwood Sand Mine
PDS2018-MUP-18-023,
PDS2018-RP-18-001,
PDS2018-ER-18-19-007

Vicinity
Valle De Oro Community Plan Area

Roads
Site
Parcels
Tribal Lands
CPA

N
0 0.2 0.4
Miles
1:32,500





Cottonwood Sand Mine
PDS2018-MUP-18-023,
PDS2018-RP-18-001,
PDS2018-ER-18-19-007

General Plan

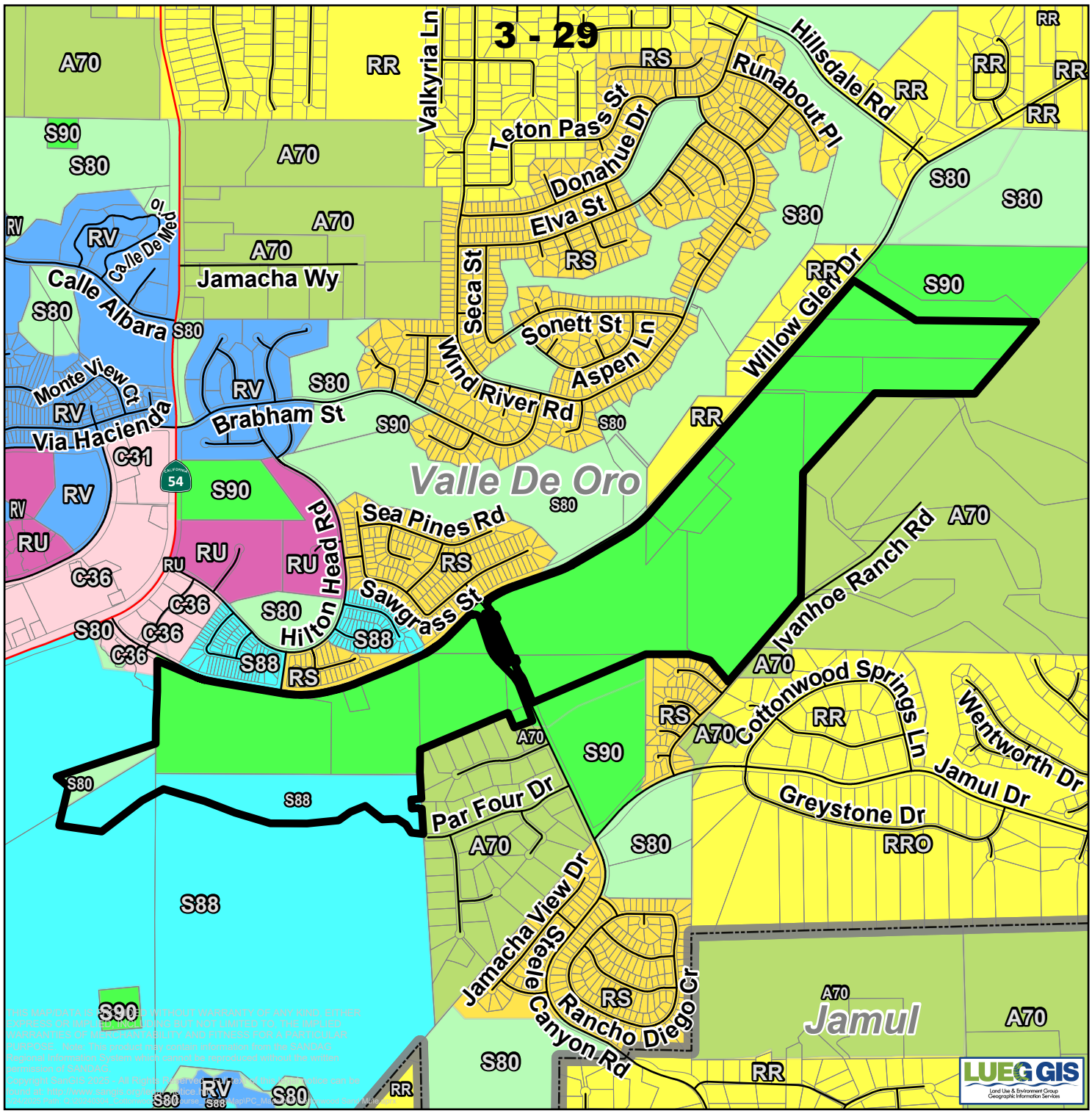
Valle De Oro
Community Plan Area

- Roads
- Site
- Parcels
- CPA

General Plan

- (6) Village Residential (VR-4.3)
- (9) Semi-Rural Residential (SR-1)
- (11) Semi-Rural Residential (SR-2)
- (13) Semi-Rural Residential (SR-4)
- (17) Semi-Rural Residential (SR-10)
- (18) Rural Lands (RL-20)
- (22) Specific Plan Area
- (32) Public/Semi-Public Facilities
- (33) Public Agency Lands
- (36) Open Space (Recreation)
- (37) Open Space (Conservation)
- (41) Semi-Rural Residential (SR-0.5)

N 0 0.1 0.2 Miles



Cottonwood Sand Mine
PDS2018-MUP-18-023,
PDS2018-RP-18-001,
PDS2018-ER-18-19-007

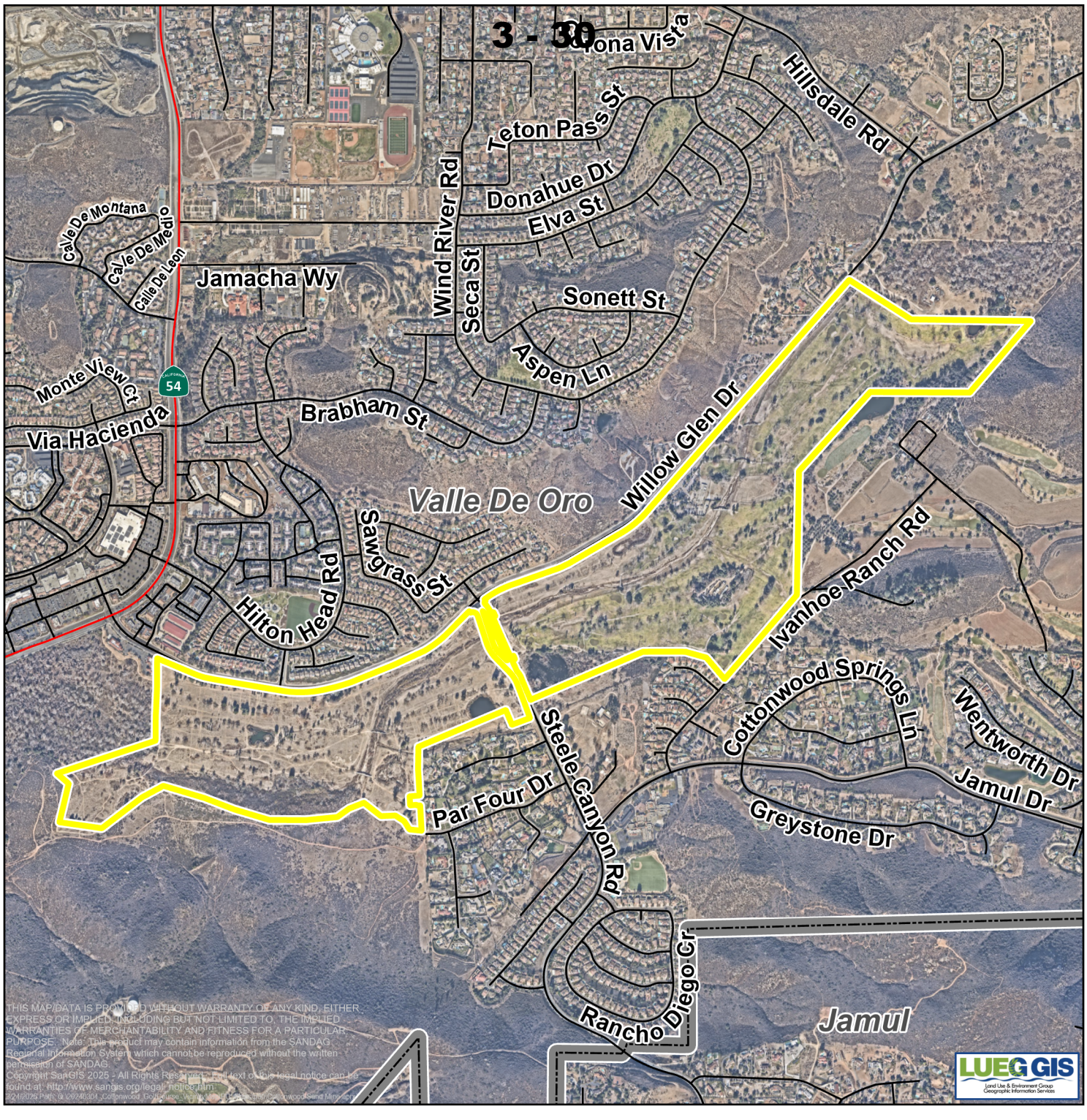
Roads
Site
Parcels
CPA

Zoning
(A) Agriculture
(C##) Commercial and Office
(S90) Holding Area
(S80) Open Space
(RS) Residential - Single
(RU) Residential - Urban
(RV) Residential - Variable
(RR) Rural Residential
(S88) Specific Plan

Zoning

Valle De Oro
Community Plan Area

N
0 0.1 0.2
Miles



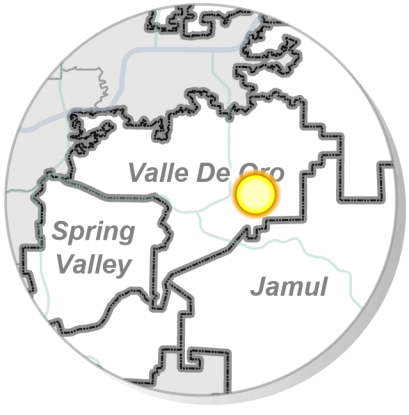
Cottonwood Sand Mine

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PDS2018-RP-18-001,
PDS2018-ER-18-19-007

Aerial

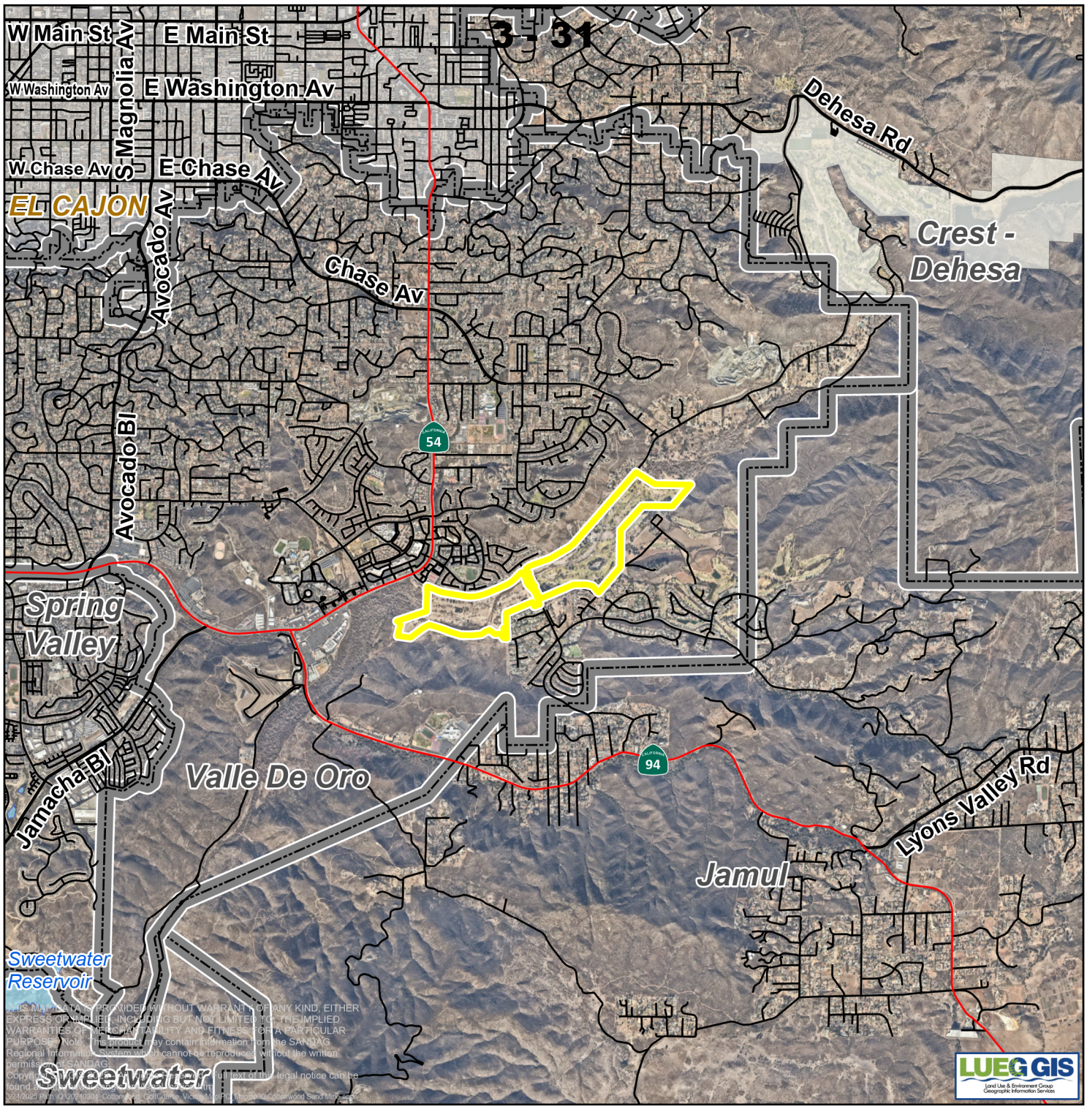
Valle De Oro Community Plan Area

Roads
Site
CPA



N

0 0.15 0.3
Miles

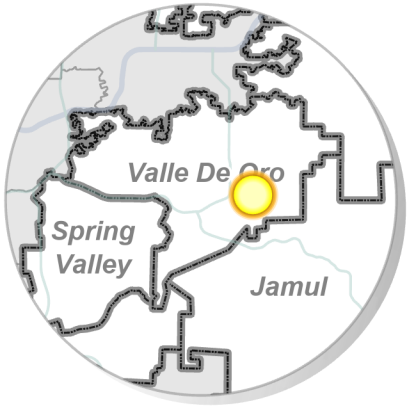


Cottonwood Sand Mine
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PDS2018-RP-18-001,
PDS2018-ER-18-19-007

Aerial

Valle De Oro Community Plan Area

Roads
Site
Tribal Lands
Incorporated
CPA



N

0 0.5 1
Miles

RECLAMATION PLAN
for the
COTTONWOOD SAND MINING PROJECT
PDS2018-MUP-18-003, PDS2018-RP-18-001, PDS2018-ER-18-19-007
JAMACHA, CA

Prepared For:

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May 2025

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Attachments

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Attachment E.	Hydraulic Analyses
Attachment F.	Conditions of Approval & CEQA Mitigation Measures (To Be Included Upon Final Approval)

GENERAL CONSIDERATIONS

Authority	Requirements/Practices/Standards	✓ or N/A
PRC 2772(b)	Required contents chart: A chart identifying the location (e.g., page number, chapter, appendix, or other location in the reclamation plan) of content that meets the requirements of PRC Sections 2772, 2773, 2773.3 and CCR Articles 1 and 9 (as delineated in this checklist).	✓
PRC 2772(c)(1)	Contact information: Name and address of the surface mining operator and any person designated by the operator as an agent for service of process	✓
PRC 2772(c)(2)	Material quantity and type: The anticipated total quantity and type of minerals to be mined (see Annual Report Instructions, Exhibit B, for mineral types and units of measure).	✓
PRC 2772(c)(3)	Dates: The initiation and termination dates of mining.	✓
PRC 2772(c)(4)	Depth of mining: The maximum anticipated depth of the surface mining operation.	✓
PRC 2772(c)(5) (A-F)	Reclamation plan maps shall include**:** Size and legal description of lands affected by surface mining operations;	✓
	Names and addresses of owners of all surface interests and mineral interests;	✓
	Property lines, setbacks, and the reclamation plan boundary;	✓
	Existing and final topography with contour lines at appropriate intervals;	✓
	Detailed geologic description of the area of the surface mining operation;	✓
	Locations of railroads, utility features, and roads (access roads, temporary roads to be reclaimed, and any roads remaining for the end use).	✓
	All maps, diagrams, or calculations that are required to be prepared by a California-licensed professional shall include the preparer's name, license number, signature & seal.	✓
PRC 2772(c)(6)	Mining method and schedule: A description of the mining methods.	✓
PRC 2772(c)(7)	Subsequent use(s): A description of the proposed subsequent use(s) after reclamation.	✓
	Evidence that all landowners have been notified of the proposed use.	✓
PRC 2772(c)(9)	Impact on future mining: A statement regarding the impact of reclamation on future mining on the site.	✓
PRC 2772(c)(10)	Signed statement: Statement signed by the operator accepting responsibility for reclamation of the mined lands per the reclamation plan.	✓
PRC 2776(b-c)	Pre-SMARA areas: Reclamation plans shall apply to operations conducted after January 1, 1976, or to be conducted in the future. Mined lands disturbed prior to January 1, 1976, and not disturbed after that date may be excluded from the reclamation plan.	✓

CCR 3502(b)(2)	Public health and safety: A description of how any potential public health and safety concerns that may arise due to exposure of the public to the site will be addressed.	✓
CCR 3709(a)	Equipment storage and waste disposal: Designate areas for equipment storage and show on maps.	✓
CCR 3709(a) CCR 3709(b)	All waste shall be disposed of in accordance with state and local health and safety ordinances.	✓
	Structures and equipment removed: Structures and equipment should be dismantled and removed at closure, except as demonstrated to be necessary for the proposed end use.	✓
CCR 3713(a)	Well closures: Drill holes, water wells, monitoring wells will be completed or abandoned in accordance with laws, unless demonstrated necessary for the proposed end use.	✓
CCR 3713(b)	Underground openings: Any portals, shafts, tunnels, or openings will be gated or protected from public entry, and to preserve access for wildlife (e.g., bats).	✓

GEOLOGY AND GEOTECHNICAL

Authority	**Requirements/Practices/Standards**	✓ or N/A
PRC 2772(c)(5)	A description of the general geology of the area	✓
	A detailed description of the geology of the mine site.	✓
PRC 2773.3	If a metallic mine is located on, or within one mile of, any "Native American sacred site" and is located in an "area of special concern," the reclamation plan shall require that all excavations and/or excess materials be backfilled and graded to achieve the approximate original contours of the mined lands prior to mining.	N/A
CCR 3502(b)(4)	The source and disposition of fill materials used for backfilling or grading shall be considered in the reclamation plan.	✓
CCR 3502(b)(3)	The designed steepness and treatment of final slopes must consider the physical properties of slope materials, maximum water content, and landscaping.	✓
	The reclamation plan shall specify slope angles flatter than the critical gradient for the type of slope materials.	✓
	When final slopes approach the critical gradient, a Slope Stability Analysis will be required.	✓
CCR 3704.1	Backfilling required for surface mining operations for metallic minerals.	N/A
CCR 3704(a)	For urban use, fill shall be compacted in accordance with Uniform Building Code, local grading ordinance, or other methods approved by the lead agency.	✓
CCR 3704(b)	For resource conservation, compact to the standards required for that end use.	✓
CCR 3704(d)	Final reclamation fill slopes shall not exceed 2:1 (H:V), except when allowed by site-specific engineering analysis, and the proposed final slope can be successfully revegetated. See also Item 3502(b)(3).	✓
CCR 3704(e)	At closure, all fill slopes shall conform with the surrounding topography or approved end use.	✓

CCR 3704(f)	Final cut slopes must have a minimum slope stability factor of safety that is suitable for the end use and conforms with the surrounding topography or end use.	✓

HYDROLOGY AND WATER QUALITY

Authority	Requirements/Practices/Standards	✓ or N/A
PRC 2770.5	For operations within the 100-year flood plain (defined by FEMA) and within one mile up- or downstream of a state highway bridge, Caltrans must be notified and provided a 45-day review period by the lead agency.	✓
PRC 2772(c)(8)(A)	Description of the manner in which contaminants will be controlled and mine waste will be disposed.	✓
PRC 2772(c)(8)(B)	The reclamation plan shall include a description of the manner in which stream banks/beds will be rehabilitated to minimize erosion and sedimentation.	✓
PRC 2773(a)	The reclamation plan shall establish site-specific sediment and erosion control criteria for monitoring compliance with the reclamation plan.	✓
CCR 3502(b)(6)	Temporary stream and watershed diversions shall be detailed in the reclamation plan.	✓
CCR 3503(a)(2)	Stockpiles of overburden and minerals shall be managed to minimize water and wind erosion.	✓
CCR 3503(b)(2)	Operations shall be conducted to substantially prevent siltation of groundwater recharge areas.	✓
CCR 3503(a)(3)	Erosion control facilities shall be constructed and maintained where necessary to control erosion.	✓
CCR 3503(b)(1)	Settling ponds shall be constructed where they will provide a significant benefit to water quality.	✓
CCR 3503(d)	Disposal of mine waste and overburden shall be stable and shall not restrict natural drainage without suitable provisions for diversion.	✓
CCR 3503(e)	Grading and revegetation shall be designed to minimize erosion and convey surface runoff to natural drainage courses or interior basins.	✓
	Spillway protection shall be designed to prevent erosion.	✓
CCR 3706(a)	Surface mining and reclamation activities shall be conducted to protect on-site and downstream beneficial uses of water.	✓
CCR 3706(b)	Water quality, recharge potential, and groundwater storage that is accessed by others shall not be diminished.	✓
CCR 3706(c)	Erosion and sedimentation shall be controlled during all phases of construction, operation, reclamation, and closure of surface mining operations to minimize siltation of lakes and water courses as per RWQCB/SWRCB.	✓
CCR 3706(d)	Surface runoff and drainage shall be controlled to protect surrounding land and water resources.	✓
	Erosion control methods shall be designed for not less than 20 year/1 hour intensity storm event.	✓
CCR 3706(e)	Impacted drainages shall not cause increased erosion or sedimentation. Mitigation alternatives shall be proposed in the reclamation plan.	✓

CCR 3706(f)(1)	Stream diversions shall be constructed in accordance with the Lake and Streambed Alteration Agreement (LSAA) between the operator and the Department of Fish and Wildlife.	N/A
CCR 3706(f)(2)	Stream diversions shall also be constructed in accordance with Federal Clean Water Act and the Rivers and Harbors Act of 1899.	N/A
CCR 3706(g)	All temporary stream diversions shall eventually be removed, and the affected land reclaimed.	N/A
CCR 3710(a)	Surface and groundwater shall be protected from siltation and pollutants in accordance with the Porter-Cologne Act, the Federal Clean Water Act, and RWQCB/SWRCB requirements.	✓
CCR 3710(b)	In-stream mining shall be conducted in accordance with Section 1600 et seq. of the California Fish and Game Code, Section 404 of the Clean Water Act, and Section 10 of the Rivers and Harbors Act of 1899.	✓
CCR 3710(c)	In-stream mining shall be regulated to prevent impacts to structures, habitats, riparian vegetation, groundwater levels, and banks.	✓
	In-stream channel elevations and bank erosion shall be evaluated annually using extraction quantities, cross-sections, and aerial photos.	✓
CCR 3712	Mine waste and tailings and mine waste disposal units are governed by SWRCB waste disposal regulations and shall be reclaimed in accordance with this article: CCR Article 1. Surface Mining and Reclamation Practice. Section 3500 et seq.	✓

SENSITIVE SPECIES AND HABITAT

Authority	Requirements/Practices/Standards	✓ or N/A
CCR 3502(b)(1)	A description of the environmental setting (identify sensitive species, wildlife habitat, sensitive natural communities, e.g., wetlands).	✓
	Impacts of reclamation on surrounding land uses.	✓
CCR 3503(c)	Fish and wildlife habitat shall be protected by all reasonable measures.	✓
CCR 3703(a)	Sensitive species shall be conserved or mitigated as prescribed by the federal and California Endangered Species Acts.	✓
CCR 3703(b)	Wildlife habitat shall be established on disturbed land at least as good as pre-project, unless end use precludes its use as wildlife habitat.	✓
CCR 3703(c)	Wetlands shall be avoided or mitigated at 1:1 minimum for both acreage and habitat value.	✓
CCR 3704(g)	Piles or dumps shall not be placed in wetlands without mitigation.	✓
CCR 3710(d)	In-stream mining shall not cause fish to be trapped in pools or off-channel pits or restrict migratory or spawning activities.	N/A

TOPSOIL

Authority	Requirements/Practices/Standards	✓ or N/A
CCR 3503(a)(1)	Removal of vegetation and overburden preceding mining shall be kept to a minimum.	✓

CCR 3503(f)	When the reclamation plan calls for resoiling, mine waste shall be leveled and covered with a layer of finer material. A soil layer shall then be placed on this prepared surface.	✓
	The use of soil conditioners, mulches, or imported topsoil shall be considered where such measures appear necessary.	✓
CCR 3704(c)	Mine waste shall be stockpiled to facilitate phased reclamation and kept separate from topsoil or other growth media.	✓
CCR 3705(e)	If soil is altered or other than native topsoil, soil analysis is required. Add fertilizers or soil amendments if necessary.	✓
CCR 3711(a)	All salvageable topsoil shall be removed as a separate layer.	✓
	Topsoil and vegetation removal should not precede mining by more than one year.	✓
CCR 3711(b)	Topsoil resources shall be mapped prior to stripping and location of topsoil stockpiles shown on map included in the reclamation plan.	✓
	Topsoil and other growth media shall be maintained in separate stockpiles.	✓
	Test plots may be required to determine the suitability of growth media for revegetation purposes.	✓
CCR 3711(c)	Soil salvage operations and phases of reclamation shall be set forth in the reclamation plan to minimize the area disturbed and to achieve maximum revegetation success.	✓
CCR 3711(d)	Topsoil and growth media shall be used to phase reclamation as soon as can be accommodated following the mining of an area.	✓
	Topsoil stockpiles shall not be disturbed until needed for reclamation	✓
	Topsoil stockpiles shall be clearly identified.	✓
	Topsoil shall be planted with vegetation or otherwise protected to prevent erosion and discourage weeds.	✓
CCR 3711(e)	Topsoil shall be redistributed in a manner resulting in a stable, uniform thickness consistent with the end uses.	✓

REVEGETATION

Authority	**Requirements/Practices/Standards**	✓ or N/A
PRC 2773(a)	The reclamation plan shall be specific to the property and shall establish site-specific criteria for evaluating compliance with the reclamation plan with respect to revegetation.	✓
CCR 3503(g)	Available research regarding revegetation methods and selection of species given the topography, resoiling characteristics, and climate of the mined areas shall be used.	✓
CCR 3705(a)	Baseline studies shall be conducted prior to mining activities to document vegetative cover, density, and species richness.	✓
	Vegetative cover shall be similar to surrounding habitats and self-sustaining.	✓
CCR 3705(b)	Test plots shall be conducted simultaneously with mining to ensure successful implementation of the proposed revegetation plan	✓
CCR 3705(c)	Decompaction methods, such as ripping and disking, shall be used in areas to be revegetated to establish a suitable root zone for planting.	✓
CCR 3705(d)	Roads shall be stripped of road base materials, resoiled, and revegetated, unless exempted.	✓

CCR 3705(f)	Temporary access shall not disrupt the soil surface on arid lands except where necessary for safe access. Barriers shall be installed to keep unauthorized vehicles out	✓
CCR 3705(g)	Use local native plant species (unless non-native species meet the end use).	✓
	Areas to be developed for industrial, commercial, or residential shall be revegetated for the interim period to control erosion.	N/A
CCR 3705(h)	Planting shall be conducted during the most favorable period of the year for plant establishment.	✓
CCR 3705(i)	Use soil stabilizing practices and irrigation when necessary to establish vegetation.	✓
CCR 3705(j)	If irrigation is used, demonstrate that revegetation has been self-sustaining without irrigation for two years prior to the release of financial assurance.	✓
CCR 3705(k)	Noxious weeds shall be monitored and managed.	✓
CCR 3705(l)	Plant protection measures such as fencing, and caging shall be used where needed for revegetation success. Protection measures shall be maintained until revegetation efforts are successfully completed and the lead agency authorizes removal.	✓
CCR3705(m)	Quantitative success standards for vegetative cover, density, and species richness shall be included in the reclamation plan.	✓
	Monitoring to occur until success standards have been achieved.	✓
	Sampling techniques for measuring success shall be specified. Sample size must be sufficient to provide at least an 80 percent statistical confidence level.	✓

AGRICULTURE

Authority	**Requirements/Practices/Standards**	✓ or N/A
CCR 3707(a)	Where the end use will be agriculture, prime agricultural land shall be returned to a fertility level specified in the reclamation plan.	N/A
CCR 3707(b)	Segregate and replace topsoil in proper sequence by horizon in prime agricultural soils.	N/A
CCR 3707(c)	Post reclamation productivity rates for prime agricultural land must be equal to pre-project condition or to a similar site for two consecutive years.	N/A
	Productivity rates shall be specified in the reclamation plan.	N/A
CCR 3707(d)	If fertilizers and amendments are applied, they shall not cause contamination of surface or groundwater.	N/A
CCR 3708	For sites where the end use is to be agricultural, non-prime agricultural land must be reclaimed to be capable of sustaining economically viable crops common to the area.	N/A

SMARA Index

Content Requirement	Location Reference	
	Section/ Appendix	Page(s) No.
PRC 2772 (c)		
Operator Name and address.	Section 2.1	~~12~~13
Names and addresses of persons designated as an agent for the service of process.	Section 2.1	~~13~~14
Quantity and type of minerals to be mined.	Section 2.1	~~13~~14
Proposed dates of mine initiation and termination.	Section 2.1	~~13~~14
Maximum anticipated depth of the surface mining.	Section 2.1	~~13~~14
Reclamation Plan map(s) with appropriate information.	Attached	Attachment A
A description of and plan for the type of surface mining to be employed.	Section 2.2	~~13~~14
Time schedule that provides for the completion of surface mining on each segment of the mined lands so that reclamation can be initiated at the earliest possible time on portions of the mined lands not subject to further disturbance by mining.	Section 2.2, Section 2.4 & Table 2.	~~13,~~ 14 ~~&19~~, 15 & 22
Proposed use or potential uses of the mined lands.	Section 2.3	~~14~~15
Evidence that all owners of a possessory interest in the land have been notified of the proposed use or potential uses.	Section 2.1 Application Submittal Forms	~~12~~13
Description of the way reclamation, adequate for the proposed use or potential uses, will be accomplished. To include: a. Description of how known contaminants will be controlled, and mining waste will be disposed. b. Description of the way affected streambed channels and streambanks will be rehabilitated to minimize erosion and sedimentation.	a. Section 2.6 b. Section 3.0 All	~~23~~ ~~28 - 35~~27 32-41
Assessment of the effect of implementation of the reclamation plan on future mining in the area.	Section 3.14	~~35~~41

Statement that the person submitting the reclamation plan accepts responsibility for reclaiming the mined lands in accordance with the reclamation plan.	Section 7.0	~~41~~46
Other information required.	Attachments	
PRC 2772.1		
Information, document, or component of a document prepared as part of a permit application for the surface mining operation or as part of an environmental document prepared for the project shall be incorporated into the reclamation plan or amendment used to satisfy the requirements shall be referenced by Appendix and page number.	Attachments	
PRC 2773(b) – Reclamation Standards		
Wildlife habitat.	Section 3.4	~~31~~36
Backfilling, re-grading, slope stability and re-contouring.	Section 3.1	~~29~~33
Revegetation.	Section 3.4	~~31~~36
Drainage, diversion structures, waterways, and erosion control.	Section 2.8	~~24~~29
Prime and other agricultural land reclamation.	NA	NA
Building, structure, and equipment removal.	Section 3.3	~~31~~36
Stream protection.	Section 2.8	~~24~~29
Topsoil salvage, maintenance, and redistribution.	Section 2.3	~~14~~15
Tailing and mine waste management.	Section 2.6	~~23~~27
Article 1. Surface Mining and Reclamation Practice § 3502. The Reclamation Plan		
(1) The environmental setting of the site of operations and the effect that possible alternate reclaimed site conditions may have upon the existing and future uses of surrounding lands.	Section 1.0	2
(2) The public health and safety, considering the degree and type of present and probable future exposure of the public to the site.	Section 3.13	~~35~~40

(3) The designed steepness and proposed treatment of the mined lands' final slopes shall take into consideration the physical properties of the slope material, its probable maximum water content, landscaping requirements, and other factors. In all cases, reclamation plans shall specify slope angles flatter than the critical gradient for the type of material involved. Whenever final slopes approach the critical gradient for the type of material involved, regulatory agencies shall require an engineering analysis of the slope stability. Special emphasis on slope stability and design shall be necessary when public safety or adjacent property may be affected.	Section 3.0	~~28~~32
(4) Areas mined to produce additional materials for backfilling and grading, as well as settlement of filled areas, shall be considered in the reclamation plan. Where ultimate site uses include roads, building sites, or other improvements sensitive to settlement, the reclamation plans shall include compaction of the fill materials in conformance with good engineering practice.	Section 2.4	~~14~~15
(5) Disposition of old equipment.	Section 3.0	~~28~~32
(6) Temporary stream or watershed diversions.	NA	NA
Article 1. Surface Mining and Reclamation Practice **§ 3503. Surface Mining and Reclamation Practice**		
Soil Erosion Control.	Section 3.12	~~35~~40
Water Quality and Watershed Control.	Section ~~3.0~~2.8 & 5.1	~~28~~29 & 43
Protection of Fish and Wildlife Habitat.	Section 3.4 & 5.3	~~31~~36 & 41
Disposal of Mine Waste Rock and Overburden.	Section 2.6	~~23~~27
Erosion and Drainage.	Section 2.8	~~24~~29
Resoiling.	Section 2.3 & 3.0	~~14 & 28~~15 & 32
Revegetation.	Section 3.4	~~31~~36
Article 9. Reclamation Standards		
§ 3703. Performance Standards for Wildlife Habitat.	Section 5.3	~~36~~41

§ 3704. Performance Standards for Backfilling, Regrading, Slope Stability, and Recontouring.	Section 5.4	~~37~~42
§ 3704.1. Performance Standards for Backfilling Excavations and Recontouring Lands Disturbed by Open Pit Surface Mining Operations for Metallic Minerals.	~~Section 5.4~~N/A	~~37~~N/A
§ 3705. Performance Standards for Revegetation.	Section 5.5, Attached	~~37~~42, Attachment B
§ 3706. Performance Standards for Drainage, Diversion Structures, Waterways, and Erosion Control.	Section 5.6	~~37~~42
§ 3707. Performance Standards for Prime Agricultural Land Reclamation.	Section 5.7	~~37~~43
§ 3708. Performance Standards for Other Agricultural Land.	Section 5.8	~~37~~43
§ 3709. Performance Standards for Building, Structure, and Equipment Removal.	Section 3.3 & 5.9	~~31, 38~~36, 43
§ 3711. Performance Standards for Topsoil Salvage, Maintenance, and Redistribution.	Section 5.11, Attached	~~38~~43, Attachment B
§ 3712. Performance Standards for Tailing and Mine Waste Management.	Section 5.12	~~38~~44
§ 3713. Performance Standards for Closure of Surface Openings.	Section 5.13	~~38~~44

Introduction

~~New West Investment, Inc.~~Cottonwood Cajon ES, LLC. (Proponent) is currently proposing the Cottonwood Sand Mine on land that is utilized by the Cottonwood Golf Club for two permitted 18-hole golf courses in the Jamacha Valley area of San Diego County, California. Currently, one of the golf courses is not in operation. This land is zoned to allow for extractive uses.

The proponent is applying for a Major Use Permit (MUP) and Reclamation Plan (RP) on 251.1 acres of the 279-acre property. Approval of the MUP and RP would allow for the extraction of approximately 3.8-million cubic yards (5.7-million tons) of washed concrete sand and gravel over a 10-year period. Economic conditions may require an approval of an extension of the permit period beyond the initial 10-year period. Mining will be followed by 2 years of reclamation activities plus time for revegetation monitoring. As mining is completed in phases and selected areas backfilled, the site will be restored with a widened river channel. Potential end uses will be those that are allowed under the General Plan and County Zoning Ordinance. Future development of the site is not included in the Proposed Project and would require subsequent discretionary applications to be filed along with appropriate environmental review. Reclamation and revegetation activities on areas proposed for mining will occur on approximately 214 acres of the 251.1-acre MUP area. Surface areas not disturbed by mining within the MUP area would be subject to removal of invasive species in the river channel on the southwest portion of the site or be left in their current condition. As such, reclamation of the proposed extraction project would not affect existing or future uses of lands surrounding the property as a significant amount of land bordering the project on the south is currently a National Wildlife refuge and a second preserve on the far northeast. Reclamation to primarily native habitat will create a link for wildlife between the two preserve areas.

At full site development, mining and extraction activities will produce approximately 3.8-million cubic yards (5.7-million tons) of sand and gravel, with a maximum annual production level of 380,000 cubic yards (570,000 tons per year (MTPY)). Total material to be excavated is 4,266,900 cubic yards with a 10 percent waste factor that includes wash fines and materials undesirable for processing. Materials not selected for processing will be utilized as backfill. In addition to incorporation of wash fines, imported inert debris also would be utilized to achieve finished grades. Final reclamation will follow on the remainder of 214 acres and would be expected to continue for approximately 2 years following completion of mining activities. Associated facilities include a processing plant and all support structures.

The project will be developed and reclaimed in four (4) phases, three mining phases and one final reclamation phase. Initial project activity will involve the creation of a processing area west of the existing parking lot and adjacent to Willow Glen Drive. A portable conveyor system will be installed to transport mined material from the excavation areas to the plant for washing and screening~~.~~, and to transport fill materials from the processing area to the backfill areas once mining has been completed within each subphase area. This conveyor system will be moved to serve each phase as the project progresses. Successful reclamation will result in a narrower river flood channel with a low flow channel consisting of the existing low-flow channel

width and height of banks up to 3.7 feet in order to retain existing hydrologic characteristics and to accommodate water transfers from the Loveland Reservoir to the Sweetwater Reservoir ~~and~~. Reclamation will also return the site to beneficial end uses allowed by the General Plan and County Zoning Ordinance. Golf operations will end prior to initiating onsite project activities.

The project will restripe Willow Glen Drive between Steele Canyon Road and the project ingress driveway to provide a raised median and Class II buffered bike lanes on both sides of the roadway. To facilitate deceleration of right-turning vehicles into the project ingress driveway, a dedicated right-turn lane will also be constructed, which will serve as the primary access for mining operations, material sales, employees, and vendors. This road would continue to a new egress point in the approximate center of the existing parking lot (See Sheet 3, Plot Plan). The project will also construct ~~a two-way left-turn~~an acceleration lane between the ingress and egress project driveways, which will serve as a refuge lane for trucks to complete their outbound maneuver. Willow Glen Drive between Steele Canyon Road and Hillsdale Road is classified in the Mobility Element as a 4.1B: Major Road with Intermittent Turn lanes. The project frontage along this stretch extends between Steele Canyon Road to approximately 1000' west of Hillsdale Road. In addition to the above improvements, the project proposes to provide an Irrevocable Offer of Dedication along the project frontage as needed to accommodate the ultimate roadway classification of Willow Glen Drive.

A second access road will also be installed on the western edge of the project at the intersection of Muirfield Drive and Willow Glen Drive. This access road will consist of a 2-lane concrete apron that will transition to gravel surface segment of road once on the Cottonwood property and will be used primarily for mobilization/demobilization, servicing of heavy equipment and reclamation for the Phase 1 area west of Steele Canyon Road. Both the Muirfield and existing driveways with gates, will remain in place for the property owner after mining activities end (See Sheet 2, Plot Plan).

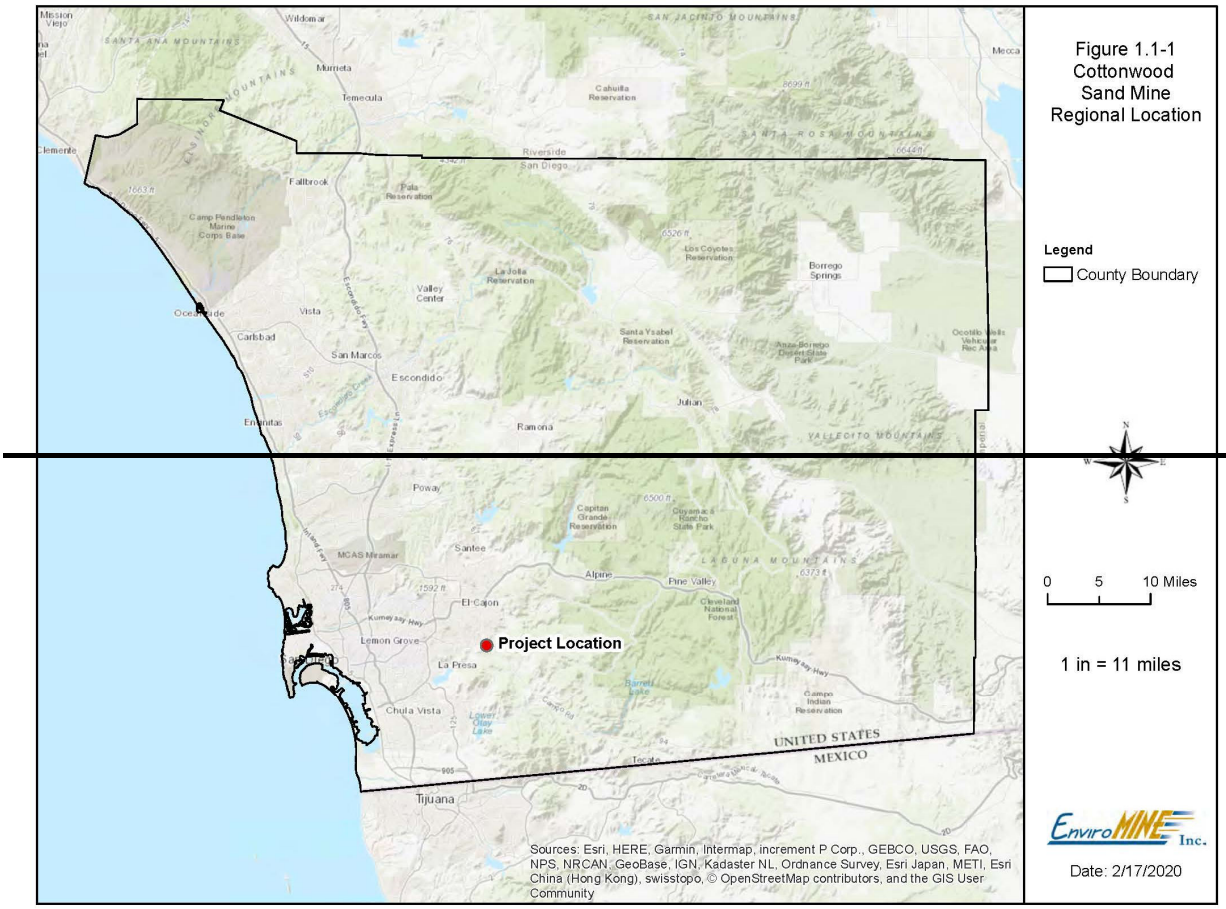
The main entrance to the project site is 0.25 miles northeast of the intersection of Willow Glen Drive and Steele Canyon Road. Willow Glen Drive will serve as the primary route for the project. Residents use both Willow Glen Drive and Steele Canyon Road to access their properties.

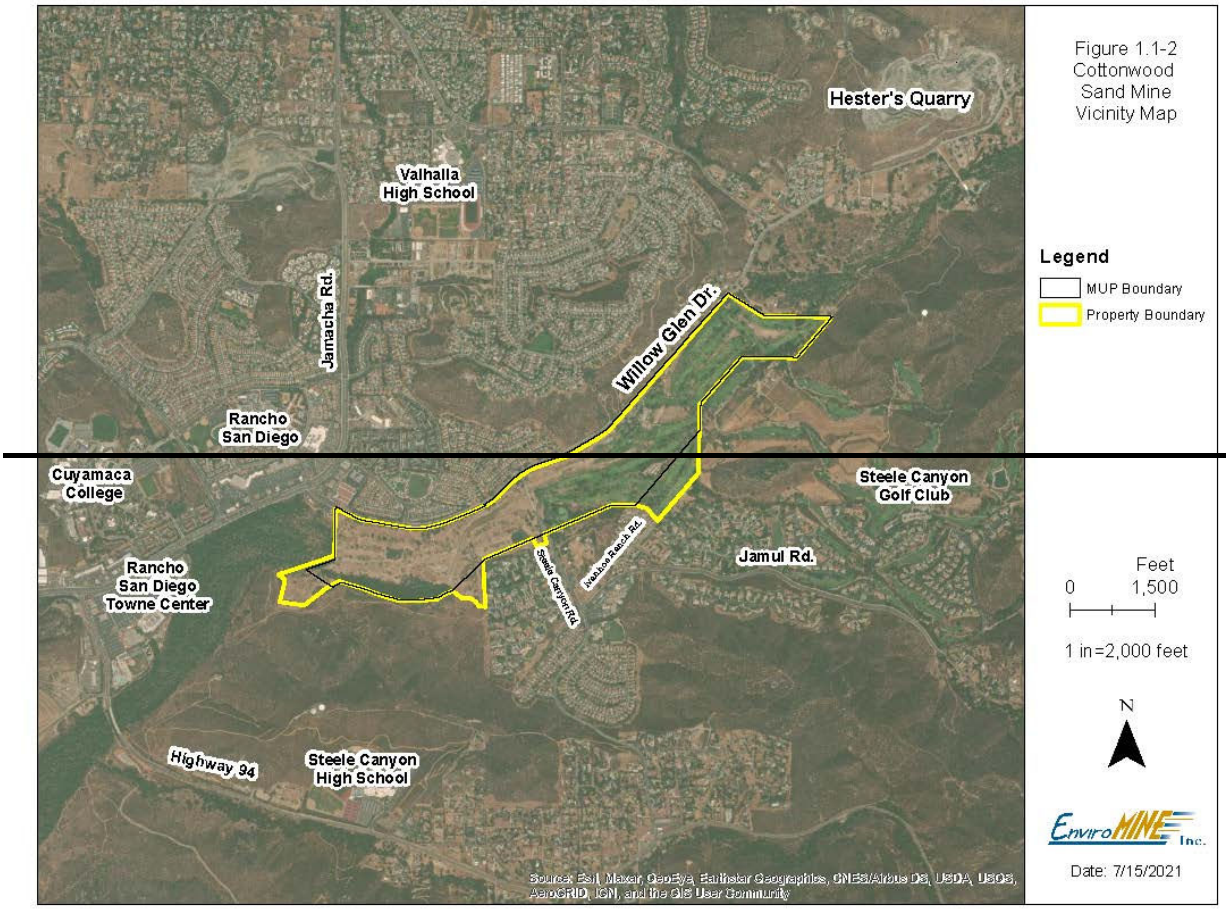
1.0 Environmental Setting

1.1 Project Location

The project site is situated on the floodplain of the Sweetwater River which flows through the central part of the project site. It is located parallel to Willow Glen Drive and on both sides of Steele Canyon Road in the unincorporated Jamacha-Rancho San Diego area of San Diego County, CA (Figures 1.1-1, 1.1-2).

The western RP boundary for the project is 1.2 miles northeast of the bridge on State Route 94, where the highway crosses the Sweetwater River. The eastern RP boundary is approximately 6.5 miles west, southwest of the Loveland Reservoir dam.


Figure 1.1-1
Cottonwood
Sand Mine
Regional Location
Legend
County Boundary
0 5 10 Miles
1 in = 11 miles
Project Location
UNITED STATES
MEXICO
Tijuana
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community
EnviroMINE Inc.
Date: 2/17/2020


Hester's Quarry
Valhalla High School
Jamacha Rd.
Willow Glen Dr.
Rancho San Diego
Cuyamaca College
Steele Canyon Golf Club
Jamul Rd.
Rancho San Diego Towne Center
Steele Canyon Rd.
Highway 94
Steele Canyon High School
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Figure 1.1-2
Cottonwood
Sand Mine
Vicinity Map
Legend
MUP Boundary
Property Boundary
Feet
0
1,500
1 in=2,000 feet
N
EnviroMINE Inc.
Date: 7/15/2021

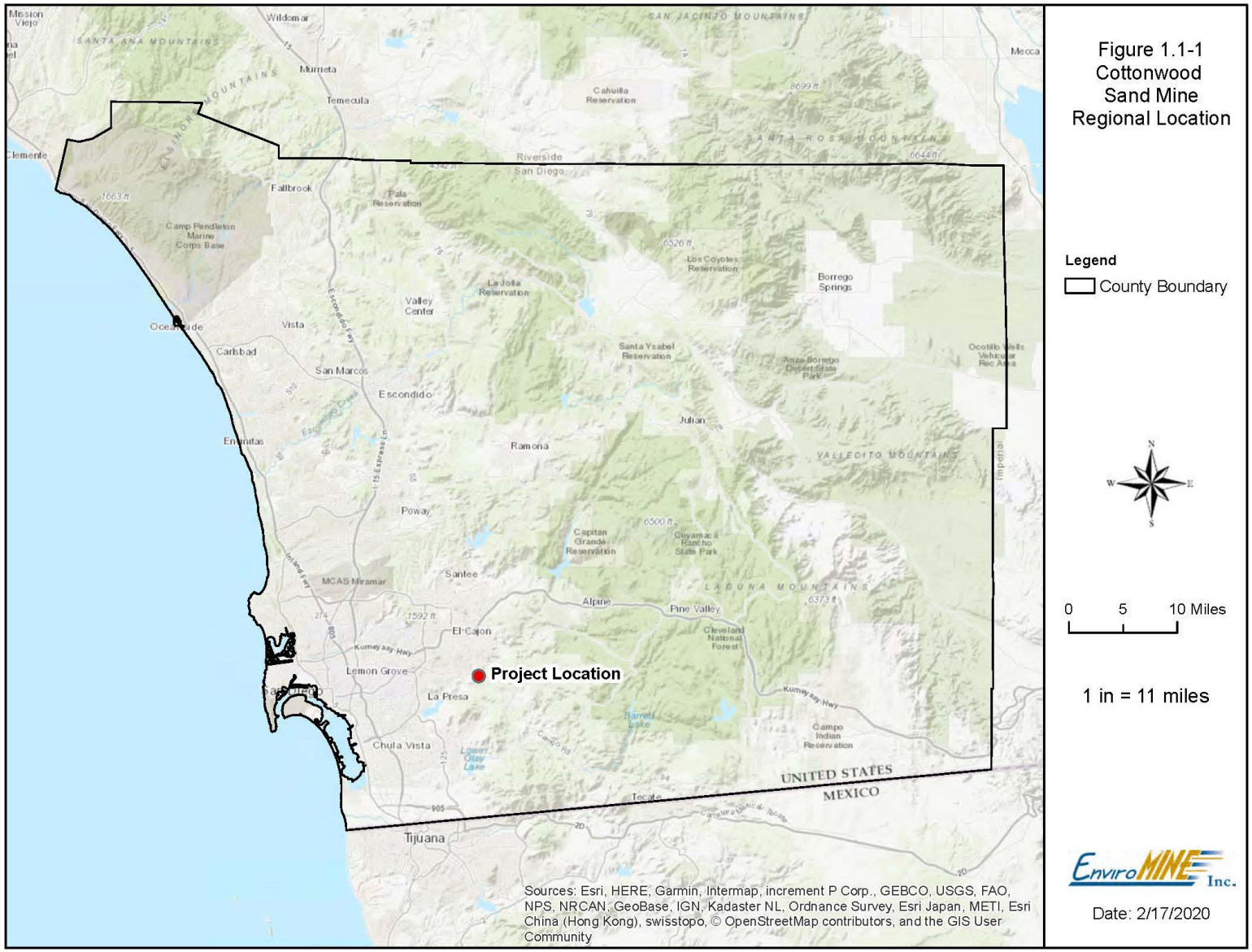
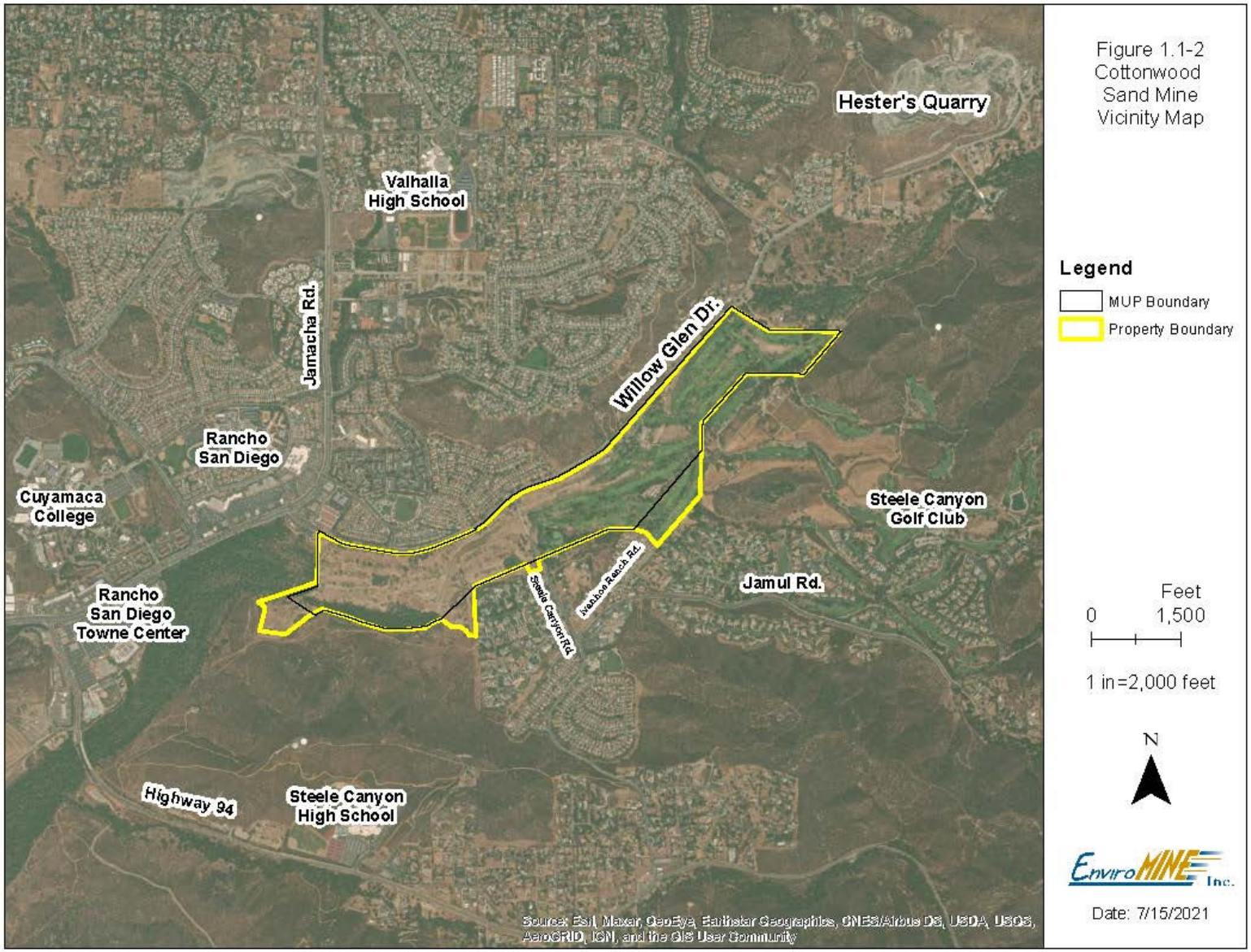


Figure 1.1-1
Cottonwood
Sand Mine
Regional Location


Hester's Quarry
Valhalla High School
Jamacha Rd.
Willow Glen Dr.
Rancho San Diego
Cuyamaca College
Steele Canyon Golf Club
Jamul Rd.
Rancho San Diego Towne Center
Steele Canyon Rd.
Highway 94
Steele Canyon High School
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Figure 1.1-2
Cottonwood
Sand Mine
Vicinity Map
Legend
MUP Boundary
Property Boundary
Feet
0
1,500
1 in=2,000 feet
N
EnviroMINE Inc.
Date: 7/15/2021

1.2 Assessor Parcel Numbers, Ownership and Zoning

The Project has twenty-two separate Assessor Parcel Numbers (APNs). (Figure 1.2-1)

Table 1. Assessor Parcels

APN	TOTAL ACRES (approx.)	OWNER	ZONING[1]	LAND USE DESIGNATION[2]
506-021-1900	8.20	Cottonwood Cajon ES, LLC	S88	OS-R
506-020-5200	4.01	Cottonwood Cajon ES, LLC	S80	OS-R
518-012-1300	2.97	Cottonwood Cajon ES, LLC	S90	OS-R
518-012-1400	46.61	Cottonwood Cajon ES, LLC	S90	OS-R
518-030-0500	2.30	Cottonwood Cajon ES, LLC	S90	OS-R
518-030-0600	5.58	Cottonwood Cajon ES, LLC	S90	OS-R
518-030-0700	2.59	Cottonwood Cajon ES, LLC	S90	OS-R
518-030-0800	0.69	Cottonwood Cajon ES, LLC	S90	OS-R
518-030-1000	7.16	Cottonwood Cajon ES, LLC	S90	OS-R
518-030-1200	6.88	Cottonwood Cajon ES, LLC	S90	OS-R
518-030-1300	10.20	Cottonwood Cajon ES, LLC	S90	OS-R
518-030-1500	4.04	Cottonwood Cajon ES, LLC	S90	OS-R
518-030-2100	56.71	Cottonwood Cajon ES, LLC	S90	OS-R
518-030-2200	19.43	Cottonwood Cajon ES, LLC	S90	OS-R
519-010-1500	33.72	Cottonwood Cajon ES, LLC	S90	OS-R
519-010-1700	14.59	Cottonwood Cajon ES, LLC	S90	OS-R
519-010-2000	19.22	Cottonwood Cajon ES, LLC	S90	OS-R
519-010-2100	1.10	Cottonwood Cajon ES, LLC	S90	OS-R
519-010-3300	1.76	Cottonwood Cajon ES, LLC	S90	OS-R
519-010-3400	7.17	Cottonwood Cajon ES, LLC	S90	OS-R
519-010-3700	1.06	Cottonwood Cajon ES, LLC	S90	OS-R
519-011-~~0300~~0700	23.80	Cottonwood Cajon ES, LLC	S88	OS-R
Totals:	**279.79**			

[1] S90 - Holding Area - allows extractive uses of mining and processing with a Major Use Permit,
S88 - Specific Planning Area - allows extractive use of site preparation with a Minor Use Permit. This area will be disturbed for water course improvement by the removal of material.
S80 - Open Space -allows extractive uses of mining and processing with a Major Use Permit.

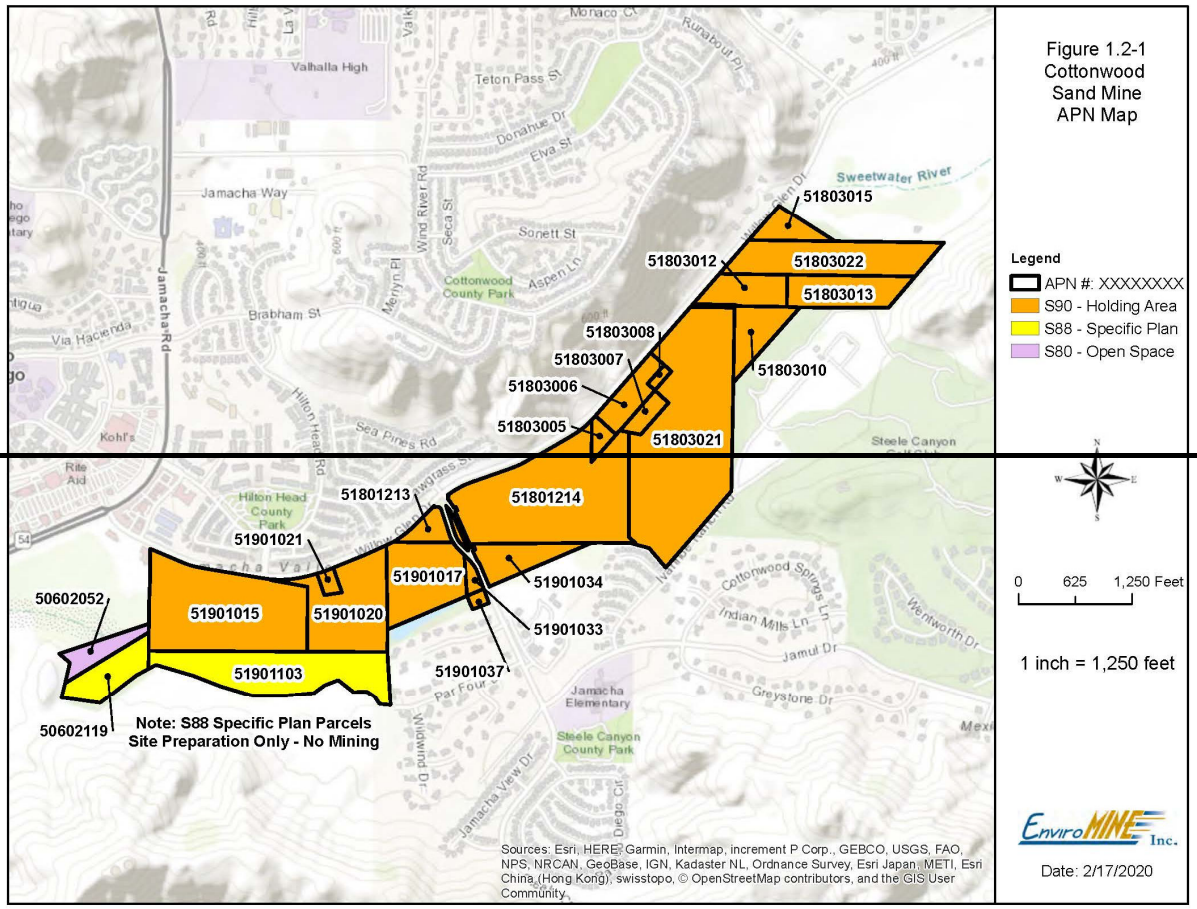
[2] General Plan Land Use Designation is OS-R, Open Space – Recreation

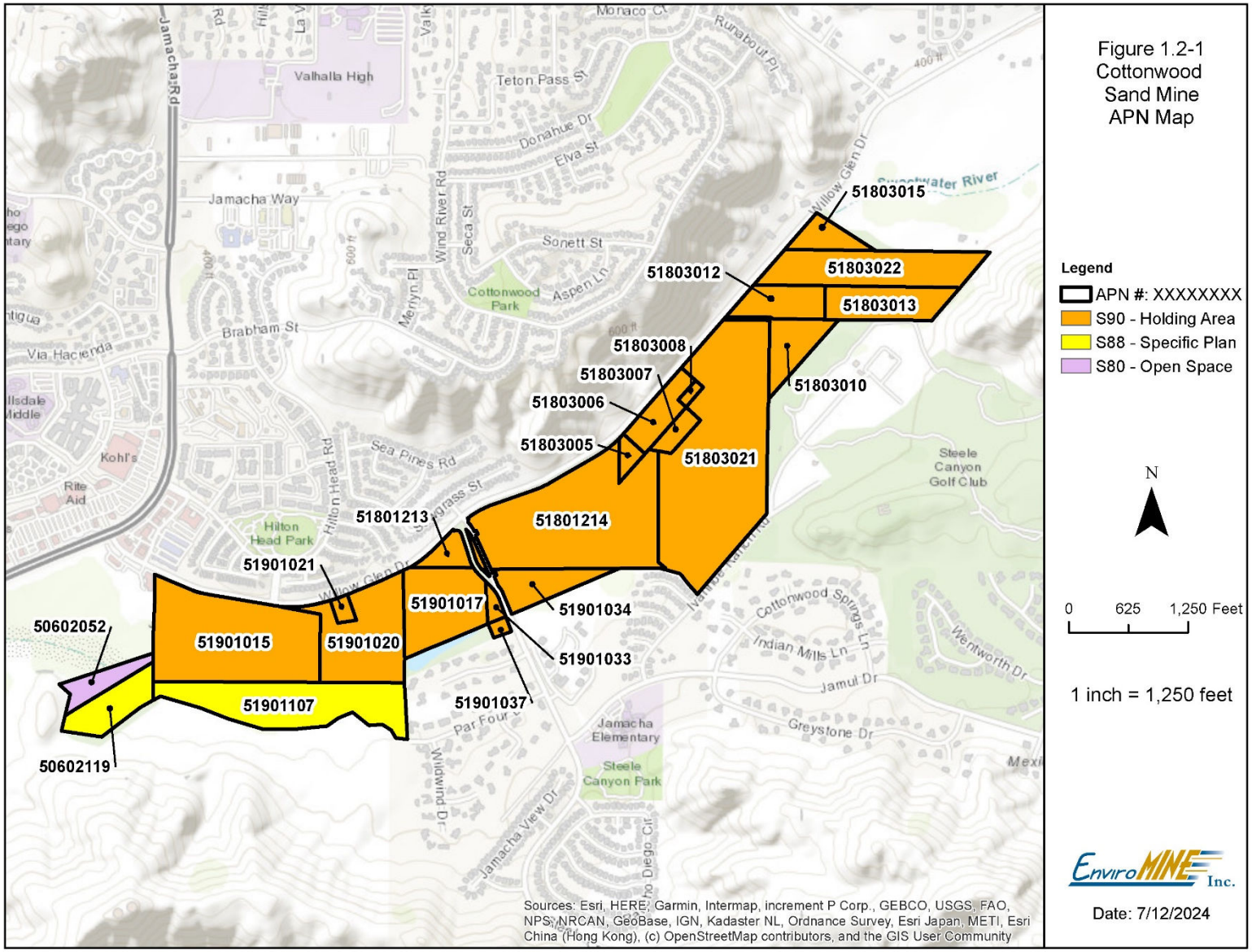
1.3 Legal Description

The project is located within portions of Sections 9, 10, and 16, Township 15 South, Range 1 East of the El Cajon Mountain, California, U.S. Geological Survey (USGS) 7.5-minute quadrangle, San Bernardino Base and Meridian, County of San Diego, California at approximately 32°52' 38.53" N latitude -116° 52' 50.00 W longitude.

1.4 General Physiography

The RP area is located within the Foothills Physiographic Province of the Peninsular Ranges of Southern California. Site geology is composed of Quaternary Alluvium underlain by Cretaceous tonalite with some granodiorite and quartz diorite. (Tan, S.S., 2002a, 2002b.)


Figure 1.2-1
Cottonwood
Sand Mine
APN Map
Legend
APN #: XXXXXXXX
S90 - Holding Area
S88 - Specific Plan
S80 - Open Space
0 625 1,250 Feet
1 inch = 1,250 feet
Date: 2/17/2020
51803015
51803012
51803022
51803013
51803008
51803007
51803006
51803005
51803010
51803021
51801213
51801214
51901021
51901017
51901034
51901033
50602052
51901015
51901020
51901103
51901037
50602119
Note: S88 Specific Plan Parcels
Site Preparation Only - No Mining
Valhalla High
Teton Pass St
Donahue Dr
Elva St
Jamacha Way
Sweetwater River
Sonett St
Cottonwood County Park
Aspen Ln
Brabham St
Via Hacienda
Jamacha Rd
Wind River Rd
Seca St
Meryn Pl
Kohl's
Rite Aid
Sea Pines Rd
Hilton Head Rd
Hilton Head County Park
Steele Canyon
Cottonwood Springs Ln
Indian Mills Ln
Jamul Dr
Greystone Dr
Wentworth Dr
Par Four
Jamacha Elementary
Steele Canyon County Park
Jamacha View Dr
Diego Cir
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community


Figure 1.2-1
Cottonwood
Sand Mine
APN Map
Legend
APN #: XXXXXXXX
S90 - Holding Area
S88 - Specific Plan
S80 - Open Space
N
0 625 1,250 Feet
1 inch = 1,250 feet
EnviroMINE Inc.
Date: 7/12/2024
51803015
51803022
51803012
51803013
51803008
51803007
51803010
51803006
51803005
51803021
51801214
51801213
51901021
51901017
51901034
51901033
51901037
51901015
51901020
51901107
50602052
50602119
Valhalla High
Teton Pass St
Donahue Dr
Elva St
Jamacha Way
Wind River Rd
Seca St
Sonett St
Cottonwood Park
Aspen Ln
Merryn Pl
Brabham St
Via Hacienda
Sea Pines Rd
Hilton Head Rd
Hilton Head Park
Kohl's
Rite Aid
Steele Canyon Golf Club
Willow Glen Dr
Cottonwood Springs Ln
Indian Mills Ln
Jamul Dr
Wentworth Dr
Greystone Dr
Jamacha Elementary
Steele Canyon Park
Jamacha View Dr
Par Four Dr
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

The topography in the project vicinity is characterized by steep terrain to the north and south of the alluvial valley. Elevations range from approximately 1,100 feet above mean sea level (MSL) north of the site to approximately 360 feet near the river channel. The topography of the Project site is generally flat with an overall gentle slope to the west. This area includes ponds that are part of the golf course layout. Elevations within the excavation area range from approximately 377 feet AMSL in the east to 329 feet AMSL on the western end. The Sweetwater River extends in a general east-west direction and consists of a low-flow channel and the associated floodplain.

1.5 Climate

The general climate in the region is regarded as dry, subhumid mesothermal, with warm dry summers and cold moist winters. Mean annual temperature is between 60 and 62-degrees Fahrenheit with a mean annual precipitation between 14 and 18 inches. The frost-free season is 260 to 300 days (~~Helix~~HELIX Environmental Planning, ~~2019~~2024).

1.6 Geology

Regional Geology

The Project lies atop the southern California batholith consisting of early Cretaceous granitic rocks. These rocks form the majority element of this massive feature that underlies roughly two-fifths of San Diego County. Recent geologic mapping of the Jamul and El Cajon 7.5-minute quadrangles indicate the exposed granitic bedrock is comprised of tonalite that includes some granodiorite and quartz diorite. (Tan, S.S., 2002a, 2002b)

The Sweetwater River drains northeast-southwest through the project area and has contributed deposits of alluvium on the river's floodplain.

Site Geology

The RP area is underlain by Quaternary alluvial deposits that are unconsolidated to locally poorly consolidated silt, clay, sand, and gravel. Geologic units encountered or observed during subsurface exploration included undocumented fill, alluvium, and granitic bedrock (Attachment C, Soil and Geologic Reconnaissance). Groundwater was encountered at depths ranging from approximately 6 feet and deeper.

1.7 Surface and Groundwater

Surface Water

The project is in an area with a semi-arid Mediterranean climate with warm, dry summers and most rainfall occurring during the cooler winter months. Surface water on site is ephemeral and only present during precipitation events or water releases from the Loveland Reservoir. The site lies within the Sweetwater River drainage basin about 4.8 miles west of Loveland Reservoir dam. Designated beneficial uses for the Sweetwater River and its tributaries include municipal and domestic supply; agricultural supply; industrial service supply; industrial process supply; contact and non-contact water recreation; warm freshwater habitat; cold freshwater habitat; wildlife habitat; and rare, threatened, or endangered species habitat (California

RWQCB, 1994). Jurisdictional waters consist of the main channel of the Sweetwater River between 3.1 and 5.5 miles downstream of the Loveland Reservoir.
Although within the County's effective floodway, the project will not raise the 100-year water surface elevations, so meets the County and FEMA's floodway regulations. In addition, the project will not create adverse flood impacts within the study reach, which is consistent with the goals of floodplain regulations (Attachment E, Hydraulic Analyses).

Ground Water
An alluvial aquifer underlies the Project site. The maximum depth to bedrock at the site is approximately 55 feet, with the alluvium pinching out along the northwestern and southeastern limits of the aquifer along the bedrock valley walls.

The width of the alluvial aquifer from north to south ranges from 1,000 feet to approximately 1,500 feet on the Project site. During a geologic investigation of the property, groundwater levels were encountered from 5 to 18 feet bgs. Because the property is situated in a drainage area, groundwater elevation is expected to fluctuate between dry and rainy periods from year to year (GeoCon, 2019, rev. 2020). Groundwater flows regionally from east to west and locally toward groundwater wells. Natural groundwater recharge in the area is highly variable and is dependent on climatic conditions.

1.8 Soils

Three soil series represent most of the soil within the project boundary as identified in the United States Department of Agriculture 1973 Soil Survey (USDA, 1973). These include the Tujunga series, Riverwash, and the Visalia series (Figure 1.8-1). Other similar soil mapping units are identified but these occur as very narrow strips or small pockets of mapped soils immediately adjacent to Willow Glen Drive and upland areas on the southern side of the project area. These minor units are on the outer fringes of the project, and most will not be disturbed. The three dominant soil mapping units are described as follows:

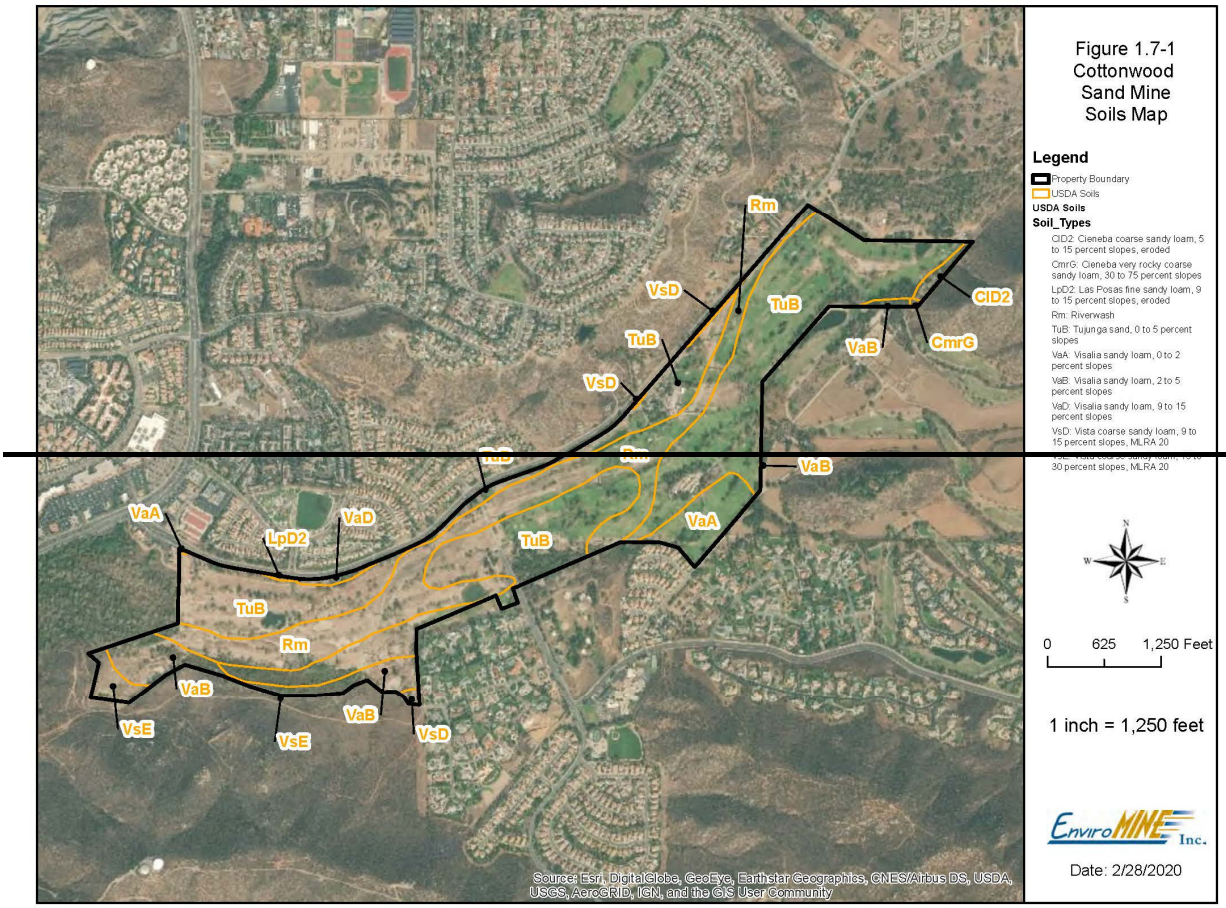
Tujunga sand, 0 to 5 percent slopes (TuB). The soil occurs on alluvial fans and flood plains. Slopes are dominantly 2 percent. This unit represents the largest area of mapped soil material within the project's boundary.

The Tujunga series consists of very deep excessively drained sands derived from granitic alluvium. These soils are on alluvial fans and flood plains and have slopes of 0 to 5 percent. The elevation ranges from sea level to 1,500 feet. The native vegetation generally occurring in uncultivated areas is chiefly annual grasses, forbs, and a few scattered oaks.

In a representative profile, the surface layer color is brown, neutral sand about 14 inches thick. The color of the next layers are pale-brown, neutral sand and coarse sand. This material extends to a depth of more than 60 inches. Fertility is low.

Permeability is very rapid. The available water holding capacity is 3 inches. Runoff is slow to very slow and the hazard is slight. Roots easily penetrate to a depth of 60 inches. Short periods of flooding are probable during wet years.

Tujunga soils are used mainly for range and golf courses. A few small areas are used for avocados, flowers, and truck crops when farmed.



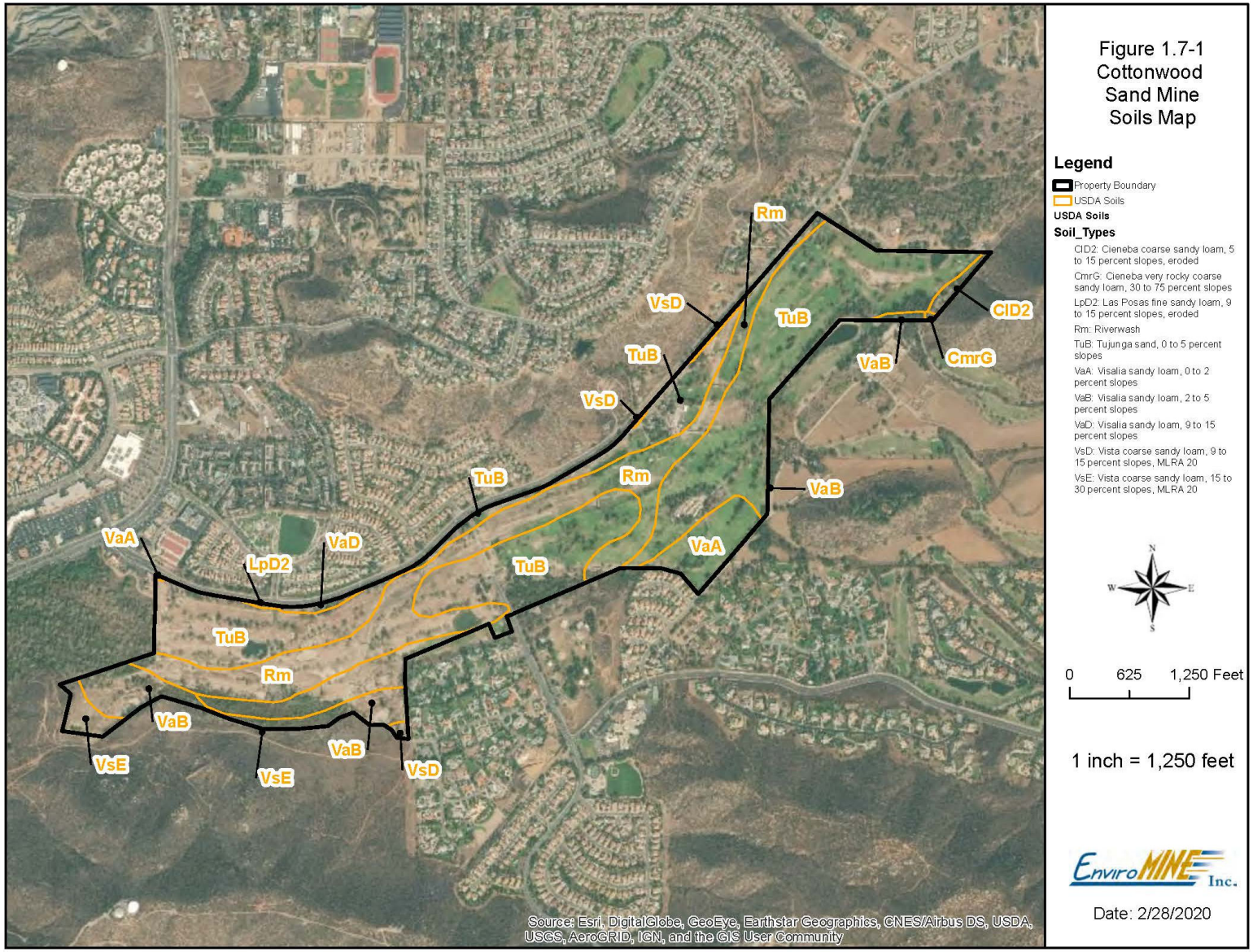
Riverwash (Rm). The Riverwash soil mapping unit occurs in intermittent stream channels. The material is typically sandy, gravelly or cobbly. It is excessively drained and rapidly permeable. Many areas are barren. Sparse shrubs and forbs occur in patches.

Visalia sandy loam, 0 to 2 percent slopes (VaA). This nearly level to level soil is on floodplains. Slopes are dominantly 2 percent.

The Visalia series consists of moderately well drained, very deep sandy loams derived from granitic alluvium. These soils are on alluvial fans and flood plains and have slopes of 0 to 15 percent. The elevation ranges from 400 to 2,000 feet. The native vegetation in uncultivated areas is chiefly annual grasses, chamise, flattop buckwheat, California live oak, and scrub oak.

In a representative profile, the surface layer is dark grayish brown, slightly acid sandy loam about 12 inches thick. The next layers are dark grayish brown, slightly acid sandy-loam and loam. This material extends to a depth of more than 60 inches. In some areas the soil is gravelly throughout.

(space left blank intentionally)


Rm
VsD
TuB
CID2
TuB
VaB
CmrG
VsD
TuB
Rm
VaB
VaA
LpD2
VaD
TuB
TuB
Rm
VaB
VaB
VsE
VsE
VsD
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Figure 1.7-1
Cottonwood
Sand Mine
Soils Map
Legend
Property Boundary
USDA Soils
USDA Soils
Soil_Types
CID2: Cieneba coarse sandy loam, 5 to 15 percent slopes, eroded
CmrG: Cieneba very rocky coarse sandy loam, 30 to 75 percent slopes
LpD2: Las Posas fine sandy loam, 9 to 15 percent slopes, eroded
Rm: Riverwash
TuB: Tujunga sand, 0 to 5 percent slopes
VaA: Visalia sandy loam, 0 to 2 percent slopes
VaB: Visalia sandy loam, 2 to 5 percent slopes
VaD: Visalia sandy loam, 9 to 15 percent slopes
VsD: Vista coarse sandy loam, 9 to 15 percent slopes, MLRA 20
VsE: Vista coarse sandy loam, 15 to 30 percent slopes, MLRA 20
N
W
E
S
0
625
1,250 Feet
1 inch = 1,250 feet
EnviroMINE Inc.
Date: 2/28/2020

1.9 Biology

Vegetation

The approximately 280-acre property supports ~~14~~15 vegetation communities/habitat types: disturbed wetland, freshwater marsh, southern cottonwood-willow riparian forest (including disturbed), southern willow scrub (including disturbed), tamarisk scrub, arundo-dominated riparian, open water, Diegan coastal sage scrub (including disturbed), ~~man made~~non-native grassland, artificial pond, eucalyptus woodland, non-native woodland, non-native vegetation, disturbed habitat, and developed lands (HELIX Environmental Planning ~~2020).~~, 2025). The project site is predominately characterized by disturbed habitat and developed lands associated with the Cottonwood Golf Club development, use, and maintenance since the mid-1960's. The 18-hole golf course located east of Steele Canyon Road has been non-operational since the summer of 2017 when golf play was suspended. This portion of the site consists of disturbed habitat dominated by ruderal vegetation such Bermuda grass (*Cynodon dacytlon*), Russian thistle (*Salsola tragus*), and annual grasses (*Bromus* spp.). The non-operation portion of the site is still mowed periodically as part of fire control efforts. The eastern portion of the site consists of developed lands with features associated with active operations of the golf course such as fairways (landscaped with Bermuda grass), cart paths, club house, parking lot, and landscaping. Native (Freemont cottonwood [*Populus freemontii*]) and non-native (Peruvian pepper [*Schinus molle*], shamel ash [*Fraxinus udehi*], northern catalpa [*Catalpa speciosa*], and gum tree [*Eucalytpus* spp.]) trees have been planted throughout the project to generally mark the sides of the fairways and screen the golf course from Willow Glen Drive.

The Sweetwater River flows through the project site entering at the northeastern site boundary, traveling in a southwesterly direction, and exiting at the southwestern site boundary. Water is generally absent from the streambed throughout most of the year as flow levels are controlled mainly by upstream impoundments such as the Loveland Reservoir. The streambed is generally unvegetated and subject to maintenance activities, such as mowing. The segment of the river east of Steele Canyon Road transitions between unvegetated portions and portions vegetated with Bermuda grass associated with the golf course's landscaping. The segment of the river southwest of the Steele Canyon Road is mostly unvegetated with areas of sandy soils. The downstream segment of the river supports native and non-native riparian habitat consisting of southern willow scrub, southern cottonwood-willow riparian forest, and tamarisk scrub. Dominant plant species include Freemont cottonwood, arroyo willow (*Salix lasiolepis*), black willow (*Salix gooddingii*), mule fat (*Baccharis salicifolia*), tamarisk (*Tamarix* sp.), and giant reed (*Arundo donax*).

Native wetland and upland habitat types within the project site such as southern willow scrub and Diegan coastal sage scrub occur in relatively small or narrow areas. Most of these areas are also disturbed with high cover of non-native plant species. Those areas that are not disturbed, occur at the edges of the project site, are connected existing undeveloped habitat or preserved areas that occur to the southwest and northeast of the site, and generally be avoided by the proposed project.

Wildlife

The project site is highly disturbed and subject to heavy human use. The site supports wildlife species commonly observed in areas that have undergone

modification and/or degradation. Common species observed during the biological surveys include western fence lizard (*Sceloporus occidentalis*), American crow (*Corvus brachyrhynchos*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), mourning dove (Zenaida macroura), red-tailed hawk (*Buteo jamaicensis*), Acorn woodpecker (*Melanerpes formicivorus*), desert cottontail (*Sylvilagus audubonii*), and California ground squirrel (*Otospermophilus beecheyi*).

Several special status animal species were observed within the project site or flying overhead including Cooper's hawk (*Accipiter cooperii*), great blue heron (*Ardea herodias*), Belding's orange-throated whiptail (*Aspidoscelis hyperythrus beldingi*), oak titmouse (*Baeolophus inornatus*), red-shouldered hawk (*Buteo lineatus*), green heron (*Butorides virescens*), turkey vulture (*Cathartes aura*), monarch butterfly (*Danaus plexippus*), peregrine falcon (*Falco peregrinus*), yellow-breasted chat (*Icteria virens*), coastal California gnatcatcher (*Polioptila californica californica*), vermilion flycatcher (*Pyrocephalus rubinus*), yellow warbler (*Setophaga petechia*), western bluebird (*Sialia mexicana*), Lawrence's goldfinch (*Spinus lawrencei*), barn owl (*Tyto alba*), small-footed myotis (*Myotis ciliolabrum),* Townsend's big-eared bat *(Corynorhinus townsendii pallescens),* western mastiff bat (*Eumops perotis*), western red bat (*Lasiurus blossevillii*), white-tailed kite (*Elanus leucurus*), yuma myotis (*Myotis yumanensis*), and least Bell's vireo (*Vireo bellii pusillus*~~).~~). U.S. Fish and Wildlife Service (USFWS) critical habitat for the coastal California gnatcatcher and least Bell's vireo occur in the riparian habitat within the southwestern portion of the site, and critical habitat for the southwestern willow flycatcher is present immediately adjacent to the site.

Wildlife movement through the site would be limited based on the current and past use of the site as an active golf course. Common predators and mesopredators that may be present within the surrounding area and utilize the golf course for limited foraging or movement activities include coyote (*Canis latrans*), racoons (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). Larger species such as bobcat (*Lynx rufus*) and mule deer (*Odocoileus hemionus*) may also be present in the area and have potential to move through the project site. However, these species would generally be minimal based on the presence of human activities, surrounding residential development, and availability of open space areas to the south that may be more conducive to wildlife movement patterns and habitat requirements.

1.10 Mineral Resources

The Surface Mining and Reclamation Act of 1975 (SMARA) mandated the initiation by the State Geologist of mineral land classification to help identify and protect mineral resources in areas within the State subject to urban expansion or other irreversible land uses which would preclude mineral extraction. SMARA also allowed the State Mining and Geology Board (SMGB), after receiving classification information from the State Geologist, to designate lands containing mineral deposits of regional or statewide significance.

The objective of classification and designation processes is to ensure, through appropriate lead agency policies and procedures, that mineral deposits of statewide or of regional significance are available when needed.

The California Geological Survey (CGS) classifies California mineral resources with the Mineral Resource Zones (MRZs) system. These zones have been established based on the presence or absence of significant sand and gravel deposits and crushed rock source area used as construction aggregate. The following definitions of the zones on or directly adjacent to the project area are as follows: (CGS, 1982 and 1996b).

- MRZ-1 - Areas where geologic information indicates no significant mineral deposits are present.
- MRZ-2 - Areas where adequate information indicates that significant mineral deposits are present or where it is judged that there is a high likelihood for their presence.
- MRZ-3 - Areas containing mineral deposits, the significance of which cannot be evaluated from available data.

The property was previously classified by the California Geological Survey (CGS) as a combination of MRZ-3 and MRZ-4 with a small section of MRZ-2 land located on the northeast end of the property. In 2017, CGS released Special Report 240 *Update of Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in The Western San Diego County Production-Consumption Region, California* which reclassified the property from MRZ-3 and MRZ-4 to MRZ-2 (CGS, 2017). This reclassification action was based on an aggregate resource evaluation report (TerraMins, 2006) provided to CGS in 2016 by the property owner. A classification of MRZ-2 indicates that the area is underlain by mineral deposits where geologic data show that significant measured or indicated resources are present.

2.0 Reclamation Plan

2.1 Owner/Operator/Agent

Applicant
~~New West Investment, Inc.~~
~~565 N. Magnolia~~
Cottonwood Cajon ES, LLC.
3121 Willow Glen Drive
El Cajon, CA ~~9202092019~~
Contact: ~~Greg Brown~~Brice Bossler
Phone: (619) ~~441-1463~~850-1399

Name of Mineral Property
Cottonwood Sand

Property and Mineral rights Ownership
Cottonwood Cajon ES, LLC
~~450 North Roxbury, Suite 725~~
~~Beverly Hills~~3121 Willow Glen Drive
El Cajon, CA ~~9021092019~~

Operator
~~New West Investment, Inc.~~

~~565 N. Magnolia~~
Cottonwood Cajon ES, LLC
3121 Willow Glen Drive
El Cajon, CA ~~92020~~92019

Agent
Warren R. Coalson, James A. DeCarolis
EnviroMINE, Inc.
~~3511 Camino Del Rio South~~4711 Viewridge Avenue, Suite ~~403~~270
San Diego, CA ~~92108~~92123
Phone: (619) 284-8515

Mineral Commodity
Construction aggregate

Surface Mining Initiation Date
~~February1, 2022~~January 1, 2025 (estimated)

Proposed Closure Date
December 31, 2036. ~~2033.~~ Operations may continue through approval of a MUP time extension beyond the proposed 10-year MUP termination date if required to fully exhaust permitted mineral reserves of 3.8-millon cubic yards of production.

Maximum Anticipated Annual Production
380,000 cubic yards x 1.5 tons/cubic yard = 570,000 tons

Total Anticipated Production
3.8-million cubic yards x 1.5 tons/cubic yard = 5.7-million tons

Maximum Anticipated Depth of Surface Mining
Range: 295 feet to 354 feet AMSL (up to 40' below existing ground surface)

2.2 Operational Characteristics

Operations in the RP area will extract, process, and market aggregate using conventional earth moving and processing equipment. Extractive operations for the project are expected to continue for approximately 10 years with a total production of 3.8-million cubic yards (5.7-million tons). Operations may be continued through approval of a MUP time extension beyond this period depending on the demand for aggregate or geologic conditions encountered during the mining process. Extractive and processing activities will produce up to approximately 380,000 cubic yards (570,000 tons) of material per year. Table 2 presents the anticipated volumes of material to be mined during each phase of the project. Extracted aggregate suitable for construction uses will be transported offsite to construction projects and batch plants in San Diego County. Material will be sold in bulk to various customers. The Plot Plan for the extractive operations is presented as Attachment A - Plot Plan.

The operation will be extracting materials from the alluvial deposits of the Sweetwater River and will have equipment crossings over the existing river channel or parallel to that channel. Sweetwater Authority utilizes this existing low flow channel to transfer water from the upstream Loveland Reservoir to the downstream Sweetwater Reservoir

as part of their management of the water resource. This transfer typically occurs when soils are saturated during the wet winter months of December to March to minimize water losses from the released water through percolation. To avoid interrupting or interfering with Sweetwater's water transfers, Cottonwood has established an operating procedure to maintain communication with Sweetwater Authority prior to, and during, these water transfers. This procedure is provided as Attachment D and will be made a condition of the MUP.

2.3 Topsoil Removal & Proposed End Use

The post mining end use of the Cottonwood property may include uses allowed by the General Plan and County Zoning Ordinance. Materials in the area are very sandy at depth and very similar to the existing topsoil. Approximately 6-inches of topsoil will be salvaged from the disturbed area and stored in stockpiles along the upper edges of the excavation boundaries and identified with signage. When possible, topsoil will be stripped from the surface and directly re-applied to areas that have reached final grade to avoid storing soil.

Topsoil material will be stored in the berm like stockpiles and may be mixed with wash fines that will be used as a final cover on areas that have reached final grade. Topsoil stockpiles will not be disturbed until used for revegetation, if it can be avoided, and will be covered or seeded with a recommended seed mix if not to be used within six months. In general, it is expected that an individual topsoil stockpile will be utilized for reclamation within 12 to 14 months after being salvaged unless it is used to assist visual or noise attenuation during a specific phase. All stockpiles will be utilized when excavation and backfilling has been completed in a phase.

The topsoil within the plan boundary is expected to be heavily infused with a massive, subterranean seed bank containing the seeds of the non-native and/or invasive species. These are not desirable as end-product plants. Aggressive weed eradication is an important objective as the pit develops and during reclamation. As a result, any re-applied top-dressing material will likely require aggressive weed control to meet the revegetation goals of this project.

2.4 Extraction and Phasing

Mine Phases

Mining operations will occur in three (3) phases with a fourth phase for final reclamation, site cleanup and equipment removal (Figure 2.4-1). Each main phase will include multiple subphases of less than 30 acres. Overall mining and reclamation will generally progress in a west to east direction. The precise location and timing of mining and reclamation is subject to market demand and variations in geologic conditions encountered in the field. Dewatering of these pits are not necessary on this project and will not occur. Each phase will include vegetation removal, topsoil salvaging, resource extraction, backfilling and reclamation.

In Phases 1 through Phase 3, mine pits that may extend up to a total depth of 40 feet below ground will be excavated. Groundwater will likely be encountered and the pit will be limited to 5 acres in size ~~at any time.~~during groundwater presence. This will be accomplished by backfilling mined out areas of the pit with wash fines ~~and~~,

overburden, and imported material prior to expanding the pit size. Mined out pit areas will be backfilled to an elevation above groundwater level as the mining phases advance. In areas where excavation extends below the water table, an excavator would be utilized for pit excavation; dewatering would not be required. The excavator would stack excavated material nearby and a loader would deliver and offload the material into the hopper.

Reclamation will occur within each subphase mining area when final contours have been achieved. Final reclamation of the RP area will be completed in mine Phase 3 and during a Final Reclamation phase (Phase 4). It is anticipated that all four phases of mining and final reclamation will be completed in approximately 12 years. Figure 2.4-1 presents all three phases and subphases on the project.

Operations in the first phase will begin with the grading of the plant site, located north of the river channel and immediately west of the existing paved parking area. Initial activity will consist of developing an access road to the processing area and fill an existing golf course pond to establish a pad area for the loadout and the processing plant. In addition, a truck scale, scale house, three settling ponds and storage containers will be located on the pad area. Electrical power lines and the processing plant equipment will also be installed. A portable conveyor system will also be installed and will be used to transport material from the excavation area to the processing plant. This conveyor line will move to subsequent excavation areas as the project proceeds.

The ingress point will extend from Willow Glen Drive to the location of the processing plant west of the existing parking lot. The plant road will be graded and graveled to accommodate over-the-road truck access to the plant/loading area. As indicated, the processing pad will be located north of the river channel and west of the existing golf course parking lot. An exit point for all vehicles leaving the site will be constructed 300 feet east of the entrance. This onsite road shall be designated as one-way traffic in a counter- clockwise direction.

Wash fines (silt and clay sized particles) from the plant are expected to make up approximately 10 percent of the mined material and will be collected in a series of sediment ponds near the wash plant. Most of the fines will settle in the first pond in the series which is referred to as the muck pond. These ponds will be used to protect surface water quality and to recycle the process water through the settling of silts and clays (wash fines) most of which will settle in the first pond and referred to as the muck pond. These ponds will also be used to collect local runoff which may be transporting earthen solids. These ponds will be cleaned occasionally by removing the sediment collected. Collected wash fines ~~that~~then will be used in the extraction area as backfill for over-excavated areas and the flat to gently sloped areas. ~~Wash~~

Washed fines ~~will~~and materials undesirable for processing would be transported to ~~the~~ backfill areas ~~by~~in one of three ways: (1) low-profile haul truck ~~or~~ /tractor-trailer ~~using the~~, (2) conveyor ~~roads and golf course bridges.~~and haul truck, and (3) haul truck. For backfill areas north of the channel, the fill materials will be loaded onto a low-profile haul truck or tractor-trailer by an excavator at the processing plant and hauled along the conveyor access road to the backfill areas. Clearance under the Steele Canyon Road bridge is approximately 11 feet in height, which will allow the low-profile

haul truck (approximately 9 feet in height with a capacity of 20 cy) or tractor trailer (approximately 8 feet in height with a capacity of 16 cy) to pass beneath without requiring removal of soil material beneath the bridge. For the subphase 1A and 1A-1 and Phases 2 and 3 backfill areas south of the channel, fill material will be delivered from the processing plant area utilizing a conveyor line across existing golf course bridges. Only one conveyor line would be installed across each bridge at a time. A separate conveyor would be used to transport excavated material to the processing plant; transport of fill material to backfill areas would not interfere with transport of excavated material from active mining areas. The conveyor would transport material to Phase 2 or 3 where it would be offloaded for distribution to backfill areas. In order to allow for clearance below the Steele Canyon Road bridge, a tractor-trailer would be used to transport backfill material offloaded from a conveyor positioned within the Phase 2 area south of the channel, under the Steele Canyon Road bridge to the subphase 1A and 1A-1 backfill areas. For Phase 2 and 3 areas north of the channel (subphases 2A and 3D), fill material would be transported from the processing plant via haul truck.

West of Steele Canyon Road, all heavy equipment will cross the existing channel to access the Phase 1-A area. On the east side of the of Steele Canyon, heavy equipment will be delivered for the remaining phases south of the channel through the existing maintenance gate located on Ivanhoe Ranch Road. Channel crossings will only be used when there is no water flow in the channel. The conveyor line will cross the channel on one of the existing golf course bridges during all operations south of the channel.

Sediment will initially be stockpiled near the muck pond until it has dewatered. They will be set parallel to the prevailing wind direction for dewatering prior to being used as fill. These stockpiles will be temporary and will be moved to a fill location after drying. Fugitive dust control measures for these stockpiles will include surface watering, use of wind barriers and if necessary, covered with polyethylene tarps.

In addition to the wash fines, approximately 2.5 million cubic yards would be imported to the site to meet the site's overall backfill requirements. The imported material would consist of inert debris only. Inert debris would consist of excavated soil material from development projects, clean demolition materials, and possibly concrete, asphalt and rock. The site would be conditioned to only accept materials suitable for the end use of the site. Imported inert debris would be transported to backfill areas using the same approach described above for wash fines and materials undesirable for processing.

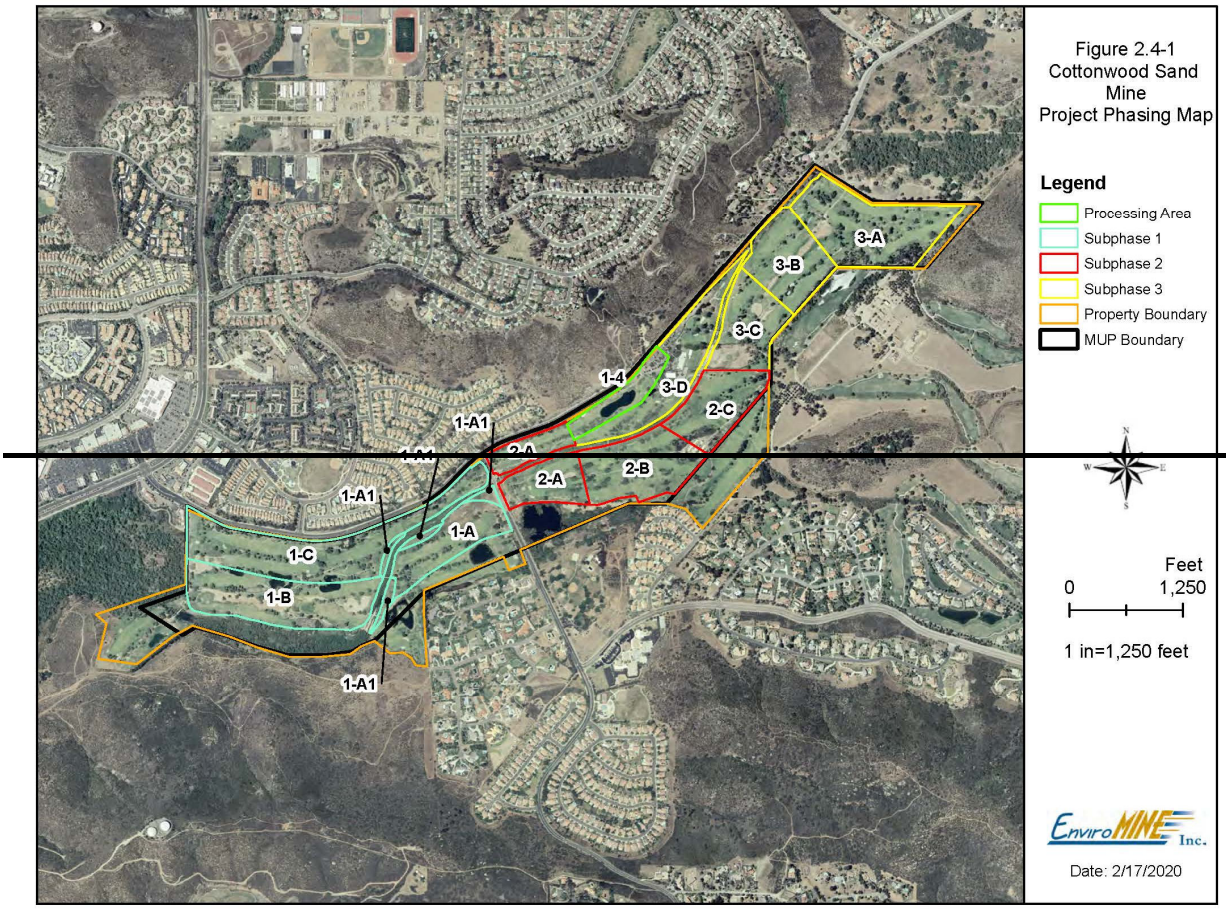
Fill material in the backfill areas will be spread in near-horizontal layers, approximately 8 to 12 inches thick. Thicker lifts may be approved by the geotechnical engineer if testing indicates that the grading procedures are adequate to achieve the required compaction. Each lift will be spread evenly, thoroughly mixed during spreading to attain uniformity of the material and moisture in each layer, brought to near optimum moisture content and compacted by the heavy equipment to a minimum relative compaction of 85 percent in the floodway area and up to 90 percent compaction in upland areas.

A maintenance program to control weeds on un-reclaimed disturbed ground will be established and implemented at the start of the mining process. The purpose of this effort is to prevent weed infestation of areas that are to be reclaimed in the future. This program will continue during the revegetation and monitoring periods of the project.

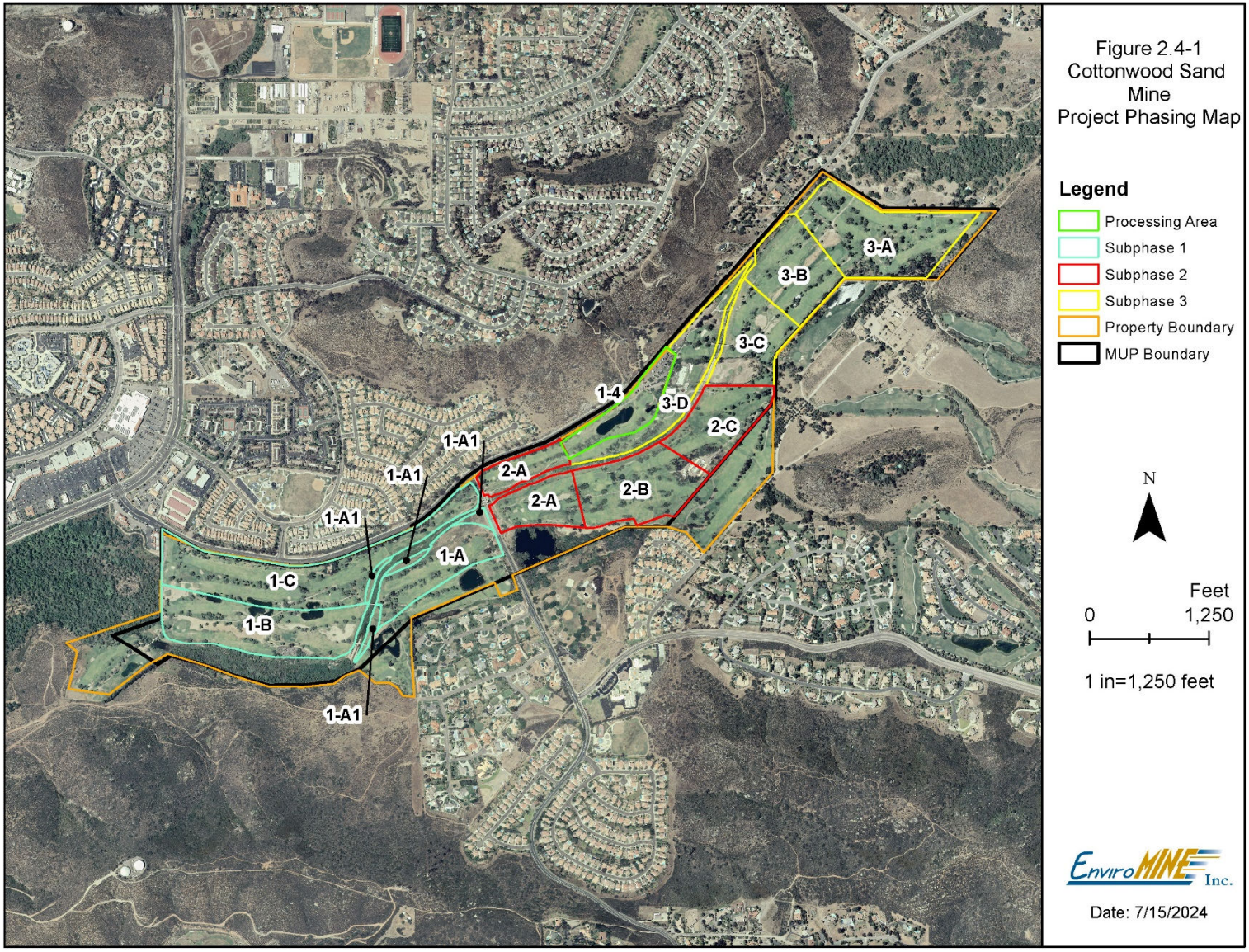
Reclamation will be completed as final reclaimed surfaces are established. In the final mining phase, the eastern portion of the project (Phase 3) will be extracted, and the final area of mining related disturbance reclaimed. A final phase (Phase 4) will consist of final reclamation site cleanup and removal of all equipment from the site. Revegetation monitoring will continue after completion of this phase for a minimum of 5 years or until revegetation performance standards are achieved.

At the start of each mining phase, the mining area boundary would be established through surveys that would identify the top of the cut including a setback of 50 feet from the MUP Boundary. A bulldozer or front-end-loader will begin removing vegetation and other deleterious debris from areas to be excavated. Tree stumps and roots will be removed. Clearing and grubbing will extend to the limits of the proposed excavation and fill areas.

Slopes in working cuts may be temporarily steeper than 3:1 (H: V) during operations. If these steeper slopes are to be inactive for a period of 3, or more, weeks, these slopes will be graded to slope ratio of 3:1 (H: V) or shallower.


Figure 2.4-1
Cottonwood Sand Mine
Project Phasing Map
Legend
Processing Area
Subphase 1
Subphase 2
Subphase 3
Property Boundary
MUP Boundary
3-A
3-B
3-C
3-D
1-4
2-C
1-A1
2-A
2-B
1-A
1-C
1-B
Feet
0
1,250
1 in=1,250 feet
EnviroMINE Inc.
Date: 2/17/2020

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Figure 2.4-1
Cottonwood Sand Mine
Project Phasing Map
Legend
Processing Area
Subphase 1
Subphase 2
Subphase 3
Property Boundary
MUP Boundary
N
Feet
0
1,250
1 in=1,250 feet
EnviroMINE Inc.
Date: 7/15/2024
1-A1
1-A1
1-A1
1-A
1-C
1-B
1-A1
2-A
2-A
2-B
2-C
1-4
3-D
3-C
3-B
3-A

Phase 1
The first phase (Phase 1) will include site development for the construction of the access roads, processing area pad, and settling ponds. Following these initial site development activities, extractive operations will commence at the far western portion of the property and include an area of approximately 79 acres. During this phase, an unused residential structure located adjacent to Willow Glen Drive west of Steele Canyon Road will be demolished and all construction waste removed from the property. Phase 1 will be mined in three sub-phases of 30 acres or less and is anticipated to last 3 years or approximately 1 year per subphase. Excavation will begin in the Subphase 1A-1 area. When completed, these areas will be reclaimed immediately as excavation proceeds into the remainder of Subphase 1-A.

Initial extractive operations will salvage approximately 6-inches of topsoil from the surface. Mineral excavation will then proceed to remove all materials from the surface, generally in a southwest to northeast direction, approximately –20 - 25 ft. bgs with an excavator and wheeled front-end-loaders. During sub-phase 1-B and 1-C and area outside the existing channel, excavation may extend 20 feet into the water table using an excavator. Large front-end loaders will transport the mined material to the loading bin connected to the conveyor line. Mined material will then be moved by conveyor to the processing plant where it will be washed, screened, stockpiled and loaded for delivery. As described above, material extracted from the site that is not designated as saleable product would be utilized as backfill to construct the final landform. For Phase 1, wash fines and imported material would be returned to backfill areas by a tractor-trailer using the on-site conveyor line roads and/or over the existing golf course bridges by conveyor to areas south of the channel.

One existing distribution pole owned by SDG&E (#P675043) would be avoided during Phase 1-A excavation, leaving an “island” for the pole. An access ramp would be constructed on the western side of the island to connect to a 14-foot-wide access road which would then connect to an additional access ramp leading to existing access to the southern Project boundary. The ramp and slopes surrounding the pole would be lined, as needed, for access and to prevent erosion. Maintenance of this access road/ramp would ensure that SDG&E maintenance crews are able to access the distribution pole during Project operations.

Reclamation and revegetation within each subphase area would be performed following mining, while mining would move to the next subphase area. The subphase 1A-1 areas would be reclaimed and revegetated first to support visual screening. Once excavation is complete in subphase 1A, the conveyor line and excavating equipment would move to the subphase 1B area on the western edge of the Project site. Reclamation in the subphase 1A area would then begin with final grading/establishment of final slopes and incorporation of wash fines and topsoil, installation of irrigation equipment, and revegetation. This process is proposed to continue in subphases 1B and 1C, with excavation occurring at depths up to 40 feet bgs in both of these subphases. These areas have been identified for mining up to 40 feet bgs. Subphase 1C is the largest of the subphases at approximately 30 acres and is identified as an over-excavation area. In addition to incorporation of wash fines, inert debris also would be utilized to achieve finished grades in this subphase.

Excavation in each subphase is expected to take approximately one year. Upon completion of mining activities in Phase 1, materials and equipment would be moved from the Phase 1 area via the access point at Muirfield Drive, trucked to the access point at Ivanhoe Ranch Road (existing maintenance entrance for golf course), and mobilized to the Phase 2 area. A permanent erosion control riprap structure would be installed on the west side of the Steele Canyon Road bridge following completion of excavation in Phase 1, in order to protect areas near the bridge from downstream erosion. The proposed erosion control riprap structure has been designed to withstand the 100-year design storm.

Phase 2

Phase 2 will continue the identical extraction process in a southwest to northeast direction on the adjacent area east of Steele Canyon Road of approximately 48 acres. The conveyor line and onsite road will be moved to the east. This phase is anticipated to last approximately 3 years and will be separated by three sub-phases of less than 20 acres each. Excavation of the materials will continue and proceed eastward in the same fashion as utilized in Phase 1. Total depth of the excavation is expected to be up to 40 feet below the existing ground surface and is expected to average approximately 20 feet. Excavated materials will be loaded onto the conveyor by a wheeled front-end-loader or tracked excavator.

Reclamation of each sub-phase area will begin as the final landform is established. As described above, both material extracted from the site that is not designated as saleable product as well as imported backfill (inert debris) would be utilized as backfill to construct the final landform. Reclamation will include establishment of final slopes, placement of final cover, revegetation, weed control, irrigation and vegetation monitoring.

Three existing transmission towers owned by SDG&E would be avoided during Phase 2 excavation, leaving an "island" for the towers. An access ramp would be constructed on the western side of the island to connect to a 20-foot-wide access road within the existing SDG&E right-of-way easement that runs from the towers to the southern Project boundary. The ramp and slopes surrounding the towers would be lined, as needed, for access and to prevent erosion. Maintenance of this access road/ramp would ensure that SDG&E maintenance crews are able to access the towers during Project operations.

As Phase 2 nears completion, the remaining golf course building structures on the property, including the ~~clubhouse and~~ maintenance facility will be scheduled for demolition. All construction waste will be removed from the property when demolition is complete.

Phase 3

The excavation process in Phase 3 will continue in a similar nature as the previous phases on approximately 79 acres of the valley, northeast of the Phase 2 area. This phase will proceed from the northeastern end of the pit to the southwest and will consist of four sub-phases. Each sub-phase is expected to be completed within 1 year for a total of 4 years. The maximum depth of excavation would be approximately 40 feet bgs in the eastern portion of subphase 3A.

Reclamation in each of the Phase 3 subphases would begin as the final landforms are established. Reclamation would include establishment of all final slopes; incorporation of inert debris (within over-excavation areas), accumulated wash fines, and topsoil; and revegetation.

Two existing distribution poles owned by SDG&E (#P75709 and #P75700) would be avoided during Phase 3-A excavation, leaving access to the poles from the edge of the pit boundary. Two 14-foot-wide access roads would be left in place at elevation connecting the edge of the pit to the pad surrounding each distribution pole. The ramp and slopes surrounding the pole would be lined, as needed, for access and to prevent erosion. Maintenance of this access road would ensure that SDG&E maintenance crews are able to access the distribution pole during Project operations.

Phase 4
Phase 4 will consist of excavation in the plant area, final reclamation efforts, cleanup and equipment removal. Revegetation monitoring will continue for 5 years or until revegetation standards are met after this final phase.

Approximate acreage and estimated duration of each phase are presented in Table 2.

Table 2. Mine Phase Acreages

Mining Phase	Phase Area (acres)	Sub-phase Area (acres)	Mining Duration (years)	Mining Initiation Date (est.)	Mining Completion Date (est.)	Reclamation Completion Date (est.)
1	78.98		3	~~2021~~2025	~~2024~~2028	~~2026~~2030
Sub-phase 1a		22.10	1			
Sub-phase 1b		26.46	1			
Sub-phase 1c		30.42	1			
2	48.18		3	~~2024~~2028	2031~~2027~~	~~2029~~2033
Sub-phase 2a		15.26	1			
Sub-phase 2b		19.08	1			
Sub-phase 2c		13.74	1			
3	78.57		4	2031~~2027~~	2035~~2031~~	~~2033~~2037
Sub-phase 3a		29.42	1			
Sub-phase 3b		16.15	1			
Sub-phase 3c		14.13	1			
Sub-phase 3d		18.87	1			
Phase 4	8.65		1	2035~~2031~~	~~2031~~2035	~~2033~~2037
Total	214.4		10	-	-	

Notes:
1. Phases will have concurrent mining and reclamation operations.
2. A total of approximately 214 acres is to be reclaimed and revegetated.

Mobile Equipment
Equipment used on the site will be used for extraction and reclamation grading. Specialized equipment for seeding (such as hydroseeding trucks) will be contracted. This specialized type of equipment will be on the site for very short periods during each year throughout the project. Table 3 presents the mobile equipment to be employed on the Project.

Table 3. Project Mobile Equipment

Onsite Mobile Equipment – Extraction and Reclamation				
No.	**Make**	**Type/Model**	**Purpose**	**Usage**
2	Cat	Loader – 988K	Mineral Excavation above water table.	100%
1	Cat	Loader – 988K	Highway truck loading	80%
1	Cat	Loader – 966M-BR	Highway truck loading - backup	20%
1	Freightliner	Water Truck M2106	General dust suppression	75%
1	Cat	Excavator –349F	Mineral extraction -pond cleanout	80%
1	Cat	Dozer – D8T	Rough grading, leveling, ripping	80%
Table 3. – continued				
1	Cat	Haul Truck 730C2EJ/ Tractor Trailer	Onsite transportation of material	40%
1	Cat	Motor Grader 140K	Finish grading, maintenance	30%
1	Cat	Skid Steer Loader-246D	Variety cleanup - reclamation	50%
1	Ford	Pick Up	Transportation for site supervisors, QC	20 miles/day

2.5 Plant Operations

The Cottonwood Mine plant site will consist of aggregate processing and washing facilities, three settling ponds, loadout area and all support structures and buildings (e.g., scale, office kiosk and office trailer) as presented on Figure 2.5-1. No blasting or rock crushing will occur on site. A processing plant will be installed in a fixed location once the pad area and access road are developed.

Shielded night lighting may be installed around the processing plant for safety and security purposes. Lighting will be designed to minimize glare and reflection onto neighboring areas. Generally, mounted sodium, metal halide, fluorescent or LED lighting will be employed. Such lighting minimizes energy use, and in combination with cut-offs, reduces light pollution.

Operations shall comply with the San Diego County Light Pollution Ordinance Number 9974 and Noise Ordinance Number 9962.

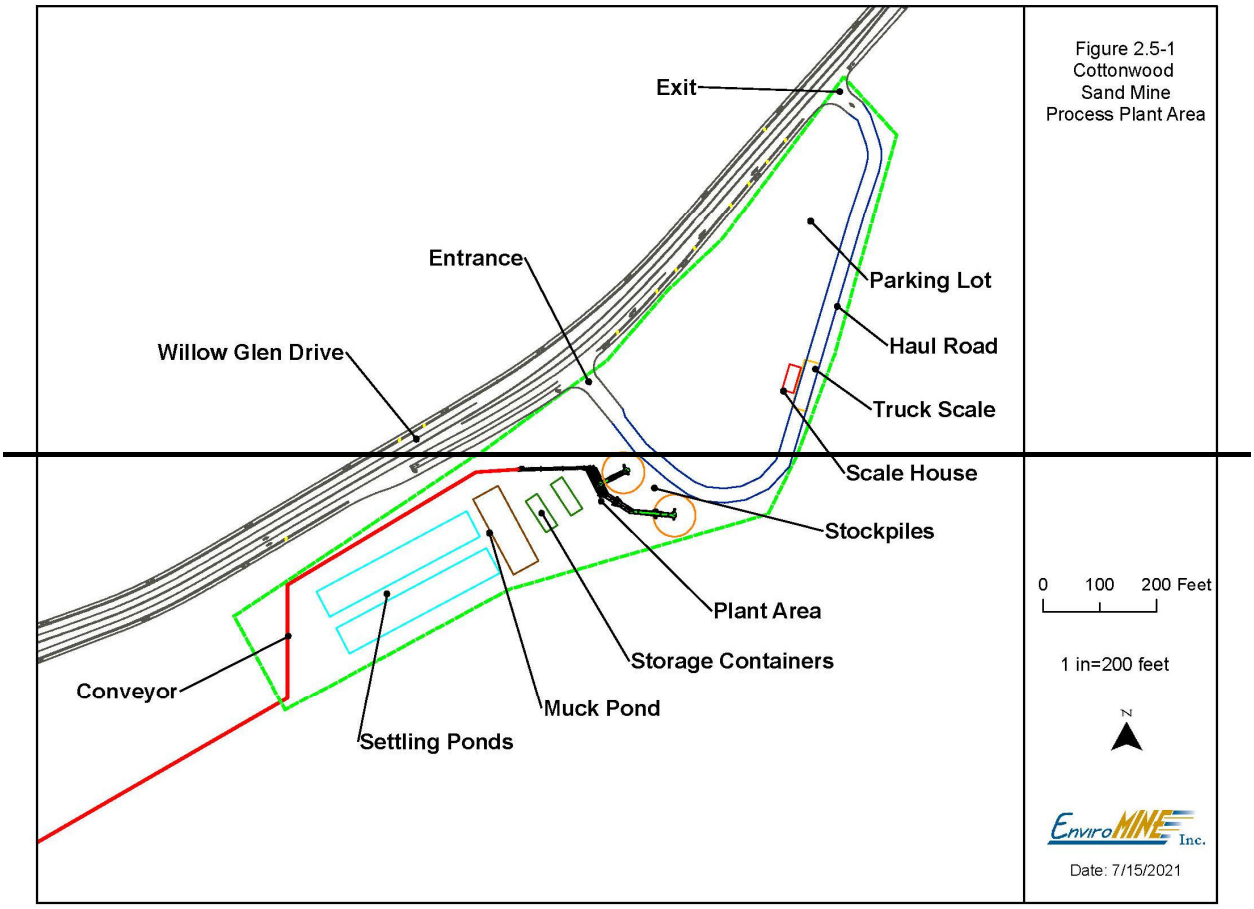
Aggregate Processing Plant

The plant will screen and wash raw material into marketable PCC grade construction aggregate material; washed concrete sand, asphalt sand, pipe bedding and some gravel. No crushing is required to process the materials extracted from the site. Water would be provided by existing groundwater wells on the property. Processed aggregates would be separated into different sizes and stored in stockpiles (up to 25 feet in height) near the plant. Customer trucks would be loaded with finished products from stockpiles by a front-end-loader and transported off-site.

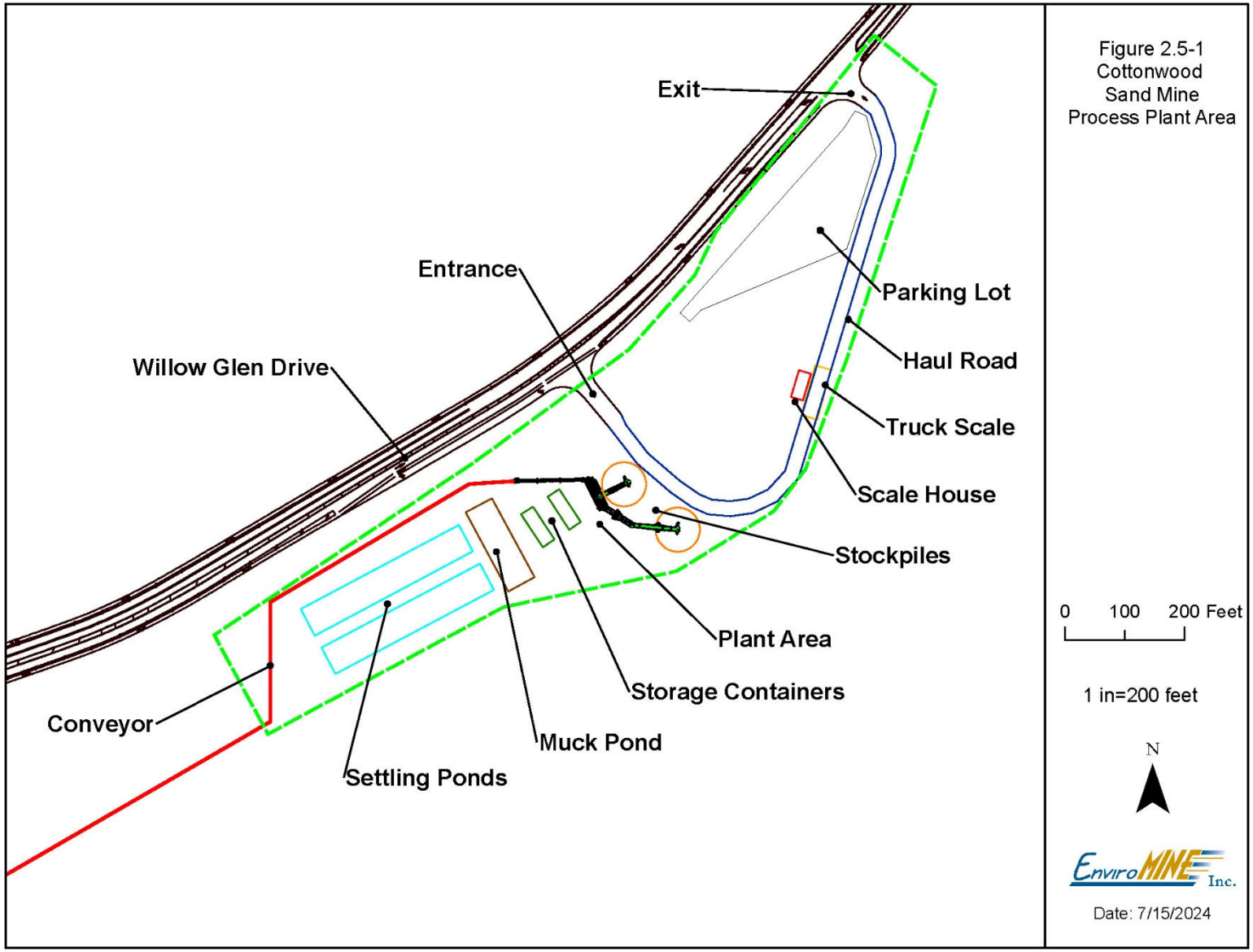
Pole line-power to the plant will be installed in one of the first steps of the project startup and connected to existing power lines on, or adjacent to, the project site. Grading will begin on the pad site and settling ponds constructed. After the processing pad, conveyor line and the access road are in place, a screen deck plant capable of processing 400 tons/hour of raw material will be installed. Extraction of raw material will begin at that time.

After transport to the feed hopper, raw material is emptied directly into the hopper equipped with a water spray bar and covered with a "grizzly" of parallel bars to screen out large cobbles and rock. From the hopper, the material is moved to the belt conveyor which then transports the material to the plant.

The material will be transferred to a blade mill where material is mixed with water to start the process of separating material into different size ranges. From the blade mill, materials drop to a screen deck for final separation. Water is sprayed onto the material throughout the screening process for dust control and to wash any impurities (silt and clay-sized particles) from the material.



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Exit
Entrance
Parking Lot
Willow Glen Drive
Haul Road
Truck Scale
Scale House
Stockpiles
Plant Area
Storage Containers
Conveyor
Muck Pond
Settling Ponds
Figure 2.5-1
Cottonwood
Sand Mine
Process Plant Area
0 100 200 Feet
1 in=200 feet
N
EnviroMINE Inc.
Date: 7/15/2024

The screen deck is a mechanical screening device, ~~that~~which is used to take granulated ore material and separate it into multiple grades by particle size. A screening machine consists of a drive that induces vibration, a screen media that causes particle separation, and a deck which holds the screen media and the drive. This drive is used to cause the vibration that moves material down the screen media. As material becomes too fine to separate by a screen, the material is moved to a fine material screw, or sand screw, for washing. These fine material washers utilize a water bath and inclined augers to separate the clay from the fine and very fine sands that are used in mortar and plaster. Clay materials are then piped to the first in a series of settling ponds where silts and clays settle.

After screening, radial stacker conveyors will be used to stockpile the sized material into individual stockpiles and wash fines are transferred to the settling pond circuit. Processed material will be ground loaded into over-the-road haul trucks using a front-end-loader and transported off site.

All equipment will be properly permitted in accordance with San Diego County APCD requirements. Components of the plant and the conveyors are presented in Table 4.

Table 4. Plant and Conveyor Equipment

No.	Type	Attachments	Size/Length	Horsepower (hp)
1	Feed Hopper - Skid Mounted	42” X 25' Belt Feeder	9' X 14'	25
5	Groundline Conveyor	NA	36” X 825'	50
1	Groundline Conveyor	NA	36” X 375'	30
1	Groundline Conveyor	NA	36” X 200'	25
1	Truss Frame Conveyor	Pit Portable Conveyor, Power Travel, Hopper, Discharge Hopper, Walkway	36” X 130'	40
1	Triple Deck Screen w Blade Mill Support	Urethane Media, Spray Manifold, Dual Motor Drive, Discharge Chutes, Rolling Box, Under Hopper, Walkway on Four Sides, Stairway	8' X 20'	50
1	Blade Mill	NA	44” x 20”	100
2	Fine Material Washer	NA	44” X 32'	50
1	Radial Stacker	Power Travel, Power Raise, Pivot, Hopper	36” X 80'	25
1	Radial Stacker	Power Travel, Manual Raise, Hopper	36” X 100'	30
1	Operations Control Room	Motor Control Center, Push Button Console, Motor Starters, In Plant Cable/Wiring, Air Conditioned	NA	NA

Office and Maintenance

The mobile modular unit used for the scale booth will be combined to serve the site’s administrative needs. Required on-site documents will be housed in this unit. Storage of tools or small equipment will be in metal cargo containers also located at the plant site.

Mobile equipment on the project will be maintained by private vendors. As such, any waste material produced from maintenance activities, such as waste oil, will be removed by the vendor upon leaving the site at the end of the workday.

Maintenance and repairs on the site's mobile mining equipment would be completed on a level area near the active excavation and away from any drainage feature. Ground protection and spill containment, which would include plastic sheeting to line a bermed sump and absorbent pads, would be placed in the work area prior to work being conducted on the equipment to contain leaks or accidental spills from reaching the ground. Available clean up materials will include absorbent pads, pillows, dry absorbent, flat nosed shovel, a broom and a waste container for any clean up materials used. All materials used to clean up a spill will be transported from the site and disposed of at a licensed facility in accordance with State and Federal requirements.

As many as 15 over-the-highway trucks may be parked each day near the processing area and entrance to the site. The processing area will be located west of the existing golf course parking lot.

Mine Personnel
Mining and processing equipment will be on site over the duration of the project. Approximately nine (9) individuals will be employed onsite.

2.6 Waste

All material extracted from the site, not designated as saleable product, will be utilized as backfill to construct the final landform. No tailings or waste piles will remain following conclusion of extractive operations. Domestic refuse shall be collected in trash bins and removed by a licensed, refuse disposal company. Equipment will be maintained on site and all used oils, fuels and solvents collected in accordance with the Department of Toxic Substances Control regulations would be removed from the site by an approved hauler for materials recycling.

2.7 Traffic

Processed and sorted materials would be loaded directly onto over-the-road haul trucks from stockpiles located in the plant area. The loaded trucks would be weighed to comply with state regulations and sprayed with water to minimize dust. Watering of the load would occur at the scales.

Haul trucks will approach the project site from Jamacha Road and Willow Glen Drive. Trucks will enter the project site east of Steele Canyon Road at the access point on Willow Glen Drive and proceed to the processing area over the onsite access road. When not in active service, approximately 15 trucks may be stored onsite in a designated parking area next to the plant. All other trucks will be parked off-site at individual trucking company storage yards, arrive at the site empty, and leave with a full load. Maintenance and repairs of mining and construction equipment would be completed onsite in specified areas with containment and ground protection. During Phase 1 the maintenance area will be located near the proposed concrete access driveway across from Muirfield Drive, which is necessary due to the inability of heavy equipment to be moved on site beneath the bridge over Steele Canyon Road. In the

remaining phases, the maintenance/repair area will be in a designated location near the processing plant.

The maximum annual rate of extraction is expected to be 380,000 cubic yards (570,000 tons). This will result in approximately 1,462 cubic yards (2,192 tons) leaving the site each day. Sand extraction operations would be conducted approximately 260 days per year, on weekdays, between the hours of 7:00 a.m. to 5:00 p.m. Trucking would occur from 9:00 am to 3:30 p.m. during the week. Approximately 88 trucks would enter and exit the site daily to transport saleable material (Table 5). No activities would occur on weekends.

It is conservatively estimated that approximately 10 percent (427,000 cy) of the excavated material would be considered not suitable for processing and thus would be retained on site and utilized for backfilling needs. In addition, approximately 2.5 million cy would be imported to the site to meet the site's overall backfill requirements. The maximum number of truck trips necessary for importing the maximum anticipated amount of backfill material is conservatively estimated to be approximately 58 truck trips per day, over the 10-year operation of the project (Table 5). The actual number of truck trips may be less, where the same truck transporting material to the site would also transfer produced material away from the site ("deadhead trip").

The combined total haul trucks entering and exiting the site daily would be 146 trucks.

Loaded trucks would utilize Willow Glen Drive to Jamacha Road to deliver the construction aggregate to local markets. and to bring inert debris to the site. The annual maximum production limit (570,000 tons in any calendar year), as well as seasonal and daily peaking factors, were used to generate conservative (worst-case-scenario) estimates; actual truck trips will be dependent on market conditions.

Truck Trips

Table 5. Daily Truck Trips

End Product	% of Total	Quantity/yr	t/load	Loads/day	~~Round Trips~~
Aggregate	~~100~~60	570,000 tons	25	88	~~176~~
Inert Debris (Backfill)	40	375,000 tons	25	58	
Total		~~570~~945,000 tons		~~88~~146	~~176~~

* A cubic yard of concrete contains 1.5 tons of aggregate.

Other Vehicle Trips

Table 6. Other Traffic Trips

Trip Type	One-way trips/day	Round Trips/day
Light Vehicle Trips	~~14~~28	~~28~~14
Vendor Trips[1]	~~4~~8	~~8~~4

[1]Vendor trips include fuel, supplies, service companies, etc.

2.8 Storm Water and Erosion Control

Erosion control for the project will be accomplished through a combination of permanent and temporary structures. Permanent structures include the drop structure to prevent head cutting of the channel during infrequent, high flow events and appropriate slopes, terraces, ditches and down drains where needed. This section addresses temporary erosion control measures that will be used on the active, disturbed areas of the Project.

A Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP) will be prepared and submitted to the State Water Resources Board for the project site prior to construction in accordance with the Industrial General Permit Order 2014-0057-DWQ, effective July 1, 2015. It will reflect the conditions expected to be encountered on the project site. Industrial Best Management Practices (BMPs) and post-extraction BMPs will be designed to protect water quality and in compliance with CCR section 3706, the Federal Clean Water Act, and the Porter–Cologne Water Quality Control Act. A copy of the SWPPP will also be maintained at the Project site. The SWPPP will include an erosion control plan prepared per State and/or County guidelines.

The SWPPP and erosion control plan will define best management practices (BMPs) to prevent erosion and the discharge of sediment to surface waters. BMPs will be specified for soil stabilization, sediment control, vehicle track out, and transport of soil by wind (e.g., dust control and wind erosion BMPs). Typical soil stabilization BMPs include preservation of existing vegetation, mulch, hydroseeding, soil binders, geotextiles, lining of drainage ditches and/or velocity control structures if needed. Vehicular track out and dust related BMPs may include paved or stabilized roadway surfaces, tire washes, use of grates at vehicle entrances or exits, soil stabilizers, and water spray. The final plan may incorporate these or additional BMPs as appropriate on the site.

Erosion and sedimentation control measures, at a minimum, will be designed for the 20-year 1-hour storm event in accordance with SMARA guidelines. These measures shall be implemented throughout the project life to control surface runoff and drainage for the protection of surrounding land and water resources. Silt fencing, earthen dikes or other erosion control measures will be installed to ensure the overall direction of flow toward the pit or to small settling basins before entering the channel of the Sweetwater River. These treatments will also be used to control erosion and sedimentation in areas with the potential for offsite transport of sediment. These erosion control measures will be maintained until vegetation becomes established to serve as an effective storm water and erosion control measure.

Slopes will be revegetated with native species common to the Coastal Sage Scrub or Southern Willow Scrub vegetation communities depending on location at the site. Riparian species will be planted on the edges of the river channel. Successful revegetation will minimize the potential for erosion and sedimentation. If necessary, straw wattles or silt fencing will be used on slopes to help control erosion during the revegetation process. All areas disturbed by the project will be revegetated as soon as feasible.

Erosion control measures will be implemented in accordance with the following criteria:

Class 1: No soil loss or erosion; topsoil layer intact; well-dispersed accumulation of litter from past year's growth plus smaller amounts of older litter.

NO ACTION NECESSARY

Class 2: Soil movement slight and difficult to recognize; small deposits of soil in form of fans or cones at end of small gullies or fills, or as accumulations back of plant crowns or behind litter; litter not well dispersed or no accumulation from past year's growth.

ACTION: Monitor to see if any further deterioration and action is required.

Class 3: Soil movement or loss more noticeable; topsoil loss evident, with some plants on pedestals or in hummocks; rill marks evident, poorly dispersed litter and bare spots not protected by litter.

ACTION: Any rills or gullies exceeding 8 square inches in cross sectional area and more than 10 linear feet located on finished slopes shall be arrested using straw mulch and hay bales

Class 4: Soil movement and loss readily recognizable; topsoil remnants with vertical sides and exposed plant roots; roots frequently exposed; litter in relatively small amounts and washed into erosion protected patches.

ACTION: Replant via hydroseeding or spread seed and cover with straw mulch. Regrade, compact with equipment, and install silt fences if necessary.

2.9 Utilities

2.9.1 Water and Wastewater

A water truck is used to water material stockpiles and unpaved areas periodically throughout the day for dust suppression purposes. Other water requirements include surface watering of outgoing loads, dust suppression for the processing equipment, material washing and irrigation. Operational and irrigation water needs at the site will be provided by eight existing, onsite water wells.

Water usage depends on production volume. Production volume will vary year-to-year with market demand; however, the project's estimated consumptive water use assumes the maximum annual production of 570,000 tons. Water usage for the processing operation includes water retention in materials shipped, evaporation and dust control for the project is estimated to be 64 acre-feet annually for this production rate. A single water truck will be required to control dust. Evaporation from potential pit water is 20.3 acre-feet per year assuming a 5-acre pit size. Irrigation of the right of way, the landscaping in the parking area, and revegetation is estimated to utilize approximately 55.6 acre-feet per year. Total water consumption for the project is estimated at 139.9 acre-feet per year including all processing uses, irrigation and pond evaporation. Water for all operational and reclamation purposes will be supplied by onsite groundwater wells.

Eight groundwater wells on the property currently provide irrigation water for the golf courses. These wells will be used to provide water for the operation. Water use estimates for the existing golf club operations based on information provided by the golf course superintendent (Personal Communication, 2019) and the Evapotranspiration (ET) method as described in the Groundwater Sustainability Plan for Borrego Valley (Borrego Valley Groundwater Sustainability Agency, 2019). The estimated annual water usage from well pump data provided by the course superintendent is 840 acre-feet. The estimated annual water usage using the ET method, and including evaporation from course ponds, is 804 acre-feet. Mine operations are estimated to reduce this consumptive use by approximately 80 percent per year. Wells not to be used by the property owner or for groundwater monitoring after mining and reclamation are complete will be properly abandoned. Wells in the mining footprint, or not to be used in the future, will be abandoned as each mining phase is completed in accordance with County requirements and standards. Note the Sweetwater Authority has requested that two wells, Lakes #11 and Ivanhoe #11, remain in place after cessation of mining and reclamation activities so Sweetwater can continue groundwater monitoring in this area of the river. It is the intent of the Project to not remove these two wells unless it is required.

Water used to wash the excavated material at the plant will be retained in a series of connected settling basins near the plant. Two submersible pumps enclosed in a waterproof casing would feed and circulate the wash water. Water used in the washing operation would be continuously reused and recycled. Approximately 70 gpm of water input would be required to make up for consumptive water use on the site.

Sewage Disposal
Mining operations will utilize two portable restrooms provided by a private vendor. One restroom will be placed in the plant area and the second near the excavation area as it moves. The portable restrooms are serviced at appropriate intervals.

Drinking Water
Bottled drinking water will be provided by a private vendor.

2.9.2 Electricity and Telephone

Electrical power required for mining and processing operations will be provided by San Diego Gas & Electric through existing overhead transmission lines that will enter the site from the northwest. The project will utilize temporary power poles for the plant location and conveyor system. SDG&E easements will remain in place after the project is complete.

During each phase, it may be necessary to remove the existing power distribution poles that cross the golf course. Relocation or removal of power poles would be completed in accordance with San Diego Gas & Electric (SDG&E) requirements. As mentioned, a number of power distribution poles and transmission towers will remain in place and protected according to SDG&E encroachment guidelines and communications with SDG&E staff.

Telephone service will be provided by cellular service.

2.9.3 Fire and Law Enforcement Services

A fire station operated by the San Miguel Fire Protection District is located at 11501 Via Rancho San Diego, El Cajon, CA 92019 which is approximately 1.6 miles from the main access point of the project. In addition, the San Diego headquarters of Cal Fire is located 1.4 miles from the project entrance. Access to the site for both fire stations is provided by Jamacha Blvd and Willow Glen Drive.

Law enforcement services are provided by the San Diego County Sheriff's Department from the Rancho San Diego substation located at 11486 Campo Rd near the junction of Jamacha Road and Campo Road and approximately 2.4 miles from the site.

2.9.4 Equipment Fuel

Diesel will be delivered to the site daily by a private supplier to fill the onsite equipment. If gasoline is needed on the site for small tools, it will be contained in approved, five-gallon fuel cans with a maximum of 10 gallons stored at the site at any time. These gas cans will be stored in a locked container away from flammable materials. Small trucks and passenger vehicles will utilize local commercial stations for fuel. No other fuel will be stored on the site.

2.10 Safety and Security

Fencing (4-strand barbed wire) will be installed along the exterior edges of the project except along Willow Glen Drive. Chain-link fencing will be placed along Willow Glen Drive. Signage will be placed along the fence at appropriate intervals warning the public of hazards and restricted access.

Gates will be installed at the ingress/egress roads to restrict public vehicular access. These gates will be closed and locked during periods of non-operation. Signs will be posted at the entrance identifying the name of the operation, permit number and emergency contact information. The site will be patrolled on a regular basis to discourage trespass. Fire Department locks will be placed on all gates.

3.0 Reclamation and Revegetation

The Reclamation Plan describes reclamation of the extraction area and sets forth standards to assure adequacy of the plan measures. Attachment A - Plot Plan shows the proposed reclaimed landform that would be developed upon resource depletion and final backfilling. Approval of the plan will result in most resources being extracted; thus, it is possible future mining will not be economic or feasible.

The goals of this Reclamation Plan are to:

1. Maximize the recovery of aggregate in a safe and efficient manner.
2. Return extracted areas to a useful purpose following depletion of natural mineral resource.
3. Restore vegetation with the use of native species.
4. Mitigate, by design, potential environmental impacts on the land that might otherwise be created by extraction.

Resource extraction will lower the existing elevation of the golf course area by approximately 15 to 20 feet. Slopes, at maximum 3H:1V overall, will constitute the

perimeters of the channel. Following completion of the mining and reclamation activities, the area disturbed by mining will be revegetated and reclaimed including recreational trails.

Reclamation will be completed for each sub-phase after the completion of mining in that specific area. For example, as mining progresses from sub-phase 1-A area into subphase 1-B area, final reclamation will begin in the sub-phase 1-A area. Final landforms will be developed, topsoil spread over the surface and the area planted with the native species identified in the Revegetation Plan. This procedure will result in approximately 75 to 80 percent of the disturbed lands being reclaimed by the time extractive operations are complete.

Reclamation is expected to continue for up to 2 years after the cessation of mining. Work completed during this period will include backfilling to grade, removal of all processing equipment, final grading, removal of roads, preparation of seed beds and planting. Weed control will continue after planting. Monitoring of the revegetation effort and areas will continue until performance standards are met. Erosion and sediment control will also be monitored and repaired if necessary.

The final landform will be a relatively flat plain that gently slopes downward from east to west. A deepened floodway will bisect the length of the site. Banks of the floodway will slope up to the plain surface at a 3H:1V ratio or shallower. The elevation difference between the bottom of the river channel and the top of the slope may be up to 25 feet. The deepened floodway is expected to average approximately 250 to 300 feet in width~~.~~ and would be slightly higher in elevation than the existing low-flow channel. This low-flow channel would accommodate annual water transfers from Loveland Reservoir to Sweetwater Reservoir. In some areas, small benches may be constructed on the face of the riverbanks to accommodate vegetation types and/or recreational trails.

3.1 Slope Grading & Compaction

All slopes will be cut from native materials in compliance with geotechnical recommendations (see attached Geotechnical Report, Attachment C). All slopes will be continuously developed as the pit progresses eastward using wash fines and backfill material incorporated with topsoil as a cover material. All slopes will be at a 3H:1V gradient or shallower (see Figure 3.1-1). The pad surfaces will slope gently towards the river channel.

All final slopes will be reclaimed to a maximum 3H:1V gradient. Brow ditches and berms will be placed at the top of the slopes to prevent slope erosion. Appropriate erosion control materials will be installed, and drainage established. Disturbed land to be reclaimed, including roads will be approximately 214 acres. Based on the geotechnical study conducted for the site, all final, slopes will have a factor of safety in excess of 1.5 for both static and pseudostatic conditions. (Attachment C).

The onsite materials ~~and~~, sand production by-products, and imported inert debris should provide adequate quality fill material provided they are free from organic matter and other deleterious materials. Fill should be inorganic, non-expansive granular soils.

Fill will be spread in near-horizontal layers, approximately 8 inches thick. Thicker lifts may be approved by the geotechnical engineer if compaction testing indicates that the grading procedures are adequate to achieve the required compaction. Each lift will be spread evenly, thoroughly mixed during spreading to attain uniformity of the material and moisture in each layer, brought to near optimum moisture content and compacted to a minimum relative compaction of 85 percent in the floodway and up to 90 percent in upland areas.in accordance with ASTM D1557 or as approved by the geotechnical engineer.

The final slopes will also be track-walked to create depressions for erosion control and water retention. Disturbed areas will be seeded annually during the rainy season as final slope areas become available for hydroseeding or planting. If necessary, over-compaction of the surface soil will be relieved by ripper, disc and/or scarified to provide a suitable root zone for plant growth.

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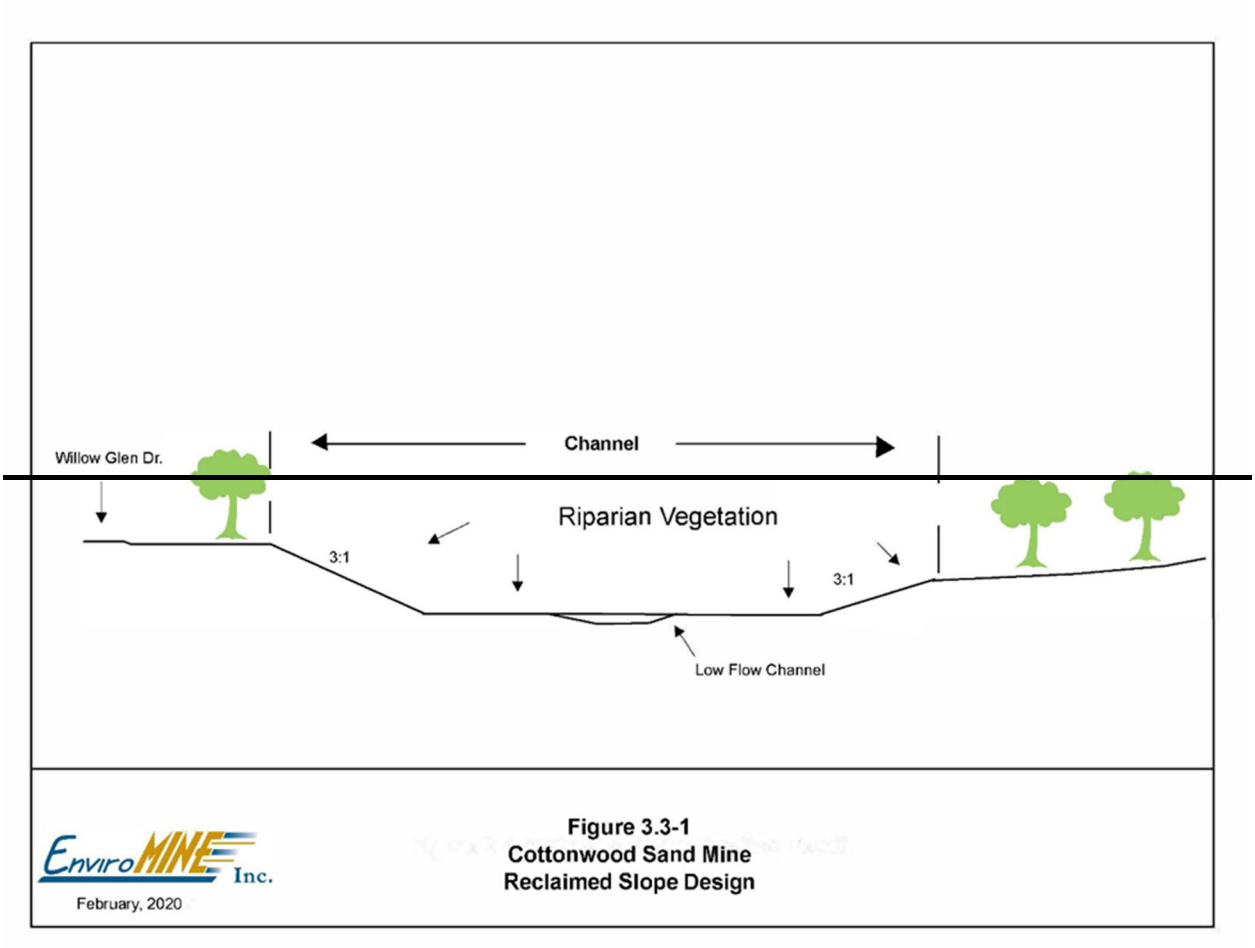
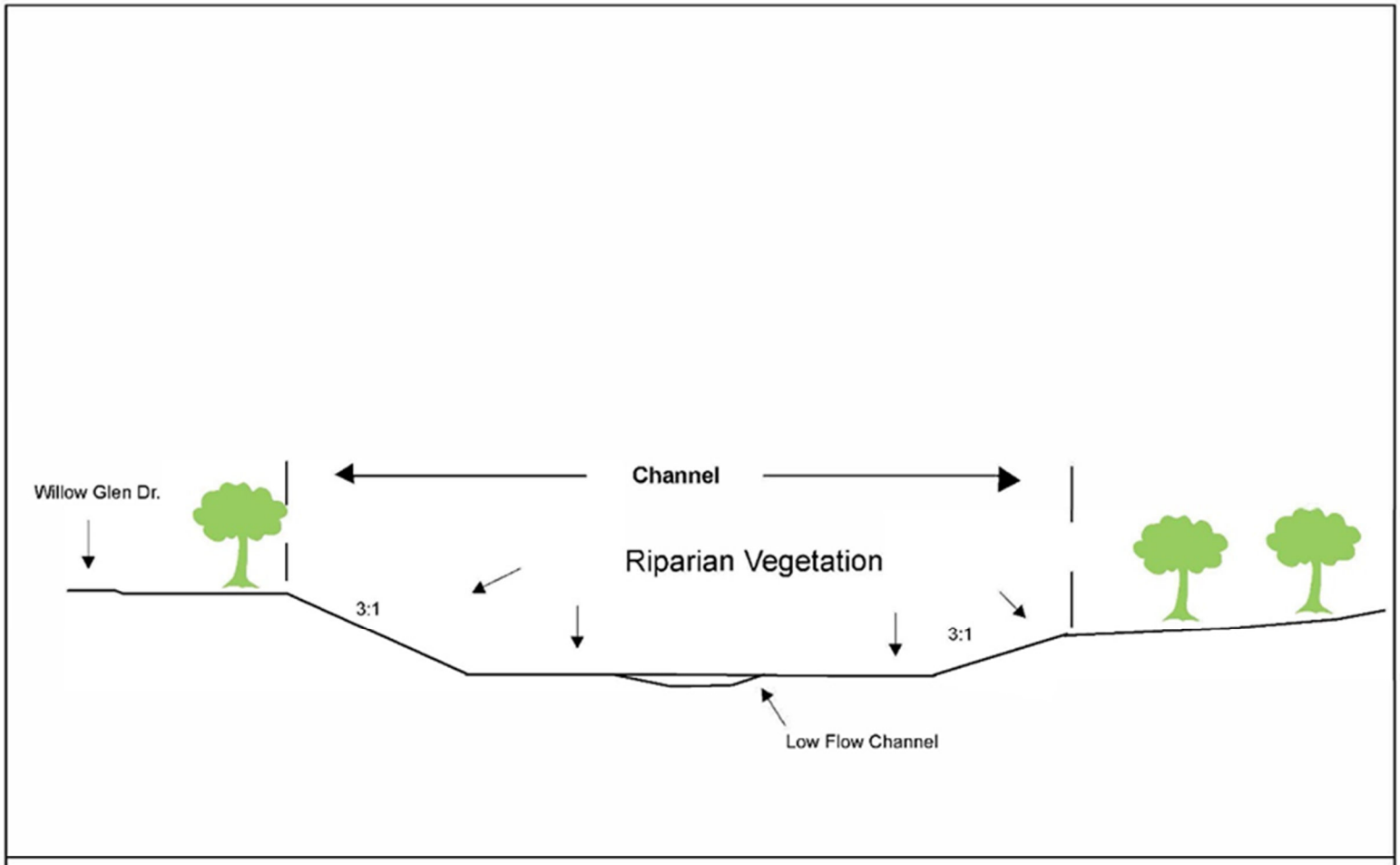


Figure 3.3-1
Cottonwood Sand Mine
Reclaimed Slope Design



EnviroMINE Inc.

February, 2020

Figure 3.3-1
Cottonwood Sand Mine
Reclaimed Slope Design

3.2 Roads

Access to the extraction area will be through a new entrance from Willow Glen Drive located approximately 0.25 miles east of the intersection of Willow Glen Drive with Steele Canyon Road. The new access point is located approximately 0.25 miles west of the golf course parking lot in the north central part of the extraction area and will be retained for post-mining use. This road would continue to a new egress point in the approximate center of the existing parking lot (See Sheet 3, Plot Plan). The project proposes to also construct a two-way left-turn lane between the Project ingress and egress driveways, which would serve as a refuge lane for trucks to complete their outbound maneuver as they are exiting the site. A second, egress point from Willow Glen Drive will be installed approximately 0.4 miles west of the Willow Glen Drive and Steel Canyon Road intersection as shown on the Plot Plan. This access point will be constructed directly across from Muirfield Drive and consist of a concrete apron that will convert to gravel surface for a short distance on the property. All onsite roads, except a San Diego Gas and Electric maintenance access road, will be stripped of road base materials if needed, covered with 6-inches of topsoil or wash fines, ripped to relieve compaction, and revegetated by hydroseeding with the appropriate seed mix.

3.3 Removal of Equipment

All structures and equipment used in the operation will be removed from the site prior to final reclamation. This includes all loaders, bulldozers, haul trucks, storage containers, water trucks, and processing equipment. The truck scales and office trailer will be removed. Surplus equipment and supplies stored onsite will be transported off-site. Asphalt will be removed from most of the parking lot with a small parking area left in place near the entrance for use during reclamation monitoring and by the property owner for access. Gates to the property will remain in place. All trash, asphalt and miscellaneous debris will be collected and hauled to an appropriate waste disposal facility.

All existing hazardous materials located onsite shall be disposed of, and transported, in accordance with all applicable regulations/ordinances. Any wells located on the property that are not retained by the property owner shall be abandoned under permit and inspection by San Diego County Department of Environmental Health.

3.4 SMARA Revegetation

The objective of revegetation discussed in this plan is to provide vegetative cover for disturbance created by extractive operations, controlling erosion, and stabilizing slopes. Revegetation for restoration is provided in the Conceptual Revegetation Plan (Attachment B) as part of this Reclamation Plan. Plant materials to be used are capable of self-regeneration without continued dependence on irrigation, soil amendments or fertilizer.

Revegetation will be enough to stabilize the surface against the effects of long-term erosion and is designed to meet the post-extraction land use objectives of the site. Native species will be used for all revegetated areas to establish vegetative cover and are designed to meet the variety of physical characteristics present. An erosion control seed mix will be used for the flat or gently sloped areas. Revegetation plant palettes,

including container stock and seed mixes, for the RP area are presented in Attachment B. Revegetation Plan.

A list of the Revegetation Plan plant palettes are as follows:

- Riparian Scrub/Forest Rehabilitation Plant Palette – ~~6.13~~7.36 acres
- Riparian Forest Plant Palette – 15.~~51~~39 acres
- Riparian Scrub Plant Palette ~~– 85.08~~ – 84.84 Acres
- Streambed (Emergent Wetland) Seed Mix - 9.~~92~~94 Acres
- Diegan Coastal Sage Scrub (DCSS) Plant Palette - 11.~~91~~92 Acres
- Erosion Control Seed Mix – ~~96.06~~97.90 acres

Revegetation will be conducted on the entire area disturbed by the mining activities. Prior to seeding, materials utilized as final cover will be analyzed to determine the presence of elements essential for plant growth. If the soils analysis shows that fertility levels or soil constituents are inadequate to successfully implement the revegetation program, amendments may be incorporated into the soil through hand planting, sowing and/or hydroseeding. Wire cages will be installed as necessary to protect plants from herbivore damage, if necessary.

A discussion of the methods to be used and locations to be planted with specific species are presented in the Revegetation Plan, Attachment B.

The flat or gently sloped areas outside of the riparian corridor will be hydroseeded with an erosion control mix to aid in soil stabilization and control erosion.

Container plants will be planted by hand. Seed mixes described above will be applied using mechanical hydroseeding methods or hand sown. Hydroseeding is the hydraulic application of a homogeneous slurry mixture consisting of water, seed mix, cellulose fiber and a binding agent such as “M” Binder. Fertilizer can be added if the soil analysis shows the need for addition of amendments; however, native plant communities do not tend to benefit from the use of fertilizer and can result in excessive weed infestations. As such, the use of fertilizer is not anticipated.

The hydroseed mixture shall consist of the following materials:

- 2,000 lbs./acre cellulose fiber
- 140 lbs./acre “M” Binder (tackifier)
- 200 lbs./acre Milogranite (fertilizer if required)
- Seed mix as listed.

Hydroseeding application shall be performed only at times when winds are relatively calm between November and ~~January~~February. These months are also selected to take advantage of the natural wet season of Southern California. This planting period may be extended due to the use of irrigation.

3.5 Irrigation

To assist with the propagation of reclamation revegetation, irrigation of reclaimed lands will be used over the first two years after planting to augment natural

precipitation. An irrigation plan for the reclaimed area will be developed in accordance with recommendations of the Project Landscape Architect and will be submitted to the County for approval prior to implementation. Watering will only occur to assist in establishment and/or in long periods of extended dryness. Irrigation will not be used continuously after seeding. Water from existing water wells will be utilized for irrigation. Irrigation will be completed in compliance with County's Water Conservation in Landscaping Ordinance. Evidence shall be provided demonstrating that revegetation is self-sustaining without irrigation for two years prior to the release of financial assurances.

3.6 Interim Seeding

Where final landforms have been established but are not available for final reclamation for greater than 8 months, erosion control will be provided through revegetation with a general erosion control seed mix. The application of the seed mix will be completed on an as-needed basis to control erosion and weed propagation.

3.7 Timing

Seeding shall be performed and completed generally between November 1 and ~~January~~February 15, although irrigation may extend these dates. All efforts will be made to plant during this time since beneficial temperatures and anticipated rainfall will aid in germination, establishment, and growth of target species.

3.8 SMARA Revegetation Performance Standards

Following seeding and before release of financial assurance, the revegetated areas must meet performance criteria. For this site, the most meaningful performance criteria for erosion control and visual mitigation are based on vegetative cover and species-richness. Native habitat within the southwestern portion of the site was used as a reference site for the riparian forest and scrub habitats as well as the DCSS habitat. Revegetation goals and success criteria presented in this plan have been based on visual estimates of native cover noted in the reference site during biological surveys conducted for the biological technical report (HELIX Environmental Planning, 2024). Comparison with off-site reference areas will be completed for the channel vegetation as this segment of the revegetation project consists of common native plant species and habitats whose parameters are established in the area. Elevated areas of the project where erosion control mixes will be used for revegetation will ~~not be compared to reference areas.~~have separate success criteria that is suitable for erosion control. While it is expected that the revegetated slopes will have benefit to wildlife, the revegetation efforts within this plan are not intended to meet natural habitat performance standards. Habitat restoration and mitigation are presented in the Conceptual Revegetation Plan. The performance standards are presented in Table 8.

Table 8. Revegetation Performance Standards

Vegetative Cover (m: meters)	Species Composition / Species Richness	Percent Cover	Density
Seed Mixes (excluding Erosion Control Seed Mix)	Target Goal: 100% of the most prevalent species shall be native species. 12 randomly placed 50 - meter by 1-meter transects.	Target Goal: 50% cover (all native species combined) 12 randomly placed 50 - meter by 1-meter transects.	N/A
Erosion Control Seed Mix	Target Goal: 4 native perennial species per 10 x 10 meter plot.	Target Goal: 40% of area covered per 10 x 10 meter plot.	Target Goal: 1 – 2 native perennial stems per square meter plot.
Container Stock	Target Goal: 5 tree species 12 randomly placed 50-meter by 1-meter transects	N/A	Target Goal: 30 total trees per acre (80% survival) 12 randomly placed 50-meter by 1-meter transects

Revegetated areas will be monitored once per year to compare the actual revegetation success rates with the success criteria.

Since revegetation will occur concurrently with extractive operations, revegetation practices will be continually evaluated as revegetation is completed throughout the site. Records shall be kept of soil preparation, including the addition of amendments as determined to be necessary, seeding techniques and erosion control measures.

Revegetated areas shall be identified on a map and tested to assure that standards are adequately achieved to within a minimum of 80 percent confidence interval. Annual monitoring reports will be submitted to the County until the approved success criteria have been met and approved by the County. When the County agrees that revegetated areas meet success criteria for two consecutive years, no further monitoring will be required, and the operator may apply for release of financial assurances.

3.9 Test Plots Locations and Treatment

Two test plot areas will be placed in the Phase 1 area of the project. The first should be located at a lower elevation in an area of riparian plantings and second at a higher elevation that encompasses coastal sage scrub/upland plantings. Location of each test plot will be established by the Revegetation Specialist. Test plots will help to ensure successful implementation of the revegetation plan. The lead agency may waive any requirement to conduct test plots when the success of the proposed revegetation plan can be documented from experience with similar species and conditions or by relying on competent professional advice based on experience with the species to be planted.

Success of these test plots shall be judged based upon the effectiveness of the vegetation for the approved end use, and by comparing the quantified measures of

vegetative cover, density, and species richness of the reclaimed mined lands to the surrounding area. Comparisons will be made by a qualified individual until performance standards have been met.

3.10 Weed Control

Primary weed species to be addressed in weed control efforts include Giant Reed, Arundo (*Arundo donax),* Mustard (*Brassica sp.),* Ripgut Brome *(Bromus diandrus),* Cheat Grass, Downy Brome *(Bromus tectorum),* Pampas Grass *(Cortaderia spp.),* Eucalyptus *(Eucalyptus spp.),* Pepperweed *(Lepidium latifolium),* Tree Tobacco *(Nicotiana glauca),* Castor Bean *(Ricinus communis),* Russian Thistle*, Tumbleweed (Salsola tragus),* and Tamarisk *(Tamarix spp.)*

After startup, the project site will be monitored periodically by means of visual observation to identify the potential for uncontrolled weed propagation. Should weed control be necessary, the operator will hire the services of a biologist or agriculturalist to make recommendations for the control of noxious weeds that may invade the project area. The operator and/or a contract vendor will carry out treatments recommended to eradicate the undesired vegetation. All vegetative debris resulting from the weed maintenance program will be removed from the property and disposed of properly.

3.11 Post Extraction Land Use

Upon completion of resource extraction, the extraction area site will be reclaimed to uses allowed under the General Plan and County Zoning Ordinance including recreational trails. After reclamation is complete and financial assurances mechanisms released, other uses will require separate entitlements. Reclamation of the site will be considered complete when revegetation standards are met on the areas disturbed by the mining operation.

3.12 Post Extraction Drainage and Erosion Control

Small de-siltation basins may be constructed at the bottom of slopes to capture sediment and avoid potential off-site impacts. In addition, silt fences, straw waddles geotextiles or lined drains may be installed as BMPs during the revegetation process. Erosion control measures will be designed for the 20-year 1-hour storm intensity event. These measures will be implemented to control surface runoff and drainage to protect surrounding land and water resources. Silt fences or other temporary erosion control devices will be removed from the site after vegetation has been established.

Slope rounding will be used along the top of slopes to prevent runoff from flowing from flat areas onto slopes. Gently sloped areas will be graded at approximately 1 percent slope to minimize the potential for erosion and sediment transport. Additional erosion and sediment controls will be implemented around work areas as mining progresses.

3.13 Post-Extraction Public Safety

No mining equipment, tailings, waste piles, refuse or dangerous material will remain onsite. Vehicular access onto the property will be blocked by locked gates at all access points onto the property. Where appropriate, during mining and reclamation the site will be protected from intruder access by fencing and warning signs posted to restrict unlawful access. Fencing will consist of a four-strand barbed wire chain link in

certain areas. Security fencing will be removed after reclamation is complete at the owner's request. Fencing shall be consistent with any required County or other oversight agency guidelines.

3.14 Effect of Reclamation on Future Recovery of Mineral Resources

Extractive operations will recover unrestricted, economically recoverable resources within the project footprint. As a result, reclamation will have no effect on future mineral resource recovery if it becomes economical.

3.15 Reclamation Monitoring and Maintenance

Reclamation and post-reclamation efforts will be monitored pursuant to SMARA requirements and according to the approved Revegetation Plan. Data for cover, density, and species richness will be collected along 12 randomly placed 50-meter by 1-meter transects. The operator will be required, under SMARA (Public Resources Code §2207), to submit an annual status report on forms provided by the Department of Conservation and directs the lead agency to conduct an inspection of the operations within six months of receipt of the required Annual Report. Revegetation monitoring will continue for a minimum of 5 years per County requirements or until performance standards are met.

4.0 Financial Assurances

In addition to annual monitoring, all SMARA regulated sites are required to provide financial assurances. The financial assurances are required to ensure that the site can be reclaimed, should the operator default on this obligation. The financial assurances may be in the form of surety bonds, irrevocable letter of credit, trust funds, or other forms of financial assurances approved by the Lead Agency. The amount of the financial assurance is reviewed annually by the Lead Agency to determine the adequacy for completing reclamation.

5.0 Compliance with Reclamation Standards

5.1 Purpose

The Surface Mining and Reclamation Act requires that all newly approved Reclamation Plans incorporate verifiable standards to assure adequate completion of Reclamation Plan objectives. The verifiable standards were adopted by the State Board of Mining and Geology as regulations to implement these requirements. These regulations are known as the "Reclamation Standards" (PRC Article 9, Sections 3700 *et seq.*). The following discussion addresses compliance with these standards as outlined in the Reclamation Plan for the Cottonwood Sand Mine dated October 2018.

5.2 Financial Assurances (§3702)

The project is required to provide financial assurances to ensure reclamation is performed in accordance with the reclamation plan. Financial assurances are reviewed annually by the lead agency and adjusted, as necessary.

5.3 Wildlife Habitat (§3703)

Two federal and state listed species, coastal California gnatcatcher (federally listed as threatened) and least Bell's vireo (federally and state listed endangered) were identified onsite during focused species surveys. ~~USFWS-designated critical habitat for the~~

~~coastal California gnatcatcher, least Bell's vireo, and federal listed endangered San Diego ambrosia is present in the southwestern portion of the site.~~ USFWS-designated critical habitat for the coastal California gnatcatcher, least Bell's vireo, and federal listed endangered San Diego ambrosia is present in the southwestern portion of the project site, and critical habitat for the federal and state listed endangered southwestern willow flycatcher occurs off-site to the west. The project would not result in impacts to southwestern willow flycatcher critical habitat, but would result in minor impacts to San Diego ambrosia, coastal California gnatcatcher, and least Bell's vireo critical habitat. The small portions of critical habitat that would be impacted ~~currently~~primarily consist of disturbed habitat associated with the golf course development that do not support habitat for these species, and the small amounts of riparian and wetland habitat (0.~~10~~26 acre~~)~~ of riparian forest, 0.01 acre tamarisk scrub, and 0.02 acre of freshwater marsh) that would be impacted are located at the edge of the riparian habitat that would be restored to riparian habitat following project activities as part of site reclamation and the project's proposed mitigation. As part of the reclamation process, the project would preserve, enhance, rehabilitate, and restore habitat through the widening and revegetation of the Sweetwater River channel and placement within open space such that no net loss of sensitive natural communities or riparian habitat would occur. No in-stream mining is planned, however; mining shall not cause fish to be trapped in pools or off-channel pits or restrict migratory or spawning activities. The project would implement breeding season avoidance and/or pre-construction surveys to avoid direct and indirect impacts to sensitive birds and raptors.

5.4 Backfilling, Regrading, Slope Stability, and Recontouring (§3704)

The reclamation plan calls for continued resource extraction and reclamation over an area of about 214 acres; and will result in the creation of nearly level areas and maximum slopes of 3H:1V. All cut and fill slopes shall have a minimum slope stability factor of safety that is suitable for the proposed end use and conforms to the surrounding topography. All reclaimed slopes shall follow the recommendations of the geotechnical report (See Attachment C, Soil and Geologic Reconnaissance). Areas within the reclamation boundary will be backfilled to specific elevations as shown on the Plot Plan to achieve final, reclaimed contours.

5.5 Revegetation (§3705)

The objective of revegetation is to provide vegetative cover on final slopes that will visually integrate the site with surrounding areas and stabilize the site against erosion and sedimentation. Surfaces will be ripped or disced to relieve compaction. Native plant species will be used for revegetation. Section 3.4 of this Reclamation Plan sets forth planting and maintenance practices, as well as verifiable monitoring standards to assure vegetative success. Examples of maintenance practices and verifiable monitoring standards include, but are not limited to managing noxious weeds, irrigation for establishment purposes, planting during appropriate seasons, planting methods, soil fertility analysis. Test plots are required to assist with determination of successful revegetation measures.

5.6 Drainage, Diversion Structures, Waterways, and Erosion Control (§3706)

The quality of water, recharge potential, and storage capacity of groundwater aquifers is not expected to be diminished because of reclamation of this extraction operation

(GeoLogics & Assoc, 2020). Operational erosion control methods are designed in compliance with storm water regulations. Erosion and sedimentation control will be implemented during all phases of operations, according to the Drainage Report. Per Industrial General Permit Order 2014-0057-DWQ Effective July 1, 2015 requirements an NOI will be filed, a SWPPP prepared and BMPs implemented to mitigate erosion and sediment transport.

5.7 Prime Agricultural Land Reclamation (§3707)

Not applicable. The land is mapped as Urban and Built-Up Land by the California Department of Conservation.

5.8 Other Agricultural Land (§3708)

The property has been used as golf courses for more than 55 years. Prior to golf course use the site was a dry wash. Very heavy irrigation would be required for any agriculture due to the porosity of the soil materials at the site. In addition, land in the area has been developed or is in the process of being developed. The RP area is not located on lands that are currently under a Williamson Contract agreement.

5.9 Building, Structure and Equipment Removal (§3709)

All structures and equipment (mobile, portable, and fixed) will be removed from the plan area except as demonstrated to be necessary for the proposed end use by the property owner following reclamation.

5.10 Stream Protection, Including Surface and Groundwater (§3710)

Mining and reclamation activities include storm water protection measures to eliminate the potential for erosion and sedimentation discharges off-site. These measures are compliant with appropriate sections of the Federal Clean Water Act, Porter-Cologne Act, the California Regional Water Quality Control Board, and the San Diego County Watershed Protection Ordinance (WPO) No. 10410. The revegetation practices outlined in Section 3.4 of this Reclamation Plan identify measures to establish a self-regenerating vegetative complex that is designed to control erosion and sedimentation. In addition to these plan measures, the Lead Agency would conduct annual inspections to ensure implementation of these water quality protection measures.

Unavoidable impacts would occur to riparian and wetland habitat as part of proposed project activities, including the widening of the Sweetwater River channel, which would be subsequently planted with native riparian vegetation along the channel bottom, and coastal sage scrub on slopes bordering the channel. These areas support jurisdictional waters and wetlands. Impacts to jurisdictional waters and wetlands would require compensatory mitigation ratio. The proposed mitigation ratios are consistent with County guidelines and those that would be required by the wetland permitting agencies (USACE, RWQCB, CDFW), though final mitigation requirements for impacts to jurisdictional waters and wetlands would be determined during the permitting process. Generally, these range from 1:1 to 3:1, with wetlands requiring at least a 1:1 on-site establishment/re-establishment component. The project would impact 3.70 acres of wetland and 0.34 acre of non-wetland waters of the U.S. and 21.83 acres of wetlands and waters under CDFW jurisdiction.

5.11 Topsoil Management (§3711)

Topsoil will be salvaged to aid in reclamation. It is expected that topsoil will be stripped in advance of the pit and directly placed on previously disturbed surfaces immediately prior to revegetation. This will limit damage to soil structure and preserve soil biological processes. Topsoil stockpiles will be clearly identified with signage.

5.12 Tailing and Extraction Waste Management (§3712)

Extracted material not transported off-site will be used as backfill. No stockpiles will be left on site post reclamation. Mine waste and tailings and mine waste disposal units are governed by SWRCB waste disposal regulations and shall be reclaimed in accordance with CCR Article 1. Surface Mining and Reclamation Practice. Section 3500 et seq." and "All waste shall be disposed of in accordance with State and local health and safety ordinances."

5.13 Closure of Surface Openings (§3713)

Not Applicable.

5.14 Public Safety

Public health and safety are protected in accordance with County standards for open space. Access is controlled by fencing and with locked gates at all access points to the property.

5.15 Administrative Contacts

Lead Agency Information:

Lead Agency:	County of San Diego,
Staff Contact:	~~Ms. Heather Steven~~Mr. Christopher Jacobs
Address:	5510 Overland Ave, 3rd Floor, San Diego, CA 92123
Telephone:	~~(858) 495-5516~~(619) 323-8718

6.0 Project Summary

A summary of pertinent details for the Project is presented in Table 9 as follows:

Table 9. Project Summary

General Site Information	
Applicant	Cottonwood Mine
Project Proponent	~~New West Investment, Inc.~~Cottonwood Cajon ES, LLC.
Property Owner (s)	Cottonwood Cajon ES, LLC.
Project APN's	506-021-1900, 506-020-5200, 518-012-1300, 518-012-1400, 518-030-0500, 518-030-0600, 518-030-0700, 518-030-0800, 518-030-1000, 518-030-1200, 518-030-1300, 518-030-1500, 518-030-2100, 518-030-2200, 519-010-1500, 519-010-1700, 519-010-2000, 519-010-2100, 519-010-3300, 519-010-3400, 519-011-3700, 519-011-~~0300~~0700
Surface Elevation	Approximately 334' on the west to 378' AMSL on the east.
General Plan Designation	Open Space (Recreational)
Zoning	S80 - Open Space; S88 - Specific Planning Area; S90 - Holding Area
Williamson Act Contract	No
MRZ Designation	MRZ- 2 (CGS Special Report 240, 2017)
Current Land Use	Golf Courses - Recreational
Major Use Permit Boundary	251.1 acres
Reclamation Plan Boundary	214.4 acres
Additional Permits	Air Permits, Haul Truck Plans, Traffic Control Permits, Right-of-Way Encroachment Permits, Major Use Permit, Industrial General Permit, Construction General Stormwater Permit, Public Improvement Plan Permit, CLOMR/FEMA approval, Inert Debris Engineered Fill Operation, Resource Agency Permits 404/401 and 1602 permits
Mining	
Mining Area	Estimated 214.4 acres within the existing golf course footprint
Setback Limit	50 feet from property boundary, 100 feet from residential
Maximum Mining Depth	West: 295 feet. East:354 feet AMSL (approximately 40' below existing ground surface)
Approx. Groundwater Elevation (range)	Approximately, 310 (west end) to 354 feet (east end) AMSL.
Mining Slopes	3H:1V (horizontal: vertical) maximum
Type of Minerals	Alluvium
Maximum Total Production	3.8 million cu.yds. (5.7-million tons)
Maximum Annual Production	570 thousand tons
Commencement of Mining	Within 1 Year After Permit Approval
Duration of Project	12 years (10 years of extraction and reclamation with 2 years for final reclamation after cessation of extraction)
Mining Permit Expiration	12 years after approval date.
Reclamation	
Revegetated Area	Approximately 214.4 acres
Duration of Reclamation	Continuous starting in year 2 and extending 2 Years after cessation of mining.

Completion of Reclamation	~~2033~~2037 estimated
Post Mining Land-Uses	Land suitable for uses allowed by the General Plan and existing zoning.

7.0 Statement of Responsibility

I, the undersigned, hereby agree to accept full responsibility for reclamation of all mined lands as described and submitted herein and in conformance with the applicable requirements of Articles 1 and 9 (commencing with Sections 3500 et seq. and 3700 et seq., respectively) of Chapter 8 of Division 2 of Title 14 of the California Code of Regulations, the Surface Mining and Reclamation Act commencing with Section 2710 et seq., and with any modifications requested by the administering agency as conditions of approval.

Cottonwood Cajon ES, LLC:

Signature: _____

Title: _____

Date: _____

(final version of the Reclamation Plan will be signed)

8.0 References

Borrego Valley Groundwater Sustainability Agency. 2019. Draft Final Groundwater Sustainability Plan for the Borrego Springs Groundwater Subbasin.

California Geological Survey (CGS), 2017. Special Report 240 - Update of Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in The Western San Diego County Production-Consumption Region, California. Authors: Gius, F.W., Busch, L.L. and Miller, R.V. (PG 3331)

California Regional Water Quality Control Board. 1994. Water Quality Control Plan for The San Diego Basin (9). Authors: Barker, D.T., Schwall, K.T. and Pardy, L.L.
GeoCon, Inc. 2019 (revised 2020). Soil and Geologic Reconnaissance, Cottonwood Golf Course. El Cajon, California.

Geo-Logic Associates. 2020. Groundwater Investigation Report, Cottonwood Sand Mine, Jamacha, California. November.

~~Helix~~HELIX Environmental Planning. ~~2019. Preliminary~~2025. Biological ~~Letter~~Technical Report for The Cottonwood Sand Mine Project. ~~January 24th~~May.

Personal Communication. 2019. Conversation with Mr. Javier Ruiz, Cottonwood Golf Club Superintendent.

Tan, S. S. (2002a). Geology of the El Cajon 7.5' Quadrangle, San Diego County, California, 1:24,000 scale

Tan, S. S. (2002b). Geologic Map of the Jamul Mountains 7.5' Quadrangle, San Diego County, California, 1:24,000 scale

USDA. 1973, Soil Survey San Diego Area, California. Soil Conservation Service and Forest Service. Author: Bowman, R.H.

Attachment A.

Plot Plan

GRADING NOTES

1. THE ENGINEER OF WORK WILL NOT ENFORCE SAFETY MEASURES OR REGULATIONS. THE OWNER SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.

2. APPROVAL OF THESE PLANS DOES NOT CONSTITUTE APPROVAL OF VERTICAL OR HORIZONTAL ALIGNMENT OF ANY PRIVATE ROAD SHOWN HEREON FOR COUNTY ROAD PURPOSES.

3. A CONSTRUCTION, EXCAVATION OR ENCROACHMENT PERMIT FROM THE DIRECTOR OF PUBLIC WORKS WILL BE REQUIRED FOR ANY WORK IN THE COUNTY RIGHT-OF-WAY.

4. THE CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK. NOTICE OF THE PROPOSED WORK SHALL BE GIVEN TO THE FOLLOWING AGENCIES.

UNDERGROUND SERVICE ALERT:	(800) 422-4133
SAN DIEGO GAS AND ELECTRIC:	(800) 227-2600
COX CABLE TV	(866) 272-5777
OTAY WATER DISTRICT	(619) 670-2222
SEWER	COUNTY OF SAN DIEGO - HHSA

5. PROTECTION OF EXISTING UTILITIES:

   THE OWNER IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. ANY PAVEMENT OR OTHER EXISTING SURFACE IMPROVEMENTS DAMAGED BY THE OWNER SHALL BE REPLACED AS REQUIRED BY THE COUNTY OF SAN DIEGO ENGINEERING DEPARTMENT. EXISTING UTILITIES SHOWN HEREON ARE PLOTTED FROM RECORD DATA AND MAY NOT NECESSARILY BE WHERE SHOWN. IT IS THE OWNER'S RESPONSIBILITY TO DETERMINE LOCATION PRIOR TO CONSTRUCTION.

   CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY.

6. CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY. NO GRADING WITHIN 20' OF EXISTING STEEL LATTICE TOWER FOUNDATIONS & NO GRADING WITHIN 30' OF EXISTING STEEL POLE FOUNDATION.

7. GENERAL UTILITY NOTES EXPLORATORY EXCAVATION REQUIRED: OWNER WILL MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF EXCAVATION TO PREVENT DAMAGE TO SAID UTILITIES. ALL EXISTING UTILITIES WITHIN THE SITE, AND THOSE ADJACENT TO THE SITE WHICH ARE AFFECTED BY THE WORK PROPOSED TO BE DONE ARE SHOWN ON THIS PLAN. THE UTILITY COMPANIES HAVE REVIEWED THESE PLANS AND ARE SATISFIED WITH THE ARRANGEMENTS MADE BY THE PERMITEE TO PROTECT OR RELOCATE THE UTILITIES.

8. EXISTING UTILITIES OR STRUCTURES ARE SHOWN ACCORDING TO THE RECORDS OF THE ABOVE COMPANIES AND HAVE BEEN EXAMINED TO VERIFY THAT THEY OWN NO UTILITIES OR STRUCTURES WHICH WILL BE AFFECTED BY THE PROPOSED GRADING.

9. ALL OPERATIONS CONDUCTED ON THE PREMISES, INCLUDING THE WARMING UP, REPAIR, ARRIVAL, DEPARTURE OR RUNNING OF TRUCKS, EARTHMOVING EQUIPMENT, CONSTRUCTION EQUIPMENT AND ANY OTHER ASSOCIATED GRADING EQUIPMENT SHALL BE ACCORDING TO THE PERIOD SPECIFIED IN THE MAJOR USE PERMIT.

10. ALL MAJOR SLOPES SHALL BE ROUNDED INTO EXISTING TERRAIN TO PRODUCE A CONTOURED TRANSITION FROM CUT OR FILL FACES TO NATURAL GROUND AND ABUTTING CUT OR FILL SURFACES.

11. NOTWITHSTANDING THE MINIMUM STANDARDS SET FORTH IN THE GRADING ORDINANCE AND NOTWITHSTANDING THE APPROVAL OF THESE RECLAMATION PLANS, THE PERMITTEE IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO THE ADJACENT PROPERTY. NO PERSON SHALL EXCAVATE ON LAND SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PUBLIC STREET, SIDEWALK, ALLEY, FUNCTION OF ANY SEWAGE DISPOSAL SYSTEM OR ANY OTHER PUBLIC OR PRIVATE PROPERTY WITHOUT SUPPORTING AND PROTECTING SUCH PROPERTY FROM SETTLING, CRACKING, EROSION, SILTING, SCOUR OR OTHER DAMAGE WHICH MIGHT RESULT FORM THE GRADING DESCRIBED ON THIS PLAN. THE COUNTY WILL HOLD THE PERMITTEE RESPONSIBLE FOR CORRECTION OF NON-DEDICATED IMPROVEMENTS WHICH DAMAGE ADJACENT PROPERTY.

12. SLOPE RATIOS:

    MAXIMUM SLOPE RATIOS TO BE 3:1

13. IF ANY ARCHAEOLOGICAL RESOURCES ARE DISCOVERED ON THE SITE DURING GRADING OPERATIONS, SUCH OPERATIONS WILL CEASE IMMEDIATELY AND THE PERMITTEE WILL NOTIFY THE DIRECTOR OF PUBLIC WORKS OF THE DISCOVERY. GRADING OPERATIONS WILL NOT RECOMMENCE UNTIL THE PERMITTEE HAS RECEIVED WRITTEN AUTHORITY FROM THE DIRECTOR OF PUBLIC WORKS TO DO SO.

14. COMPACTION TESTING AND A COMPACTION REPORT IS REQUIRED FOR ALL FINISH PADS THAT ARE OVER 12" IN DEPTH.

15. AN INDUSTRIAL SWPPP WILL OUTLINE BEST MANAGEMENT PRACTICES REQUIRED DURING MINING AND RECLAMATION.

16. EXISTING TRAFFIC SIGNS ALONG WILLOW GLEN ROAD TO REMAIN. SIGNS WILL BE ADDED TO SITE ENTRANCE AND EXIT AS REQUIRED BY THE COUNTY OF SAN DIEGO. SMALL SAFETY SIGNS REQUIRED BY MSHA WILL BE PLACED ON FENCES AROUND THE PROJECT AREA. NO SIGNS WILL BE ILLUMINATED.

17. CONTRACTOR SHALL REMOVE BOTH ABOVEGROUND STORAGE TANKS AT THE EXISTING GOLF COURSE MAINTENANCE FACILITY. ONE IS A 1,000 GALLON DIESEL AST AND THE OTHER IS A 500 GALLON GASOLINE AST.

DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE COUNTY OF SAN DIEGO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

WAYNE W. CHANG
CHANG CONSULTANTS
P.O. BOX 9496
RANCHO SANTA FE, CA 92067
PHONE: (858) 692-0760

BY: _____ DATE: _____

WAYNE W. CHANG, R.C.E. 46548

PROJECT PHASING

PHASE 1 – 319,200 CY CUT (MINING/BACKFILL OVEREX 971,200 CY CUT)
THE FIRST PHASE (PHASE 1) WILL INCLUDE SITE DEVELOPMENT FOR THE CONSTRUCTION OF THE ACCESS ROAD, PROCESSING AREA PAD, SCREENING BERMS AND INSTALLATION OF THE CONVEYOR LINE AND PROCESSING PLANT. IN ADDITION THE PROJECT WILL WIDEN AND RESTRIPE A PORTION OF WILLOW GLEN DRIVE AND ADD A 5- TO 8-WIDE PATHWAY ALONG A PORTION OF WILLOW GLEN DRIVE. FOLLOWING INITIAL SITE DEVELOPMENT ACTIVITIES, EXTRACTIVE OPERATIONS WILL COMMENCE IN THE AREA WEST OF STEELE CANYON ROAD.

INITIAL EXTRACTIVE OPERATIONS WILL INVOLVE REMOVAL OF ALL MATERIALS FROM THE SURFACE TO APPROXIMATELY 15 TO 40 FEET BELOW GROUND SURFACE (BGS) WITH A COMBINATION OF FRONT END LOADERS AND AN EXCAVATOR. EACH PIECE OF EXCAVATION EQUIPMENT WILL WORK IN SEPARATE AREAS. THIS EQUIPMENT WILL MOVE MATERIAL DIRECTLY TO THE CONVEYOR. APPROXIMATELY, 79 ACRES WILL BE INCLUDED IN PHASE 1 WHICH WILL INCLUDE APPROXIMATELY 10 ACRES OF HABITAT IMPROVEMENT WITHIN THE RIVER CHANNEL ON THE SOUTHWEST END OF THE PROJECT.

PHASE 1 WILL BEGIN EXCAVATION IN THE SUB-PHASE 1A AREA SOUTH OF THE RIVER CHANNEL. ONCE EXCAVATION IS COMPLETE IN SUB-PHASE 1A, THE CONVEYOR LINE AND EXCAVATING EQUIPMENT WILL MOVE TO THE SUB-PHASE 1B AREA ON THE SOUTHWESTERN EDGE OF THE PROJECT. RECLAMATION IN SUB-PHASE 1A WOULD THEN BEGIN WITH FINAL GRADING, INSTALLATION OF IRRIGATION EQUIPMENT AND REVEGETATION. THIS PROCESS WILL CONTINUE IN SUB-PHASES 1B AND 1C. EXCAVATION IN EACH SUB-PHASE IS EXPECTED TO TAKE APPROXIMATELY ONE YEAR.

RECLAMATION OF THE PHASE 1 AREA WILL BEGIN ANNUALLY AS THE FINAL LANDFORMS ARE ESTABLISHED IN EACH SUB-PHASE. RECLAMATION WILL INCLUDE ESTABLISHMENT OF ALL FINAL SLOPES, INCORPORATION OF ANY ACCUMULATED WASH FINES AND TOPSOIL; REVEGETATION USING NATIVE SPECIES COMMON TO RIPARIAN HABITAT AND/OR UPLAND VEGETATION DEPENDING ON THE LOCATION OF THE LANDFORM; ESTABLISHMENT OF PADS SUITABLE FOR FUTURE DEVELOPMENT SEEDED WITH AN EROSION SEED MIX; WEED CONTROL, AND MONITORING.

PHASE 2 – 356,500 CY CUT (MINING/BACKFILL OVEREX 458,200 CY CUT)
PHASE 2 WILL CONTINUE THE IDENTICAL EXTRACTION PROCESS IN A WEST TO EAST DIRECTION ON AN AREA OF APPROXIMATELY 48 ACRES EAST OF THE STEELE CANYON ROAD BRIDGE. THIS PHASE IS ANTICIPATED TO LAST APPROXIMATELY 3 YEARS. EXCAVATION OF THE MATERIALS WILL CONTINUE IN THE WEST AND PROCEED EASTWARD IN THE SAME FASHION AS UTILIZED IN PHASE 1. THE MAXIMUM DEPTH OF THE EXCAVATION IS EXPECTED TO BE APPROXIMATELY 15 TO 40 FEET BELOW GROUND SURFACE OUTSIDE THE CHANNEL.

PHASE 2 WILL ALSO INCLUDE 3 SUB-PHASES OF 14 TO 19 ACRE AREAS THAT WILL BEGIN WITH SUB-PHASE 2A AND PROGRESS TO THE NORTHEAST. EXCAVATION IN EACH SUB-PHASE IS EXPECTED TO BE COMPLETED IN APPROXIMATELY 1 YEAR.

RECLAMATION OF THE PHASE 2 SUB-PHASES WILL BEGIN EACH YEAR AS THE FINAL LANDFORMS ARE ESTABLISHED IN EACH SUB-PHASE. RECLAMATION WILL INCLUDE ESTABLISHMENT OF ALL FINAL SLOPES, INCORPORATION OF ANY ACCUMULATED WASH FINES AND TOPSOIL, REVEGETATION OF THE CHANNEL USING NATIVE SPECIES COMMON TO RIPARIAN HABITAT, UPLAND VEGETATION ON THE UPPER SLOPES AND ESTABLISHMENT OF PADS SUITABLE FOR FUTURE DEVELOPMENT. PADS WILL BE SEEDED WITH AN EROSION CONTROL SEED MIX. SEEDING AND PLANTING WILL GENERALLY OCCUR DURING THE RAINY SEASON.

PHASE 3 – 1,052,200 CY CUT (MINING/BACKFILL OVEREX 863,300 CY CUT)
THE EXCAVATION PROCESS IN PHASE 3 IS A REPEAT OF PHASE 2 ON APPROXIMATELY 79 ACRES OF THE VALLEY, EAST OF THE PHASE 2 AREA. PHASE 3 IS ANTICIPATED TO LAST ABOUT 4 YEARS, WILL INCLUDE 4 SUB-PHASES AND WILL EMPLOY THE SAME PROCEDURE AS THE TWO PREVIOUS PHASES. UPON CONCLUSION OF PHASE 2, THE CONVEYOR LINE WILL BE RELOCATED TO RUN FROM THE PLANT TO THE EAST. SUB-PHASE 3A WILL BE LOCATED AT THE NORTHEAST EDGE OF THE PROPERTY. EXCAVATION OF EACH SUB-PHASE WILL PROCEED WESTWARD

RECLAMATION IN EACH OF THE PHASE 3 SUB-PHASES WILL BEGIN EACH YEAR AS THE FINAL LANDFORMS ARE ESTABLISHED. RECLAMATION WILL INCLUDE ESTABLISHMENT OF ALL FINAL SLOPES, INCORPORATION OF ANY ACCUMULATED WASH FINES AND TOPSOIL, REVEGETATION OF THE CHANNEL USING NATIVE SPECIES COMMON TO RIPARIAN HABITAT, UPLAND VEGETATION ON THE UPPER SLOPES AND ESTABLISHMENT OF PADS SUITABLE FOR POSSIBLE FUTURE DEVELOPMENT. ALL PADS WILL BE PLANTED WITH AN EROSION CONTROL SEED MIX.

PHASE 4 – 246,300 CY CUT
PHASE 4 WILL CONSIST OF EXCAVATION OF MATERIALS BENEATH PLANT, BACKFILLING PLANT AREA, FINAL RECLAMATION EFFORTS, CLEANUP AND EQUIPMENT REMOVAL. REVEGETATION MONITORING WILL CONTINUE AFTER THIS FINAL PHASE. MINE PHASE ACREAGES AND THE ESTIMATED DURATION OF EACH PHASE ARE SUMMARIZED IN TABLE 4 AND ASSUMES A PROJECT START IN 2021.

MINING EARTHWORK QUANTITIES

	0	CY	FILL
EAST	1,655,000	CY CUT	(2,482,500 TONS)
WEST	319,200	CY CUT	(478,800 TONS)
OVEREXCAVATION	2,292,700	CY CUT	(3,439,050 TONS)
TOTAL	4,266,900	CY CUT	(6,400,350 TONS)

MINE PHASE ACREAGES

Mining Phase	Phase Area (acres)	Sub-phase Area (acres)	Mining Duration (years)	Mining Initiation Date (est.)	Mining Completion Date (est.)	Reclamation Completion Date (est.)
1	78.98		3	2025	2028	2030
Sub-phase 1a		22.10	1			
Sub-phase 1b		26.46	1			
Sub-phase 1c		30.42	1			
2	48.18		3	2028	2031	2033
Sub-phase 2a		15.26	1			
Sub-phase 2b		19.08	1			
Sub-phase 2c		13.74	1			
3	78.57		4	2031	2035	2037
Sub-phase 3a		29.42	1			
Sub-phase 3b		16.15	1			
Sub-phase 3c		14.13	1			
Sub-phase 3d		18.87	1			
Phase 4	8.65		1	2035	2035	2037
Total	214.4		10	-	-	

RESOURCE AGENCY PERMITTING

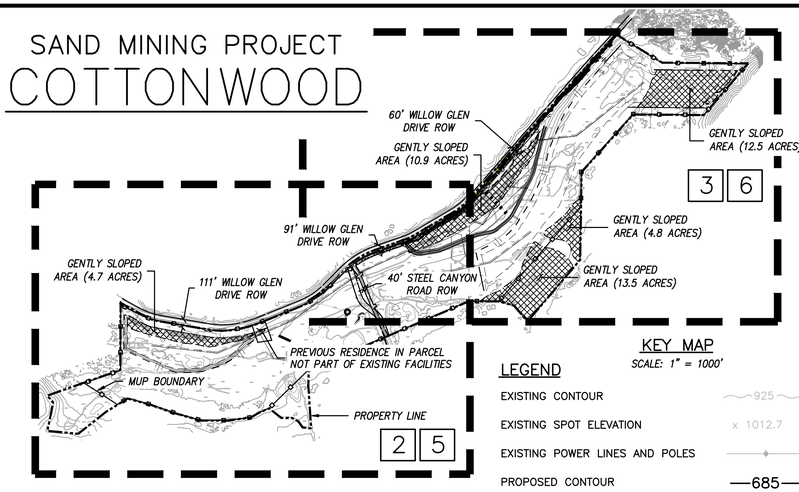
THE SUBJECT PROPERTY CONTAINS WETLANDS, A LAKE, A STREAM, AND/OR WATERS OF THE U.S. AND/OR STATE WHICH MAY BE SUBJECT TO REGULATION BY STATE AND/OR FEDERAL AGENCIES, INCLUDING, BUT NOT LIMITED TO, THE REGIONAL WATER QUALITY CONTROL BOARD, U.S. ARMY CORPS OF ENGINEERS AND THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE. IT IS THE APPLICANT'S RESPONSIBILITY TO CONSULT WITH EACH AGENCY TO DETERMINE IF A PERMIT, AGREEMENT OR OTHER APPROVAL IS REQUIRED AND TO OBTAIN ALL NECESSARY PERMITS, AGREEMENTS OR APPROVALS BEFORE COMMENCING ANY ACTIVITY WHICH COULD IMPACT THE WETLANDS, LAKE, STREAM, AND/OR WATERS OF THE U.S. ON THE SUBJECT PROPERTY. THE AGENCY CONTACT INFORMATION IS PROVIDED BELOW.

U.S. ARMY CORPS OF ENGINEERS:
915 WILSHIRE BLVD., SUITE 1101
LOS ANGELES, CA 90017
(213) 452-3333
HTTP://WWW.USACE.ARMY.MIL/

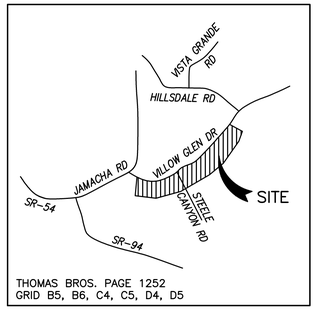
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE:
3883 RUFFIN RD.
SAN DIEGO, CA 92123
(858) 636-3160
ASKR5@WILDLIFE.CA.GOV
HTTP://WWW.DFG.CA.GOV/

REGIONAL WATER QUALITY CONTROL BOARD:
2375 NORTHSIDE DRIVE, SUITE 100
SAN DIEGO, CA 92108
RB9_DREDGEFILL@WATERBOARDS.CA.GOV
HTTP://WWW.WATERBOARDS.CA.GOV/SANDIEGO/

SAND MINING PROJECT
COTTONWOOD



KEY MAP
SCALE: 1" = 1000'



THOMAS BROS. PAGE 1252
GRID B5, B6, C4, C5, D4, D5

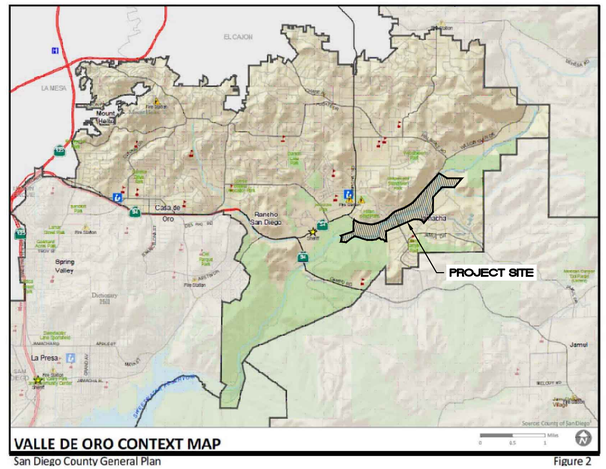
VICINITY MAP

DISCRETIONARY REVIEW APPROVAL

THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.

LEGEND

EXISTING CONTOUR 925
EXISTING SPOT ELEVATION x 1012.7
EXISTING POWER LINES AND POLES
PROPOSED CONTOUR 685
PROPOSED GRADE 1.0%
PUBLIC PATHWAY
PROPERTY LINE
MUP BOUNDARY
DAYLIGHT LINE
PROPOSED SLOPE
PROPOSED PERIMETER FENCE
PROPOSED POWER LINES
EFFECTIVE FEMA FLOODWAY
EFFECTIVE FEMA FLOODWAY
PROPOSED TRAILS (ALL TRAILS ARE MULTIPURPOSE)
PROPOSED STOCKPILES (8' TO 12' HIGH)
PROPOSED GROUTED LIGHT CLASS RIPRAP
PROPOSED FLOW
CROSS-SECTION LINES A A
PROPOSED TREE WELLS
SECURITY LIGHT



VALLE DE ORO CONTEXT MAP
San Diego County General Plan
VALLE DE ORO COMMUNITY PLAN
Figure 2
5

SHEET INDEX

SHEET 1	COVER SHEET
SHEET 2	PLOT PLAN
SHEET 3	PLOT PLAN
SHEET 4	PLANT DETAILS
SHEET 5	RECLAMATION PLAN
SHEET 6	RECLAMATION PLAN
SHEET 7	SITE CROSS-SECTIONS
SHEET 8	SITE CROSS-SECTIONS
SHEET 9	FINAL PLAN
SHEET 10	REVEGETATION PLAN
SHEET 11	EASEMENT PLAN

PERMIT NUMBERS

PDS2018-MUP-18-023,
PDS2018-RP-18-001,
PDS2018-ER-18-19-007

LEGAL DESCRIPTION

PARCEL 'E' OF C/C 90-0204 TOGETHER WITH PARCELS 'A' AND 'B' OF B/C 92-0038.

PROJECT DESCRIPTION

THE PROJECT PROPOSES TO MINE SAND SUITABLE FOR PORTLAND CEMENT CONCRETE (PCC) USE OVER AN EXTENDED PERIOD WITHIN DESIGNATED PHASES. RECLAMATION OF THE MINED LANDS WILL FOLLOW AS SOON AS MINING OPERATIONS ARE COMPLETED IN A SPECIFIC AREA. RECLAMATION PROCEDURES WILL BE PHASED WITH MINING OPERATIONS AND WILL BE INITIATED IMMEDIATELY AFTER THE CONCLUSION OF RESOURCE EXTRACTION AND BACKFILLING TO DESIGN ELEVATIONS.

THE MAXIMUM LEVEL OF AGGREGATE PRODUCTION IS ANTICIPATED TO BE 570,000 TONS PER YEAR (TPY). THIS LEVEL OF PRODUCTION WILL BE REALIZED AFTER 1 YEAR OF SITE DEVELOPMENT. ACTUAL PRODUCTION LEVELS AND PROJECT LIFE WILL DEPEND ON MARKET DEMAND BUT WILL NOT EXCEED THE MAXIMUM PERMITTED PRODUCTION LEVEL. THE PROJECT IS EXPECTED TO CONTINUE FOR 12 YEARS. THIS WILL INCLUDE 10 YEARS OF EXTRACTION AND RECLAMATION OF PREVIOUS PHASES. RECLAMATION OF PREVIOUSLY DISTURBED AREAS IS ANTICIPATED TO BEGIN IN YEAR 2. VEGETATION MONITORING WILL CONTINUE FOR 5 YEARS AFTER MINING CEASES.

WORK TO BE DONE

THE IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE IN ACCORDANCE WITH THESE PLANS, THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (2021 EDITION), THE REGIONAL SUPPLEMENT AMENDMENTS (2012 EDITION), THE SAN DIEGO AREA REGIONAL STANDARD DRAWINGS (DATED JULY 2018), SAN DIEGO COUNTY GRADING ORDINANCE, CONSTRUCTION DEMOLITION AND RECYCLING ORDINANCE, LANDSCAPE ORDINANCE, FLOOD DAMAGE AND PREVENTION ORDINANCE, WATERSHED PROTECTION ORDINANCE, HYDROLOGY MANUAL, 2003, HYDRAULIC DESIGN MANUAL, 2014, RESOURCE PROTECTION ORDINANCE, AND BIOLOGICAL MITIGATION ORDINANCE.

OWNER

COTTONWOOD CAJON ES LLC
9255 DOHENY ROAD, #602
WEST HOLLYWOOD, CA 90069

PERMITTEE

GREG BROWN
NEW WEST DEVELOPMENT
565 N. MAGNOLIA AVE.,
EL CAJON, CA 92020

ASSESSOR'S PARCEL NUMBERS

THE PROJECT IS LOCATED ON TWENTY-TWO SEPARATE ASSESSORS PARCELS (APNS) AS PRESENTED IN FOLLOWING TABLE. PORTIONS OF THE PROPERTY WILL NOT BE MINED ALTHOUGH THOSE AREAS MAY BE DISTURBED AS PART OF THE RECLAMATION EFFORT FOR THE PROPERTY.

APN	TOTAL ACRES (APPROX.)	OWNER	ZONING	GENERAL PLAN LAND USE
506-021-1900	8.20	COTTONWOOD CAJON ES, LLC	S88	OS-R
506-020-5200	4.01	COTTONWOOD CAJON ES, LLC	S80	OS-R
518-012-1300	2.97	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-012-1400	46.61	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-0500	2.30	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-0600	5.58	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-0700	2.59	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-0800	0.69	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-1000	7.16	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-1200	6.88	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-1300	10.20	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-1500	4.04	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-2100	56.71	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-2200	19.43	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-010-1500	33.72	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-010-1700	14.59	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-010-2000	19.22	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-010-2100	1.10	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-010-3300	1.76	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-010-3400	7.17	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-010-3700	1.06	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-011-0300	23.80	COTTONWOOD CAJON ES, LLC	S88	OS-R
TOTALS:	279.79			

DEFINITIONS

S90	HOLDING AREA
S88	SPECIFIC PLAN AREA
S80	OPEN SPACE
OS-R	OPEN SPACE - RECREATION

FOR REVIEW ONLY

PERMITS

HABITAT LOSS PERMIT NO._____
INDUSTRIAL GENERAL PERMIT WDID NO._____
MAJOR USE PERMIT_____
RECLAMATION PLAN NO._____
PUBLIC IMPROVEMENT PLAN NO._____
LOMR NO._____
404 PERMIT NO._____
401 PERMIT NO._____
1602 PERMIT NO._____

PRIVATE CONTRACT

SHEET 1 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

RECLAMATION PLAN FOR:
COTTONWOOD SAND MINING PROJECT
CALIFORNIA COORDINATE INDEX: 210-1791

Approved COUNTY ENGINEER
BY: _____ Date

Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No. _____

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

FILE NO.

7/14/2024

SECTION: SITE ACCESS
NOT TO SCALE

DETAIL: PERIMETER FENCE
NOT TO SCALE

NOTES:
1. DG ROADS TO BE CONSTRUCTED PER SECTION 3.10 OF THE 'SAN DIEGO COUNTY STANDARDS FOR PRIVATE ROADS.'
2. ROADS TO BE TWO-WAY ROADS. IN EVENT OF PASSING, ONE VEHICLE WILL TEMPORARILY MOVE ONTO DIRT SURFACE ADJACENT TO ROAD UNTIL PASSING IS COMPLETE. SURFACE RUNOFF TO SHEET FLOW ACROSS OR ALONG ROADS AT 1% MINIMUM SLOPE. SHEET FLOW TO FOLLOW DRAINAGE PATTERN OF AREAS ADJACENT TO ROADS. THERE SHALL BE NO SURFACE PONDING ON ROADS.
3. ROADS WILL BE PRIVATE, SO EASEMENTS ARE NOT NEEDED.

DETAIL: TEMPORARY AND PERMANENT INTERNAL ROADS
NOT TO SCALE

LOW FLOW CHANNEL DETAIL
NOT TO SCALE

NOTES:
1. NEW ACCESS POINTS WILL REQUIRE OBTAINING AND ENCROACHMENT PERMIT FROM THE COUNTY. A DESIGN WILL BE SUBMITTED WITH THE ENCROACHMENT PERMIT APPLICATION.
2. NO HAUL TRUCKS WILL USE WILLOW GLEN ROAD TO MOVE BACKFILL TO PHASE 1. A LOW PROFILE ARTICULATED HAUL TRUCK OR TRACTOR TRAILER THAT WILL CLEAR THE BRIDGE WILL BE USED ONSITE FOR THAT PURPOSE.
3. PERIMETER MUP FENCING ALONG WILLOW GLEN DRIVE AND THE NORTHERLY 300' ALONG THE WESTERLY PROPERTY LINE TO BE 6' HIGH AND 3"-4" WELDED STEEL PIPE. THE REMAINDER PERIMETER MUP FENCING TO BE 4' HIGH FOUR-STRAND BARBED WIRE.
4. ALL EXISTING GOLF CART BRIDGES SHALL BE REMOVED AS PART OF FINAL RECLAMATION." SOME WILL BE USED TO TRANSPORT WASH FINES ACROSS THE CHANNEL FOR THE RECLAMATION OF THE SOUTHERN PHASES SO WE WILL NEED TO REMOVE THOSE AS PART OF FINAL RECLAMATION AFTER BACKFILLING IS DONE
5. SAFETY SIGNS WILL BE INSTALLED AS NEEDED AT SITE ENTRANCE AND ON PERIMETER FENCING.

6' PCC PERMANENT SITE ACCESS (MAIN ACCESS) TO BE GATED WITH TYPE ACCEPTABLE TO COUNTY. GATE WILL BE PLACED 20' FROM WILLOW GLEN TO ALLOW VEHICLE PARKING AT GATE. STREET TREES TO BE ADDED ALONG ACCESS DRIVEWAY. SIGNAGE WILL BE ADDED AT SITE ENTRANCE IN ACCORDANCE WITH MSHA.

SEE SHEET 11 FOR PROPERTY LINE DIMENSIONS

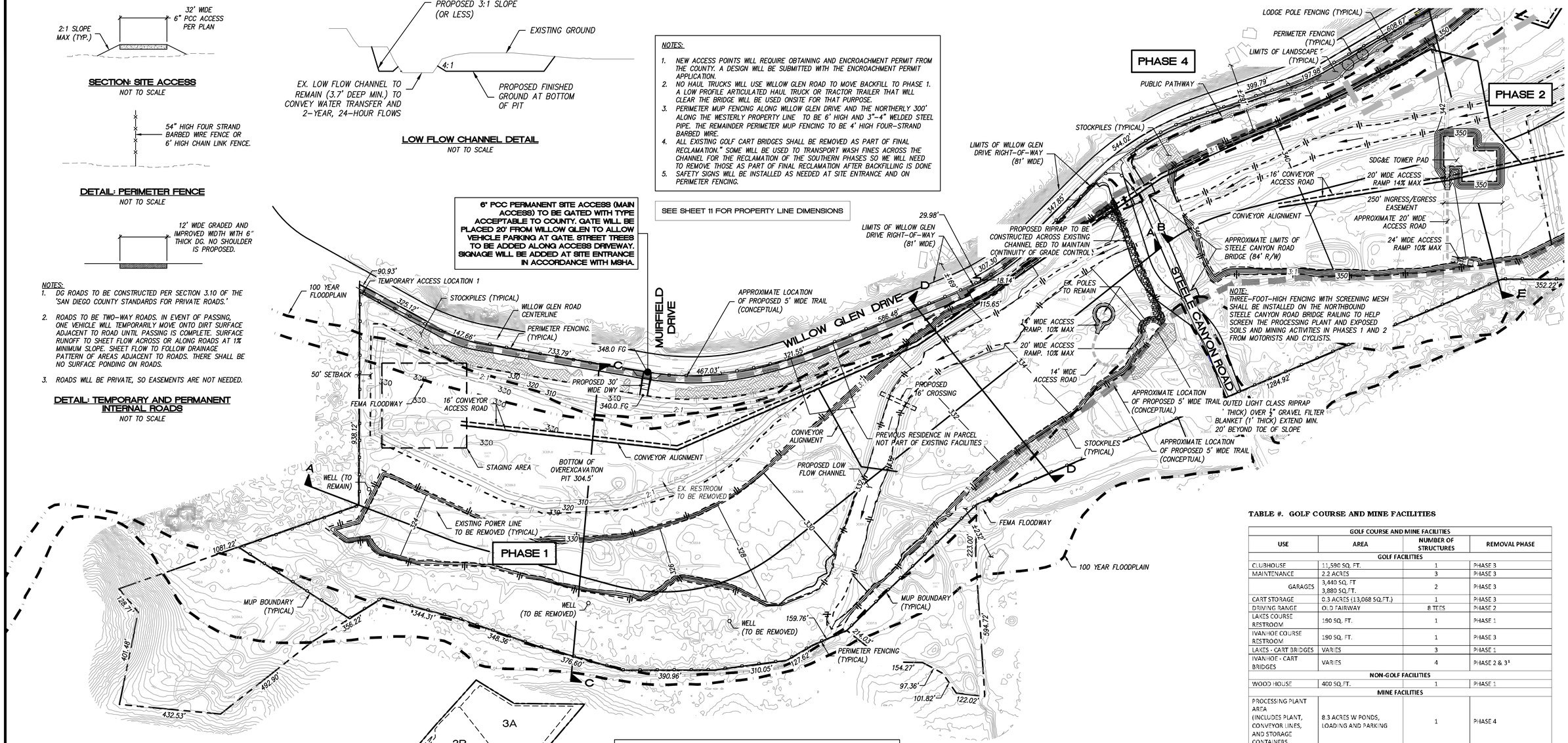
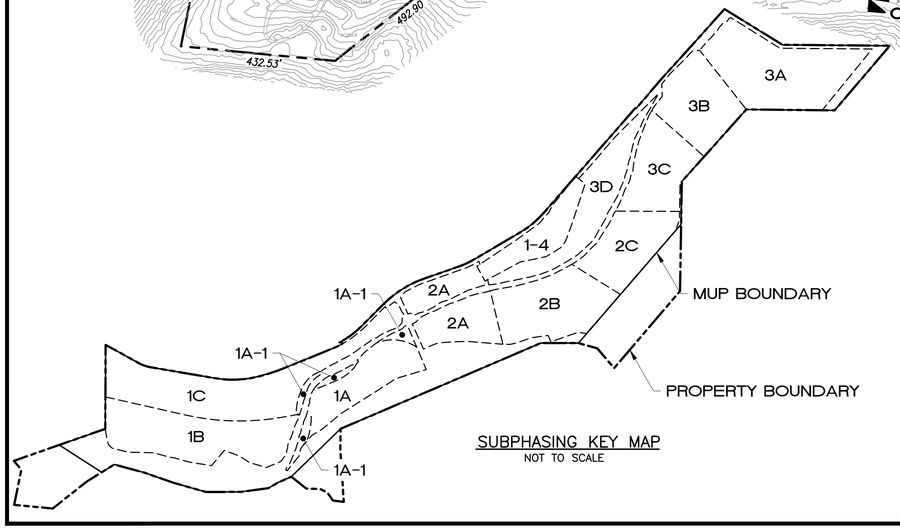


TABLE #. GOLF COURSE AND MINE FACILITIES

GOLF COURSE AND MINE FACILITIES			
USE	AREA	NUMBER OF STRUCTURES	REMOVAL PHASE
GOLF FACILITIES			
CLUBHOUSE	11,590 SQ. FT.	1	PHASE 3
MAINTENANCE	2.2 ACRES	3	PHASE 3
GARAGES	3,440 SQ. FT 3,880 SQ.FT.	2	PHASE 3
CART STORAGE	0.3 ACRES (13,068 SQ.FT.)	1	PHASE 3
DRIVING RANGE	0.0 FAIRWAY	8 TEES	PHASE 2
LAKES COURSE RESTROOM	190 SQ. FT.	1	PHASE 1
IVANHOE COURSE RESTROOM	190 SQ. FT.	1	PHASE 3
LAKES - CART BRIDGES	VARIES	3	PHASE 1
IVANHOE - CART BRIDGES	VARIES	4	PHASE 2 & 3[1]
NON-GOLF FACILITIES			
WOOD HOUSE	400 SQ.FT.	1	PHASE 1
MINE FACILITIES			
PROCESSING PLANT AREA (INCLUDES PLANT, CONVEYOR LINES, AND STORAGE CONTAINERS	8.3 ACRES W PONDS, LOADING AND PARKING	1	PHASE 4
LOADOUT AREA (INCLUDES SCALES, SCALE HOUSE, OFFICE KIOSK)	1.9 OF 8 ACRES	1	PHASE 4
MINE PARKING	0.15 OF 8 ACRES	15 SPACES	END OF PROJECT
FENCING, GATES AND SIGNS	NA		WILL REMAIN ON PROPERTY

[1] ONE CART BRIDGE WOULD BE REMOVED DURING PHASE 2. THE OTHER 3 BRIDGES ON IVANHOE WILL BE REMOVED AS THEY ARE NO LONGER NEEDED.



SUBPHASING KEY MAP
NOT TO SCALE

UTILITY NOTES:
1. SDG&E NOTE: A MINIMUM 30' WORKING PAD SHALL BE MAINTAINED AROUND THE SDG&E POWER POLES. THE WEST PAD SHALL SLOPE AT 1% TO THE PAD RAMP. THE EAST PAD SHALL SLOPE 1% TO THE ADJACENT GROUND TO THE SOUTHEAST. EACH SDG&E ACCESS RAMP SHALL HAVE A 2% INWARD CROSS-SLOPE TO PREVENT STORM RUNOFF FROM FLOWING OVER THE RAMP EDGE. THE SDG&E ACCESS ROAD BETWEEN RAMPS SHALL HAVE A 2% CROSS-SLOPE DOWN TOWARDS THE WEST. THE ACCESS ROAD SHALL HAVE A MINIMUM 75' TURN RADIUS.
2. CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY. NO GRADING WITHIN 20' OF EXISTING STEEL LATTICE TOWER FOUNDATIONS & NO GRADING WITHIN 30' OF EXISTING STEEL POLE FOUNDATION.

SCALE: 1" = 200'
0 100 200 400

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

PERMITS
HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

BENCHMARK
DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

PRIVATE CONTRACT

SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	SHEETS
2		11

PLOT PLAN FOR:
COTTONWOOD SAND MINING PROJECT
CALIFORNIA COORDINATE INDEX: 210-1791

Approved
COUNTY ENGINEER
BY:
Date

Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

FOR REVIEW ONLY

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FILE NO.

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NOTES:

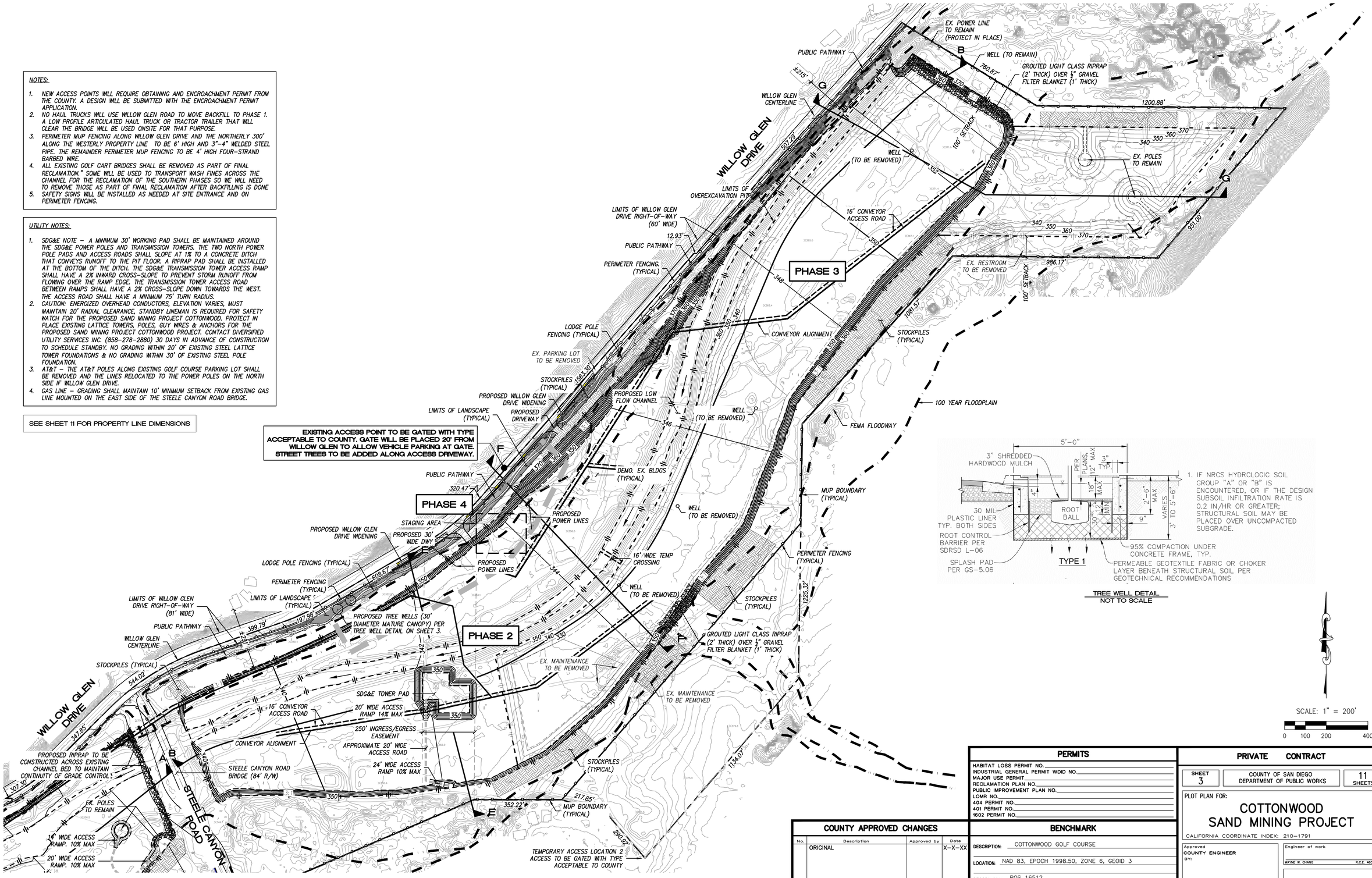
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3. PERIMETER MUP FENCING ALONG WILLOW GLEN DRIVE AND THE NORTHERLY 300' ALONG THE WESTERLY PROPERTY LINE TO BE 6' HIGH AND 3"-4" WELDED STEEL PIPE. THE REMAINDER PERIMETER MUP FENCING TO BE 4' HIGH FOUR-STRAND BARBED WIRE.
4. ALL EXISTING GOLF CART BRIDGES SHALL BE REMOVED AS PART OF FINAL RECLAMATION." SOME WILL BE USED TO TRANSPORT WASH FINES ACROSS THE CHANNEL FOR THE RECLAMATION OF THE SOUTHERN PHASES SO WE WILL NEED TO REMOVE THOSE AS PART OF FINAL RECLAMATION AFTER BACKFILLING IS DONE
5. SAFETY SIGNS WILL BE INSTALLED AS NEEDED AT SITE ENTRANCE AND ON PERIMETER FENCING.

UTILITY NOTES:

1. SDG&E NOTE – A MINIMUM 30' WORKING PAD SHALL BE MAINTAINED AROUND THE SDG&E POWER POLES AND TRANSMISSION TOWERS. THE TWO NORTH POWER POLE PADS AND ACCESS ROADS SHALL SLOPE AT 1% TO A CONCRETE DITCH THAT CONVEYS RUNOFF TO THE PIT FLOOR. A RIPRAP PAD SHALL BE INSTALLED AT THE BOTTOM OF THE DITCH. THE SDG&E TRANSMISSION TOWER ACCESS RAMP SHALL HAVE A 2% INWARD CROSS-SLOPE TO PREVENT STORM RUNOFF FROM FLOWING OVER THE RAMP EDGE. THE TRANSMISSION TOWER ACCESS ROAD BETWEEN RAMPS SHALL HAVE A 2% CROSS-SLOPE DOWN TOWARDS THE WEST. THE ACCESS ROAD SHALL HAVE A MINIMUM 75' TURN RADIUS.
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3. AT&T – THE AT&T POLES ALONG EXISTING GOLF COURSE PARKING LOT SHALL BE REMOVED AND THE LINES RELOCATED TO THE POWER POLES ON THE NORTH SIDE IF WILLOW GLEN DRIVE.
4. GAS LINE – GRADING SHALL MAINTAIN 10' MINIMUM SETBACK FROM EXISTING GAS LINE MOUNTED ON THE EAST SIDE OF THE STEELE CANYON ROAD BRIDGE.

SEE SHEET 11 FOR PROPERTY LINE DIMENSIONS

EXISTING ACCESS POINT TO BE GATED WITH TYPE ACCEPTABLE TO COUNTY. GATE WILL BE PLACED 20' FROM WILLOW GLEN TO ALLOW VEHICLE PARKING AT GATE. STREET TREES TO BE ADDED ALONG ACCESS DRIVEWAY.



1. IF NRCS HYDROLOGIC SOIL GROUP "A" OR "B" IS ENCOUNTERED, OR IF THE DESIGN SUBSOIL INFILTRATION RATE IS 0.2 IN/HR OR GREATER; STRUCTURAL SOIL MAY BE PLACED OVER UNCOMPACTED SUBGRADE.

TREE WELL DETAIL
NOT TO SCALE

SCALE: 1" = 200'

0 100 200 400

FOR REVIEW ONLY

COUNTY APPROVED CHANGES			
No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

PRIVATE CONTRACT

SHEET 3 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

PLOT PLAN FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210-1791

Approved COUNTY ENGINEER
BY: Date

Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FILE NO.

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8' X 20' Construction Office Floor Plan

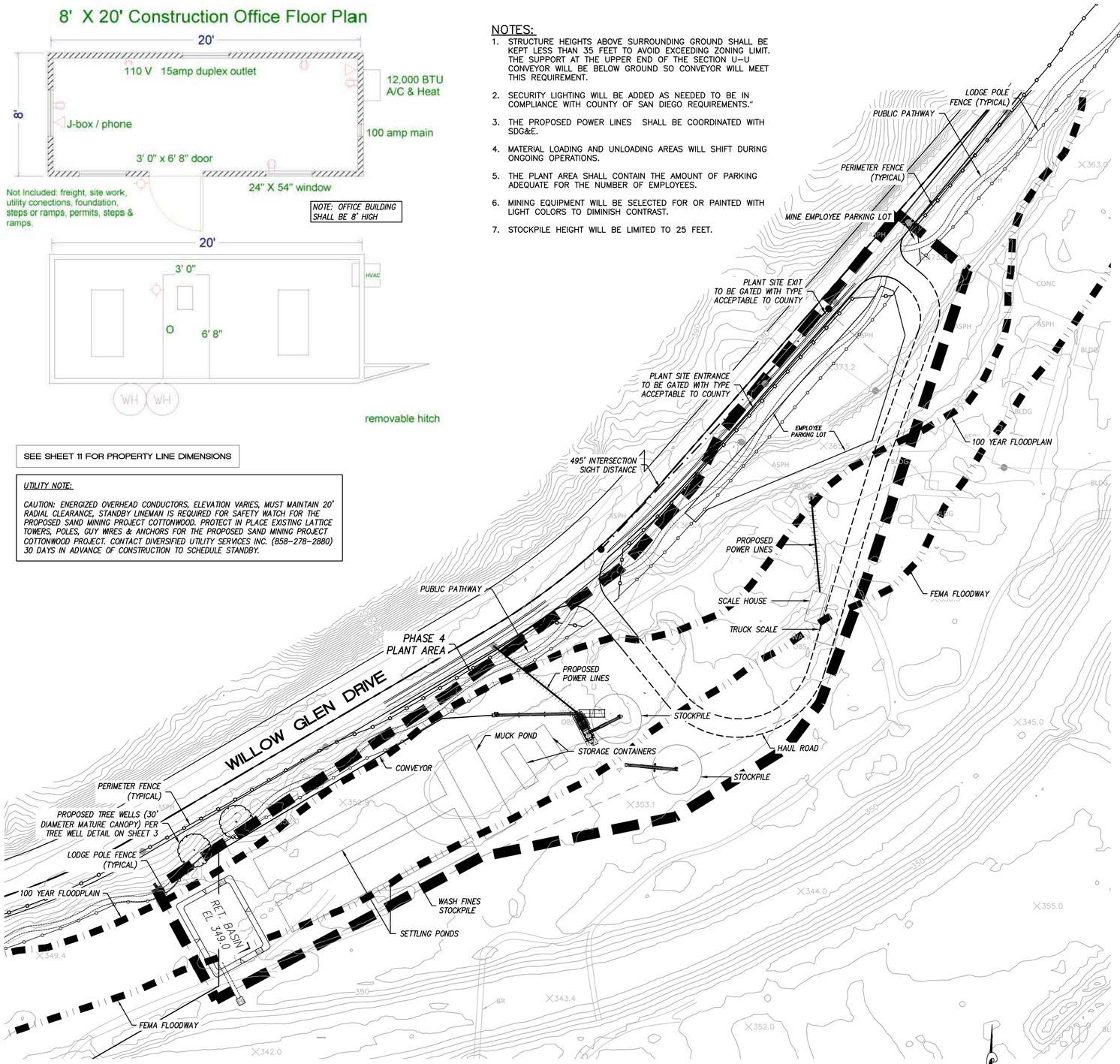
SEE SHEET 11 FOR PROPERTY LINE DIMENSIONS

UTILITY NOTE:

CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY.

NOTES:

1. STRUCTURE HEIGHTS ABOVE SURROUNDING GROUND SHALL BE KEPT LESS THAN 35 FEET TO AVOID EXCEEDING ZONING LIMIT. THE SUPPORT AT THE UPPER END OF THE SECTION U–U CONVEYOR WILL BE BELOW GROUND SO CONVEYOR WILL MEET THIS REQUIREMENT.
2. SECURITY LIGHTING WILL BE ADDED AS NEEDED TO BE IN COMPLIANCE WITH COUNTY OF SAN DIEGO REQUIREMENTS."
3. THE PROPOSED POWER LINES SHALL BE COORDINATED WITH SDG&E.
4. MATERIAL LOADING AND UNLOADING AREAS WILL SHIFT DURING ONGOING OPERATIONS.
5. THE PLANT AREA SHALL CONTAIN THE AMOUNT OF PARKING ADEQUATE FOR THE NUMBER OF EMPLOYEES.
6. MINING EQUIPMENT WILL BE SELECTED FOR OR PAINTED WITH LIGHT COLORS TO DIMINISH CONTRAST.
7. STOCKPILE HEIGHT WILL BE LIMITED TO 25 FEET.

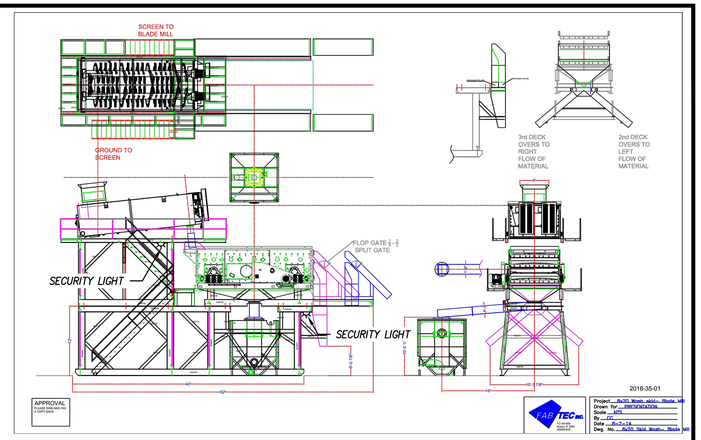


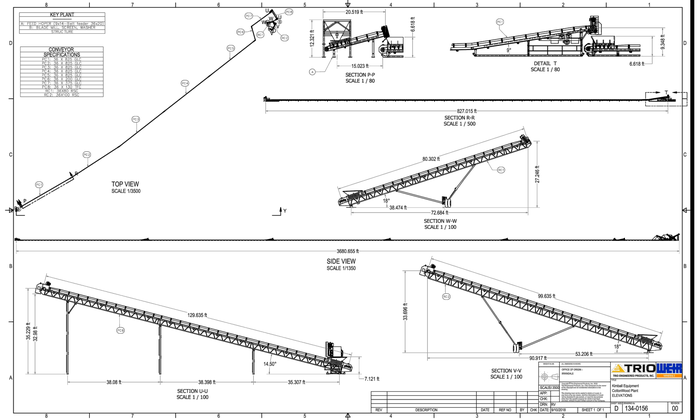
PLANT AREA DETAIL

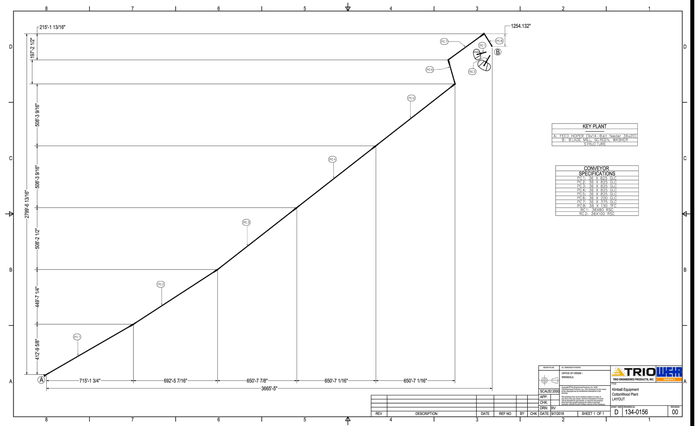
SCALE: 1" = 80'

SCALE: 1" = 60'

0 30 60 120







FOR REVIEW ONLY

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date
	ORIGINAL		X–X–XX

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
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DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
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PRIVATE CONTRACT

SHEET	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	SHEETS
4		11

PLOT PLAN FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210–1791

Approved
COUNTY ENGINEER
BY:
Date

Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

FILE NO.

7/15/2024 8:31 PM

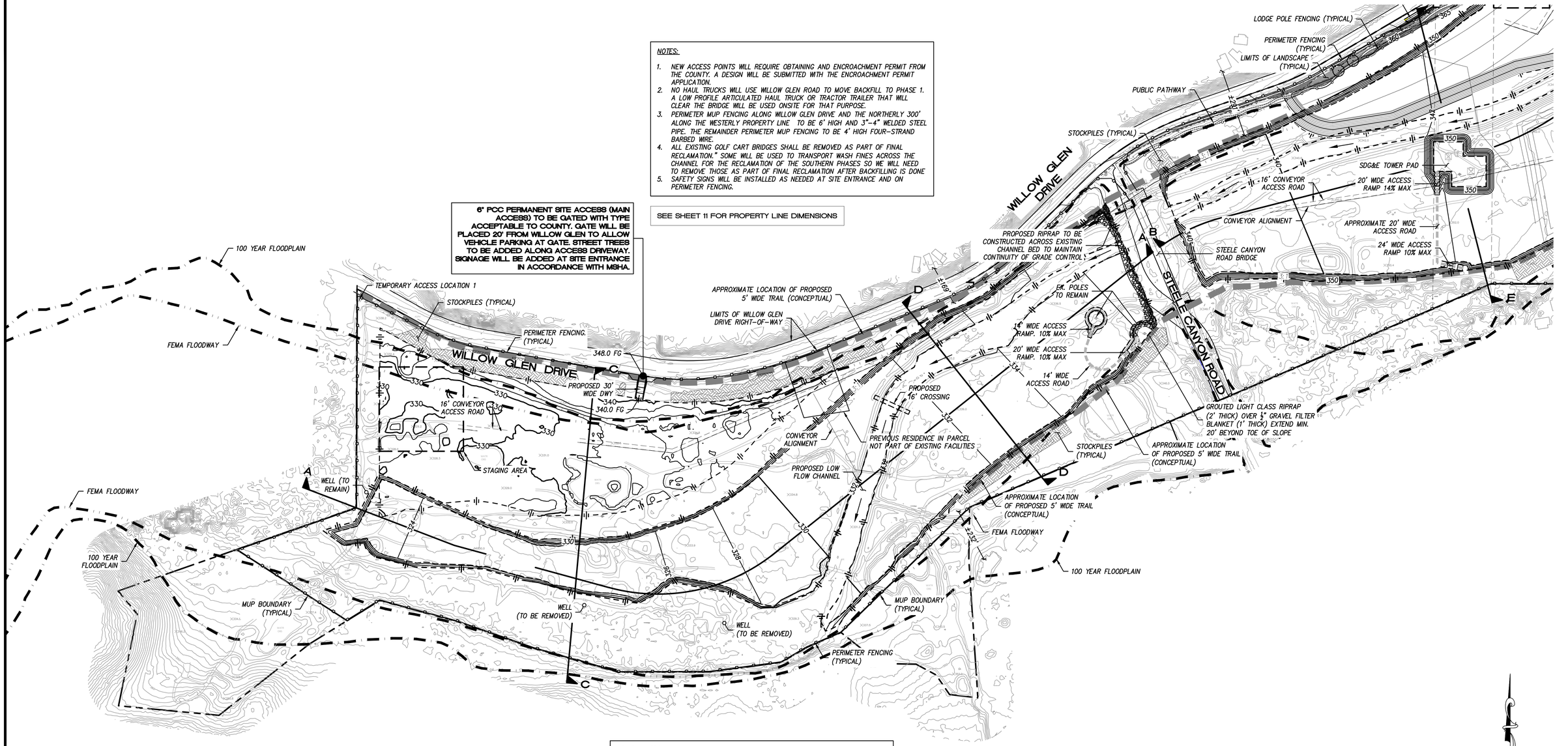
ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

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6' PCC PERMANENT SITE ACCESS (MAIN ACCESS) TO BE GATED WITH TYPE ACCEPTABLE TO COUNTY. GATE WILL BE PLACED 20' FROM WILLOW GLEN TO ALLOW VEHICLE PARKING AT GATE. STREET TREES TO BE ADDED ALONG ACCESS DRIVEWAY. SIGNAGE WILL BE ADDED AT SITE ENTRANCE IN ACCORDANCE WITH MSHA.

SEE SHEET 11 FOR PROPERTY LINE DIMENSIONS



UTILITY NOTES:

1. SDG&E NOTE: A MINIMUM 30' WORKING PAD SHALL BE MAINTAINED AROUND THE SDG&E POWER POLES. THE WEST PAD SHALL SLOPE AT 1% TO THE PAD RAMP. THE EAST PAD SHALL SLOPE 1% TO THE ADJACENT GROUND TO THE SOUTHEAST. EACH SDG&E ACCESS RAMP SHALL HAVE A 2% INWARD CROSS–SLOPE TO PREVENT STORM RUNOFF FROM FLOWING OVER THE RAMP EDGE. THE SDG&E ACCESS ROAD BETWEEN RAMPS SHALL HAVE A 2% CROSS–SLOPE DOWN TOWARDS THE WEST. THE ACCESS ROAD SHALL HAVE A MINIMUM 75' TURN RADIUS.
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SCALE: 1" = 200'

0 100 200 400

FOR REVIEW ONLY

COUNTY APPROVED CHANGES			
No.	Description	Approved by	Date
	ORIGINAL		X–X–XX

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
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ELEVATION: 488.50 FEET DATUM: NGVD 29

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

PRIVATE CONTRACT

SHEET 5 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

RECLAMATION PLAN FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210–1791

Approved COUNTY ENGINEER BY: Date

Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692–0760

FILE NO.

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NOTES:

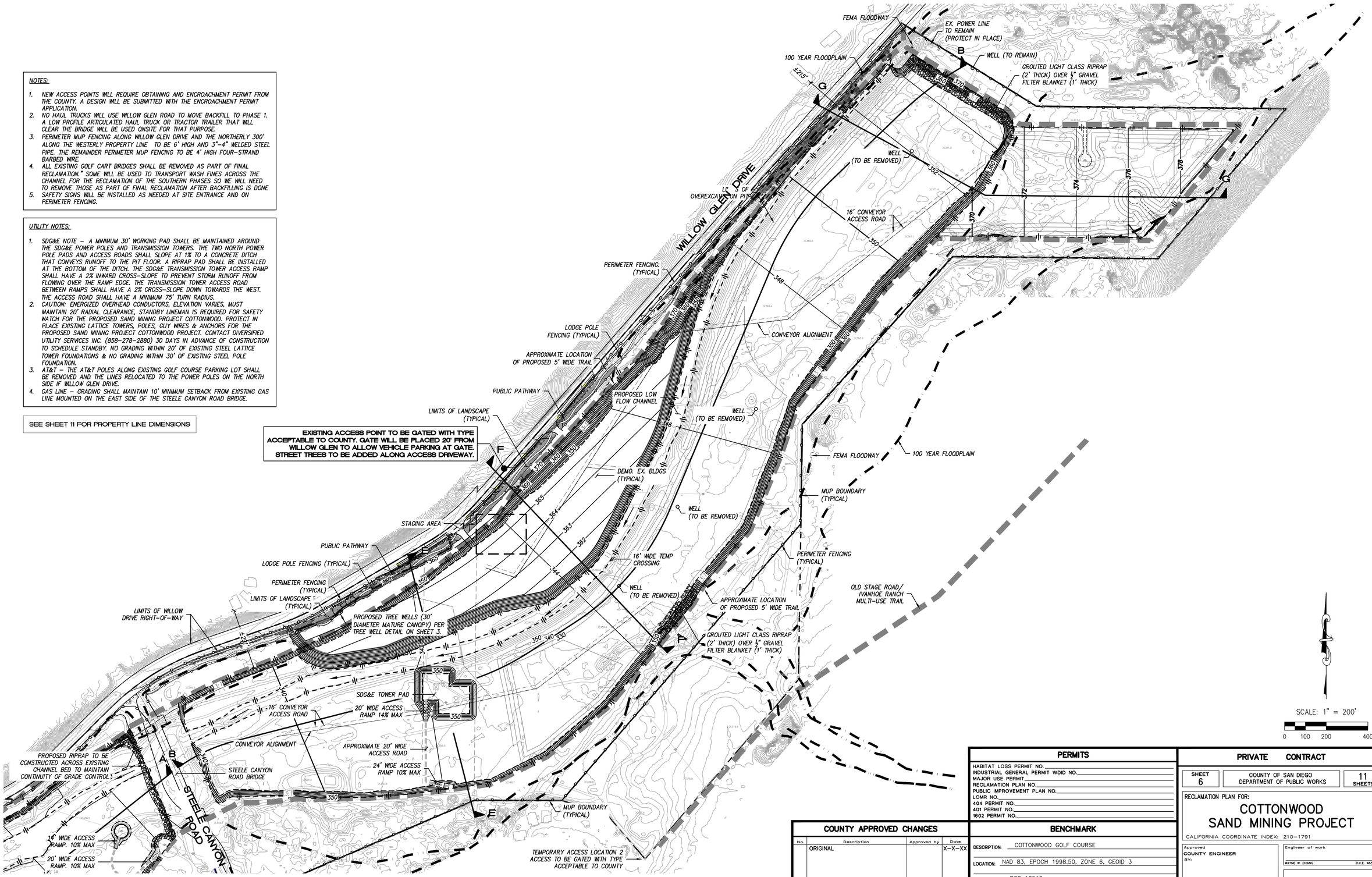
1. NEW ACCESS POINTS WILL REQUIRE OBTAINING AND ENCROACHMENT PERMIT FROM THE COUNTY. A DESIGN WILL BE SUBMITTED WITH THE ENCROACHMENT PERMIT APPLICATION.
2. NO HAUL TRUCKS WILL USE WILLOW GLEN ROAD TO MOVE BACKFILL TO PHASE 1. A LOW PROFILE ARTICULATED HAUL TRUCK OR TRACTOR TRAILER THAT WILL CLEAR THE BRIDGE WILL BE USED ONSITE FOR THAT PURPOSE.
3. PERIMETER MUP FENCING ALONG WILLOW GLEN DRIVE AND THE NORTHERLY 300' ALONG THE WESTERLY PROPERTY LINE TO BE 6' HIGH AND 3"-4" WELDED STEEL PIPE. THE REMAINDER PERIMETER MUP FENCING TO BE 4' HIGH FOUR-STRAND BARBED WIRE.
4. ALL EXISTING GOLF CART BRIDGES SHALL BE REMOVED AS PART OF FINAL RECLAMATION." SOME WILL BE USED TO TRANSPORT WASH FINES ACROSS THE CHANNEL FOR THE RECLAMATION OF THE SOUTHERN PHASES SO WE WILL NEED TO REMOVE THOSE AS PART OF FINAL RECLAMATION AFTER BACKFILLING IS DONE
5. SAFETY SIGNS WILL BE INSTALLED AS NEEDED AT SITE ENTRANCE AND ON PERIMETER FENCING.

UTILITY NOTES:

1. SDG&E NOTE – A MINIMUM 30' WORKING PAD SHALL BE MAINTAINED AROUND THE SDG&E POWER POLES AND TRANSMISSION TOWERS. THE TWO NORTH POWER POLE PADS AND ACCESS ROADS SHALL SLOPE AT 1% TO A CONCRETE DITCH THAT CONVEYS RUNOFF TO THE PIT FLOOR. A RIPRAP PAD SHALL BE INSTALLED AT THE BOTTOM OF THE DITCH. THE SDG&E TRANSMISSION TOWER ACCESS RAMP SHALL HAVE A 2% INWARD CROSS-SLOPE TO PREVENT STORM RUNOFF FROM FLOWING OVER THE RAMP EDGE. THE TRANSMISSION TOWER ACCESS ROAD BETWEEN RAMPS SHALL HAVE A 2% CROSS-SLOPE DOWN TOWARDS THE WEST. THE ACCESS ROAD SHALL HAVE A MINIMUM 75' TURN RADIUS.
2. CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY. NO GRADING WITHIN 20' OF EXISTING STEEL LATTICE TOWER FOUNDATIONS & NO GRADING WITHIN 30' OF EXISTING STEEL POLE FOUNDATION.
3. AT&T – THE AT&T POLES ALONG EXISTING GOLF COURSE PARKING LOT SHALL BE REMOVED AND THE LINES RELOCATED TO THE POWER POLES ON THE NORTH SIDE IF WILLOW GLEN DRIVE.
4. GAS LINE – GRADING SHALL MAINTAIN 10' MINIMUM SETBACK FROM EXISTING GAS LINE MOUNTED ON THE EAST SIDE OF THE STEELE CANYON ROAD BRIDGE.

SEE SHEET 11 FOR PROPERTY LINE DIMENSIONS

EXISTING ACCESS POINT TO BE GATED WITH TYPE ACCEPTABLE TO COUNTY. GATE WILL BE PLACED 20' FROM WILLOW GLEN TO ALLOW VEHICLE PARKING AT GATE. STREET TREES TO BE ADDED ALONG ACCESS DRIVEWAY.



FOR REVIEW ONLY

COUNTY APPROVED CHANGES			
No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

PRIVATE CONTRACT

SHEET 6 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

RECLAMATION PLAN FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210-1791

Approved COUNTY ENGINEER
BY:
Date

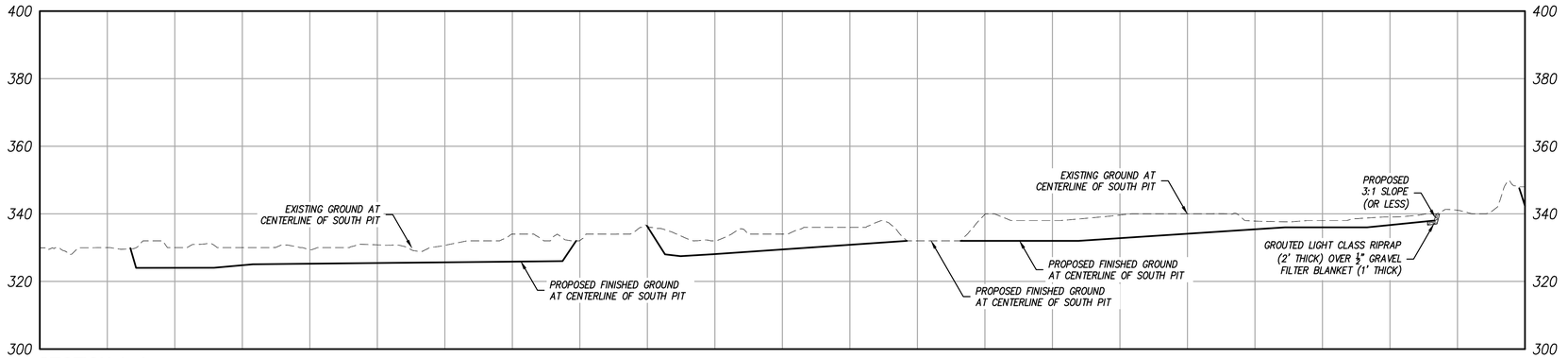
Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FILE NO.

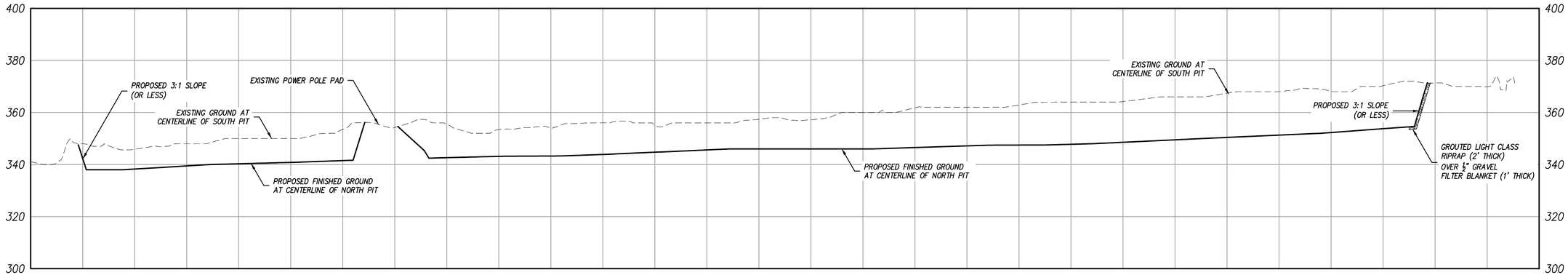
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SECTION A-A
SCALE HORIZ: 1" = 200' VERT: 1"=20'

UTILITY NOTE:

CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY. NO GRADING WITHIN 20' OF EXISTING STEEL LATTICE TOWER FOUNDATIONS & NO GRADING WITHIN 30' OF EXISTING STEEL POLE FOUNDATION.



SECTION B-B
SCALE HORIZ: 1" = 200' VERT: 1"=20'

FOR REVIEW ONLY

SCALE: 1" = 200'

0 100 200 400

COUNTY APPROVED CHANGES			
No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

PRIVATE CONTRACT

SHEET 7 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

SITE CROSS-SECTIONS FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210-1791

Approved
COUNTY ENGINEER
BY:
Date

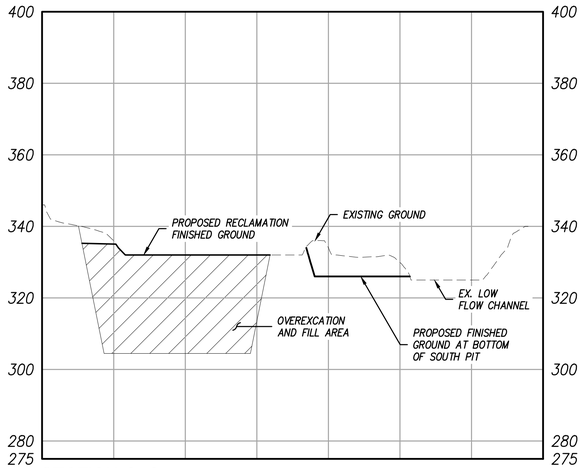
Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

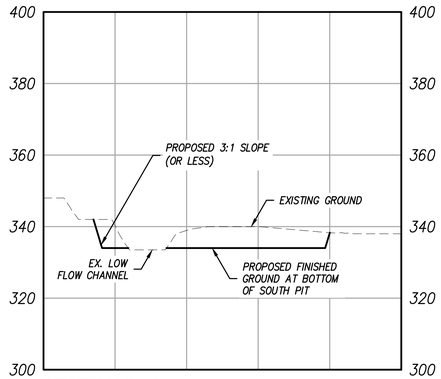
ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FILE NO.

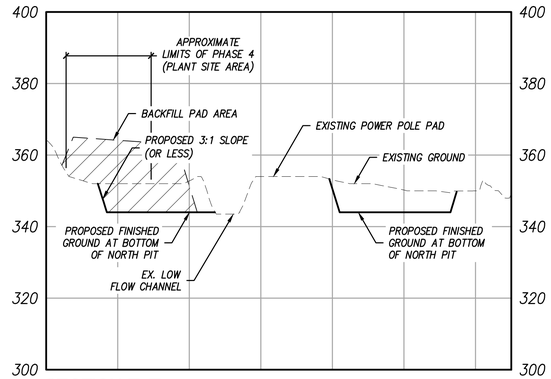
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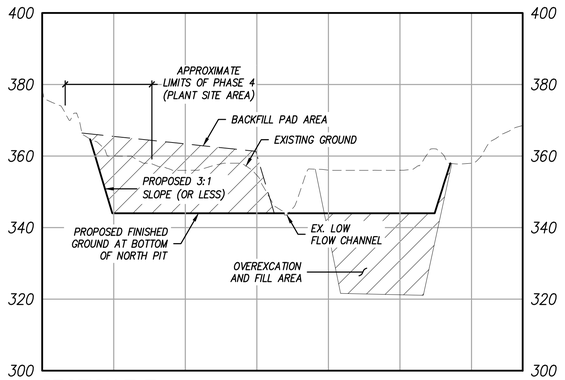
SECTION C-C
SCALE HORIZ: 1" = 200' VERT: 1"=20'



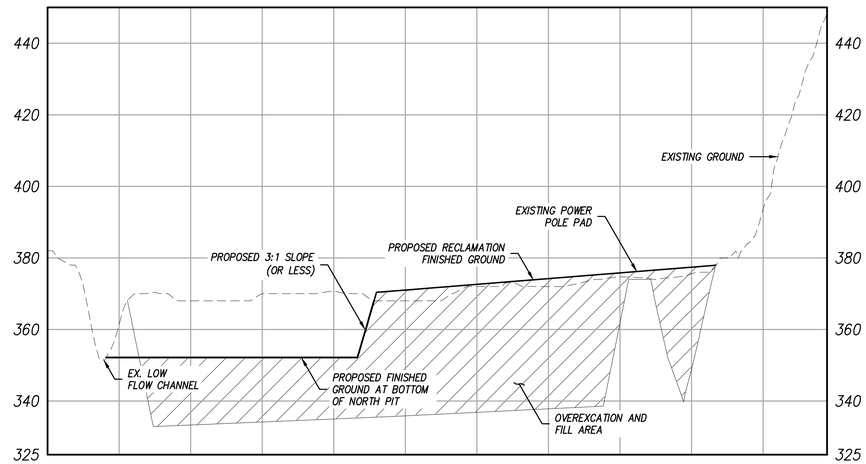
SECTION D-D
SCALE HORIZ: 1" = 200' VERT: 1"=20'



SECTION E-E
SCALE HORIZ: 1" = 200' VERT: 1"=20'



SECTION F-F
SCALE HORIZ: 1" = 200' VERT: 1"=20'



SECTION G-G
SCALE HORIZ: 1" = 200' VERT: 1"=20'

UTILITY NOTE:

CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY. NO GRADING WITHIN 20' OF EXISTING STEEL LATTICE TOWER FOUNDATIONS & NO GRADING WITHIN 30' OF EXISTING STEEL POLE FOUNDATION.

FOR REVIEW ONLY

SCALE: 1" = 200'

0 100 200 400

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

PRIVATE CONTRACT

SHEET 8 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

SITE CROSS-SECTIONS FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210-1791

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

Approved
COUNTY ENGINEER
BY:
Date

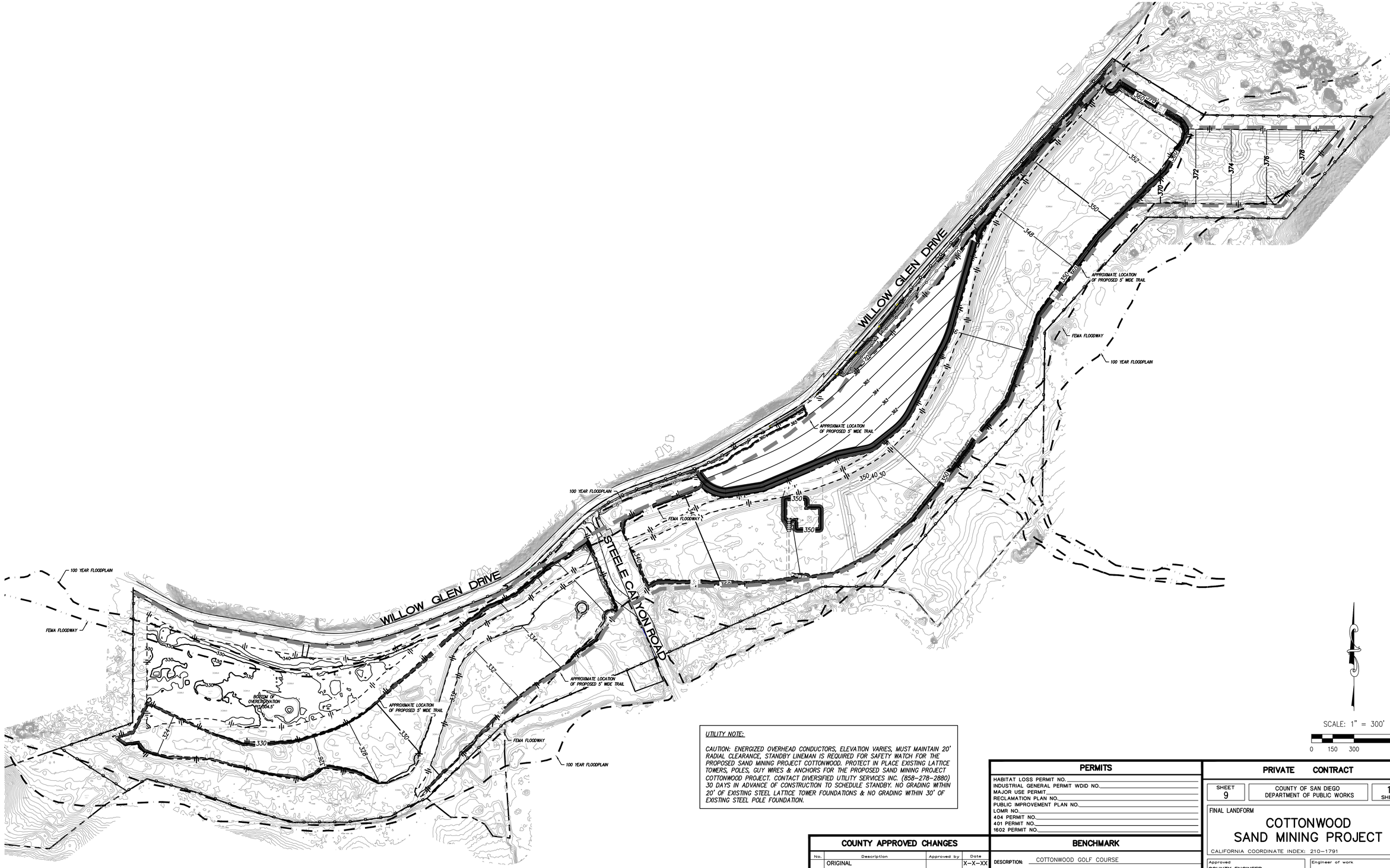
Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FILE NO.

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FOR REVIEW ONLY

UTILITY NOTE:

CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY. NO GRADING WITHIN 20' OF EXISTING STEEL LATTICE TOWER FOUNDATIONS & NO GRADING WITHIN 30' OF EXISTING STEEL POLE FOUNDATION.

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

PRIVATE CONTRACT

SHEET 9 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

FINAL LANDFORM

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210-1791

Approved
COUNTY ENGINEER
BY:
Date

Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FILE NO.

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RIPARIAN FOREST PLANT PALETTE
(15.39 acres)

Species	Common Name	Spacing on Center (feet)	Grouping Size	Number Per Acre
Container Plantings[1]				
Artemisia dracunculus	tarragon	5	5	100
Baccharis salicifolia	mule fat	6	10	200
Distichlis spicata	saltgrass	10	3	150
Iva hayesiana	San Diego marsh elder	5	5	120
Platanus racemosa	western sycamore	15	3	50
Populus fremonti ssp. *fremonti*	western cottonwood	15	5	50
Quercus agrifolia	California live oak	15	3	50
Rosa californica	California wild rose	5	3	100
Salix exigua	sand bar willow	8	5	120
Salix gooddingii	black willow	12	5	150
Salix laevigata	red willow	12	5	180
Salix lasiolepis	arroyo willow	12	5	180
Sambucus nigra	blue elderberry	10	3	50
			Total	**1,500**

Scientific Name	Common Name	% Purity/ Germination	Pounds Per Acre
Seed Mixture[1]			
Ambrosia psilostachya	western ragweed	45/45	4
Anemopsis californica	yerba mansa	55/80	1
Artemisia douglasiana	Douglas mugwort	15/40	3
Artemisia palmeri	Palmer's sagebrush	20/50	2
Baccharis salicifolia	mule fat	10/20	3
Baccharis sarothroides	broom baccharis	7/42	1
Bolboschoenus maritimus	alkali bulrush	90/60	1
Eleocharis macrostachys	pale spike-rush	95/60	1
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	95/80	1
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5
Oenothera elata ssp. *hookeri*	evening primrose	98/84	0.5
Pluchea odorata	salt marsh fleabane	30/40	2
		Total	**20.0***

[1] The quantities and amount of container stock and seed to be order would be determined following reclamation of each phase/subphase based on the exact of area disturbed as part of mining activities. Substitutions require approval of the Restoration Specialist.

* No less than 20 lbs. per acre of seed shall be installed.

STREAMBED (EMERGENT WETLAND) SEED MIXTURE
(9.49 acres)

Scientific Name	Common Name	%Purity/ Germination	Pounds per Acre
Seed Mixture[1]			
Anemopsis californica	yerba mansa	55/80	1
Artemisia douglasiana	Douglas' sagewort	15/40	3
Bolboschoenus maritimus	alkali bulrush	90/60	1
Cyperus eragrostis	tall flatsedge	80/75	1
Eleocharis macrostachys	pale spike-rush	95/60	1
Erythranthe cardinalis (*Mimulus cardinalis*)	Cardinal monkey flower	5/64	0.5
Erythranthe guttata (*Mimulus guttatus*)	seep monkey flower	10/69	0.5
Euthamia occidentalis	western goldenrod	24/45	1
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5
Pluchea odorata	salt marsh fleabane	30/40	2
		Total	**11.5***

[1] The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities. Substitutions require approval of the Restoration Specialist.

* No less than 10 lbs. per acre of seed shall be installed.

EROSION CONTROL SEED MIX
(97.90 acres)

Species	Common Name	Percent Purity/ Germination	Pounds Per Acre[1]
Ambrosia psilostachya	western ragweed	45/45	6
Bromus carinatus	California bromegrass	95/90	8
Vulpia microstachys	small fescue	98/75	20
Plantago insularis	plantain	90/80	20
		Total	**54***

[1] The final quantities and amount of container stock and seed to be order would be determined following reclamation of each phase/subphase based on the exact of area disturbed as part of mining activities. Substitutions require approval of the Restoration Specialist.

* No less than 50 lbs. per acre of seed shall be installed.

RIPARIAN SCRUB PLANT PALETTE
(84.84 acres)

Scientific Name	Common Name	Spacing on Center (ft.)	Grouping Size	Number Per Acre
Container Stock[1]				
Ambrosia pumila [2,3]	San Diego ambrosia	5	5	25
Artemisia dracunculus	tarragon	5	5	200
Asclepias fascicularis	narrow leaf milkweed	5	3	50
Baccharis salicifolia	mule fat	6	10	220
Croton californicus	California croton	5	5	200
Distichlis spicata	saltgrass	10	3	200
Ericameria palmeri var. *palmeri* [3]	Palmer's goldenbush	5	5	50
Iva hayesiana	San Diego marsh elder	5	5	200
Platanus racemosa	western sycamore	15	3	30
Populus fremonti ssp. *fremonti*	western cottonwood	15	3	30
Rosa californica	California wild rose	5	3	50
Salix exigua	sand bar willow	8	5	180
Salix gooddingii	black willow	12	5	100
Salix laevigata	red willow	12	5	30
Salix lasiolepis	arroyo willow	12	5	30
Sambucus nigra	blue elderberry	10	3	100
			Total	**1,695**

Scientific Name	Common Name	%Purity/ Germination	Pounds Per Acre
Seed Mixture[1]			
Ambrosia psilostachya	western ragweed	45/45	4
Artemisia douglasiana	Douglas' sagewort	15/40	3
Artemisia palmeri	Palmer's sagebrush	20/50	2
Baccharis salicifolia	mule fat	10/20	3
Baccharis sarothroides	broom baccharis	7/42	1
Bolboschoenus maritimus	alkali bulrush	90/60	1
Croton californicus	California croton	90/40	1
Eleocharis macrostachys	pale spike-rush	95/60	1
Isocoma menziesii	goldenbush	18/40	1
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	95/80	1
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5
Oenothera elata ssp. *hookeri*	evening primrose	98/84	0.5
Pluchea odorata	salt marsh fleabane	30/40	2
		Total	**21.0***

[1] The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities. Substitutions require approval of the Restoration Specialist.

[2] If available at a nursery; should be installed in the higher elevation portions of this habitat (i.e., closer to the upland slopes).

[3] Special status species.

* No less than 20 lbs. per acre of seed shall be installed.

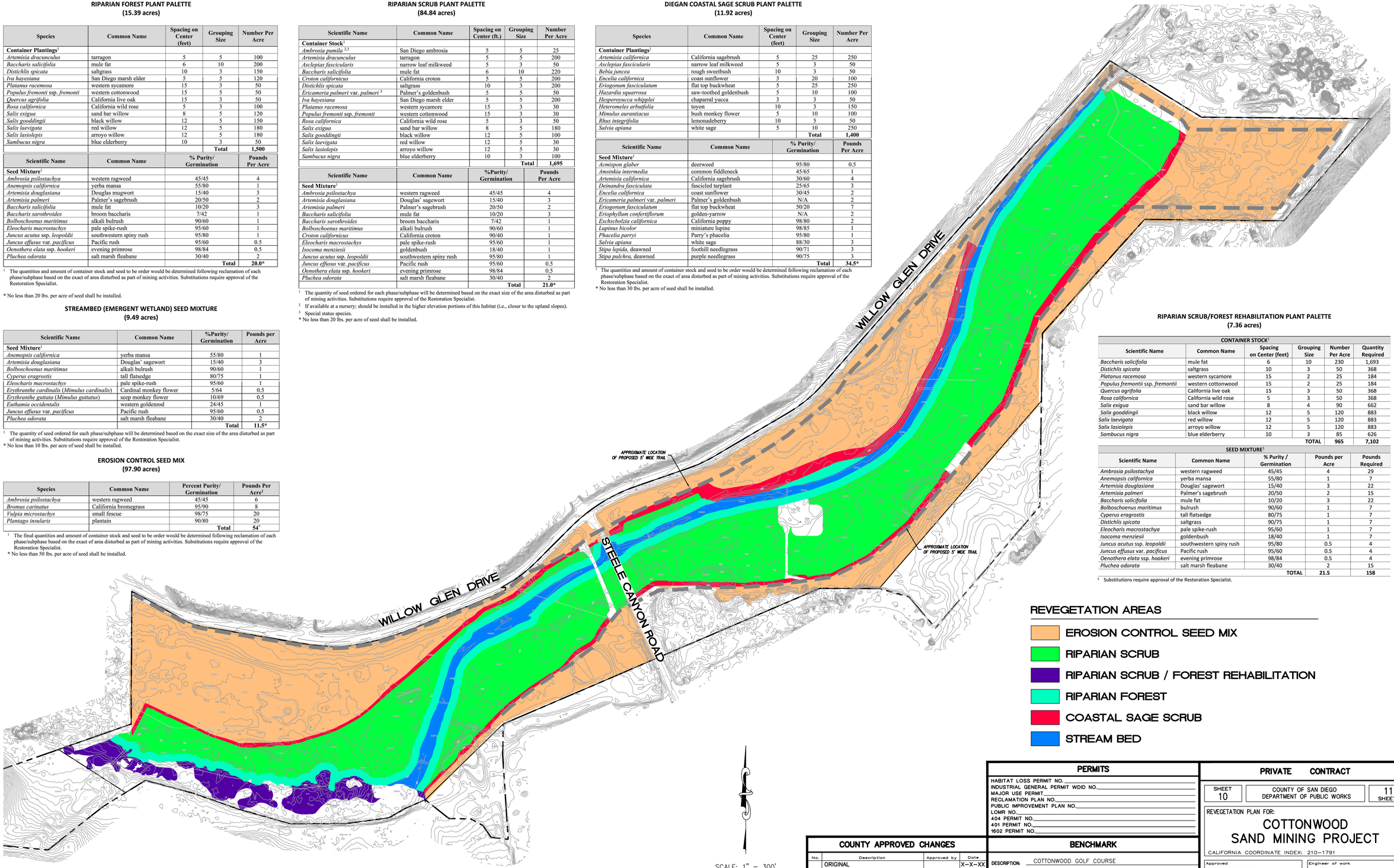
DIEGAN COASTAL SAGE SCRUB PLANT PALETTE
(11.92 acres)

Species	Common Name	Spacing on Center (feet)	Grouping Size	Number Per Acre
Container Plantings[1]				
Artemisia californica	California sagebrush	5	25	250
Asclepias fascicularis	narrow leaf milkweed	5	3	50
Bebbia juncea	rough sweetbush	10	3	50
Encelia californica	coast sunflower	5	20	100
Eriogomum fasciculatum	flat top buckwheat	5	25	250
Hazardia squarrosa	saw-toothed goldenbush	5	10	100
Hesperoyucca whipplei	chaparral yucca	3	3	50
Heteromeles arbutfolia	toyon	10	3	150
Mimulus aurantiacus	bush monkey flower	5	10	100
Rhus integrifolia	lemonadeberry	10	5	50
Salvia apiana	white sage	5	10	250
			Total	**1,400**

Scientific Name	Common Name	% Purity/ Germination	Pounds Per Acre
Seed Mixture[1]			
Acmispon glaber	deerweed	95/80	0.5
Amsinkia intermedia	common fiddleneck	45/65	1
Artemisia californica	California sagebrush	30/60	4
Deinandra fasciculata	fascicled tarplant	25/65	3
Encelia californica	coast sunflower	30/45	2
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	N/A	2
Eriogonum fasciculatum	flat top buckwheat	50/20	7
Eriophyllum confertiflorum	golden-yarrow	N/A	2
Eschscholzia californica	California poppy	98/80	2
Lupinus bicolor	miniature lupine	98/85	1
Phacelia parryi	Parry's phacelia	95/80	1
Salvia apiana	white sage	88/30	3
Stipa lepida, deawned	foothill needlegrass	90/71	3
Stipa pulchra, deawned	purple needlegrass	90/75	3
		Total	**34.5***

[1] The quantities and amount of container stock and seed to be order would be determined following reclamation of each phase/subphase based on the exact of area disturbed as part of mining activities. Substitutions require approval of the Restoration Specialist.

* No less than 30 lbs. per acre of seed shall be installed.



RIPARIAN SCRUB/FOREST REHABILITATION PLANT PALETTE
(7.36 acres)

CONTAINER STOCK[1]					
Scientific Name	**Common Name**	**Spacing on Center (feet)**	**Grouping Size**	**Number Per Acre**	**Quantity Required**
Baccharis salicifolia	mule fat	6	10	230	1,693
Distichlis spicata	saltgrass	10	3	50	368
Platanus racemosa	western sycamore	15	2	25	184
Populus fremontii ssp. *fremontii*	western cottonwood	15	2	25	184
Quercus agrifolia	California live oak	15	3	50	368
Rosa californica	California wild rose	5	3	50	368
Salix exigua	sand bar willow	8	4	90	662
Salix gooddingii	black willow	12	5	120	883
Salix laevigata	red willow	12	5	120	883
Salix lasiolepis	arroyo willow	12	5	120	883
Sambucus nigra	blue elderberry	10	3	85	626
			TOTAL	**965**	**7,102**

SEED MIXTURE[1]				
Scientific Name	**Common Name**	**% Purity / Germination**	**Pounds per Acre**	**Pounds Required**
Ambrosia psilostachya	western ragweed	45/45	4	29
Anemopsis californica	yerba mansa	55/80	1	7
Artemisia douglasiana	Douglas' sagewort	15/40	3	22
Artemisia palmeri	Palmer's sagebrush	20/50	2	15
Baccharis salicifolia	mule fat	10/20	3	22
Bolboschoenus maritimus	bulrush	90/60	1	7
Cyperus eragrostis	tall flatsedge	80/75	1	7
Distichlis spicata	saltgrass	90/75	1	7
Eleocharis macrostachya	pale spike-rush	95/60	1	7
Isocoma menziesii	goldenbush	18/40	1	7
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	95/80	0.5	4
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5	4
Oenothera elata ssp. *hookeri*	evening primrose	98/84	0.5	4
Pluchea odorata	salt marsh fleabane	30/40	2	15
		TOTAL	**21.5**	**158**

[1] Substitutions require approval of the Restoration Specialist.

REVEGETATION AREAS

- EROSION CONTROL SEED MIX
- RIPARIAN SCRUB
- RIPARIAN SCRUB / FOREST REHABILITATION
- RIPARIAN FOREST
- COASTAL SAGE SCRUB
- STREAM BED

SCALE: 1" = 300'

0 150 300 600

FOR REVIEW ONLY

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

PRIVATE CONTRACT

SHEET 10 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

REVEGETATION PLAN FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210-1791

Approved COUNTY ENGINEER BY: Date

Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FILE NO.

7/13/2024 7:18 PM

THIS SURVEY WAS BASED ON A PRELIMINARY TITLE REPORT ISSUED BY FIRST AMERICAN TITLE COMPANY, AS ORDER NO. 1235014-20, DATED FEBRUARY 12, 2002. EFFECTS OF AGREEMENTS, PERMITS, LIENS, ASSESSMENTS, LEASES, COVENANTS, AND/OR RESTRICTIONS APPEARING IN SAID POLICY AS ITEM NOS. 1-4, 11, 12, 18, 22-24, 26, 29, 32-34, 36, 38, 39, 44, 47, 54, 55, 57, 63, 65, 66, AND 70-72, INCLUSIVE, ARE NOT NOTED ON THIS SURVEY.

(5) RIGHTS OF THE PUBLIC IN AND TO ANY PORTION OF THE HEREIN DESCRIBED PROPERTY SHOWN AS LYING WITHIN ROADS, STREETS OR HIGHWAYS.

(6) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED APRIL 29, 1914 IN BOOK 651, PAGE 63 OF DEEDS. THE EXACT LOCATION AND EXTENT OF SAID EASEMENT CANNOT BE DETERMINED FROM RECORD AND IS NOT PLOTTED HEREON.

(7) AN EASEMENT FOR POLE LINES AND INCIDENTAL PURPOSES RECORDED MAY 10, 1916 IN BOOK 708, PAGE 297 OF DEEDS. THE EXACT LOCATION AND EXTENT OF SAID EASEMENT CANNOT BE DETERMINED FROM RECORD AND IS NOT PLOTTED HEREON.

(8) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED MAY 10, 1916 IN BOOK 708, PAGE 298 OF DEEDS. THE EXACT LOCATION AND EXTENT OF SAID EASEMENT CANNOT BE DETERMINED FROM RECORD AND IS NOT PLOTTED HEREON.

(9) AN EASEMENT FOR PUBLIC ROAD AND INCIDENTAL PURPOSES RECORDED MARCH 28, 1922 IN BOOK 751, PAGE 264 OF DEEDS.

(10) AN EASEMENT FOR ROAD PURPOSES AND INCIDENTAL PURPOSES RECORDED MARCH 28, 1928 IN BOOK 751, PAGE 265 OF DEEDS.

(13) THE PRIVILEGE AND RIGHT TO EXTEND DRAINAGE STRUCTURES, EXCAVATION AND EMBANKMENT SLOPES RECORDED OCTOBER 23, 1940 IN BOOK 1084, PAGE 266 OF OFFICIAL RECORDS.

(14) AN EASEMENT AND RIGHT OF WAY FOR PUBLIC ROAD PURPOSES RECORDED APRIL 9, 1942, IN BOOK 1324, PAGE 363 OF OFFICIAL RECORDS.

(15) AN EASEMENT AND RIGHT OF WAY FOR PUBLIC ROAD PURPOSES RECORDED MAY 1, 1942, IN BOOK 1341, PAGE 258 OF OFFICIAL RECORDS.

(16) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED NOVEMBER 10, 1948 IN BOOK 3013, PAGE 199 OF OFFICIAL RECORDS.

(17) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED APRIL 11, 1951 IN BOOK 4048, PAGE 482 OF OFFICIAL RECORDS. NO WIDTH SPECIFIED IN SAID DOCUMENT.

(19) AN EASEMENT FOR RIGHT OF WAY PURPOSES IN, UPON, OVER, UNDER AND ACROSS THE LANDS HEREINAFTER DESCRIBED, TO ERECT, CONSTRUCT, RECONSTRUCT, REPLACE, MAINTAIN AND USE A LINE OR INDEPENDENT LINES OF POLES AND/OR STEEL TOWERS AND WIRES AND/OR CABLES SUSPENDED THEREON AND SUPPORTED THEREBY, AND UNDERGROUND CONDUITS, CABLES, VAULTS AND MANHOLES, FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY AND FOR ALL OTHER PURPOSES CONNECTED THEREWITH, AND FOR TELEPHONE, SIGNAL AND COMMUNICATION PURPOSES, INCLUDING GUYS, ANCHORAGE, CROSSARMS, BRACES AND ALL OTHER APPLIANCES AND FIXTURES FOR USE IN CONNECTION THEREWITH AND ALSO FOR PIPELINES FOR ANY AND ALL PURPOSES, TOGETHER WITH THEIR NECESSARY FIXTURES AND APPURTENANCES, AT SUCH LOCATIONS AND ELEVATIONS, UPON, ALONG, OVER AND UNDER THE HEREINAFTER DESCRIBED RIGHT OF WAY AS GRANTEE MAY NOW OR HEREAFTER DEEM CONVENIENT AND NECESSARY FROM TIME TO TIME, TOGETHER WITH THE RIGHT OF INGRESS THERETO AND EGRESS THEREFROM, TO AND ALONG SAID RIGHT OF WAY BY A PRACTICAL ROUTE OR ROUTES IN, UPON, OVER AND ACROSS THE HEREINAFTER DESCRIBED LANDS, TOGETHER WITH THE RIGHT TO CLEAR AND KEEP CLEAR SAID RIGHT OF WAY FROM EXPLOSIVES, BUILDINGS, STRUCTURES AND INFLAMMABLE MATERIALS FOR PROTECTION FROM FIRE AND OTHER HAZARDS AND INCIDENTAL PURPOSES RECORDED FEBRUARY 9, 1960 AS FILE NO. 26567 OF OFFICIAL RECORDS.

(20) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED APRIL 6, 1960 AS FILE NO. 70178 OF OFFICIAL RECORDS.

(21) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED OCTOBER 24, 1960 AS FILE NO. 210673 OF OFFICIAL RECORDS.

(25) AN EASEMENT AND RIGHT OF WAY FOR PUBLIC ROAD PURPOSES RECORDED MARCH 29, 1962 AS FILE NO. 53378 OFFICIAL RECORDS.

(27) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED JUNE 8, 1962 AS FILE NO. 98151 OF OFFICIAL RECORDS.

(28) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED SEPTEMBER 23, 1963 AS FILE NO. 169818 OF OFFICIAL RECORDS. NOT PLOTTABLE

(30) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED OCTOBER 1, 1963 AS FILE NO. 175212 OF OFFICIAL RECORDS.

(31) THE PRIVILEGE AND RIGHT TO EXTEND DRAINAGE STRUCTURES, EXCAVATION AND EMBANKMENT SLOPES RECORDED FEBRUARY 14, 1964 AS FILE NO. 28666 AND 28667 OF OFFICIAL RECORDS.

(35) AN EASEMENT FOR PIPELINES AND INCIDENTAL PURPOSES RECORDED MARCH 31, 1966 AS FILE NO. 54103 OF OFFICIAL RECORDS.

(37) AN EASEMENT FOR PIPELINES FOR WELLS AND INCIDENTAL PURPOSES RECORDED MARCH 31, 1966 AS FILE NO. 54104 OF OFFICIAL RECORDS. THE EXACT LOCATION AND EXTENT OF SAID EASEMENT CANNOT BE DETERMINED FROM RECORD AND IS NOT PLOTTED HEREON.

(40) AN EASEMENT FOR DRAINAGE AND INCIDENTAL PURPOSES AS DELINEATED AND DESIGNATED ON MAP 9553.

(41) AN EASEMENT FOR OPEN SPACE AND INCIDENTAL PURPOSES AS DELINEATED AND DESIGNATED ON MAP 9553.

(42) AN EASEMENT FOR PIPELINES FOR WELLS AND INCIDENTAL PURPOSES RECORDED JUNE 27, 1978 AS FILE NO. 78-267214 OF OFFICIAL RECORDS.

(43) AN EASEMENT FOR DRAINAGE CHANNEL AND INCIDENTAL PURPOSES RECORDED OCTOBER 8, 1979 AS FILE NO. 79-419917 OF OFFICIAL RECORDS.

(45) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED AUGUST 12, 1980 AS FILE NO. 80-256258 OF OFFICIAL RECORDS.

(46) AN EASEMENT FOR ELECTRICAL, GAS AND COMMUNICATION SYSTEMS, TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS AND INCIDENTAL PURPOSES RECORDED OCTOBER 7, 1980 AS FILE NO. 80-329857 OF OFFICIAL RECORDS. THE EXACT LOCATION AND EXTENT OF SAID EASEMENT CANNOT BE DETERMINED FROM RECORD AND IS NOT PLOTTED HEREON.

(48) THE PRIVILEGE AND RIGHT TO EXTEND DRAINAGE STRUCTURES AS GRANTED IN IRREVOCABLE OFFER RECORDED JULY 20, 1984 AS FILE NO. 84-275597 AND WAS ACCEPTED JUNE 3, 1992 AS FILE NO. 1992-0344626 BOTH OF OFFICIAL RECORDS.

(49) AN IRREVOCABLE OFFER TO DEDICATE REAL PROPERTY FOR PUBLIC RIGHT OF WAY PURPOSES RECORDED JULY 20, 1984 AS FILE NO. 84-275597 OF OFFICIAL RECORDS.

(50) AN IRREVOCABLE OFFER TO DEDICATE REAL PROPERTY FOR PUBLIC RIGHT OF WAY PURPOSES RECORDED JULY 20, 1984 AS FILE NO. 84-275598 OF OFFICIAL RECORDS.

(51) AN IRREVOCABLE OFFER TO DEDICATE REAL PROPERTY FOR PUBLIC RIGHT OF WAY PURPOSES RECORDED JULY 20, 1984 AS FILE NO. 84-275599 OF OFFICIAL RECORDS.

(52) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED AUGUST 3, 1984 AS FILE NO. 84-295705 OF OFFICIAL RECORDS.

(53) AN EASEMENT FOR DRAINAGE SYSTEM AND INCIDENTAL PURPOSES RECORDED AUGUST 20, 1984 AS FILE NO. 84-317325 OF OFFICIAL RECORDS.

(56) AN EASEMENT FOR DRAINAGE AND INCIDENTAL PURPOSES RECORDED MAY 1, 1985 AS FILE NO. 85-152525 OF OFFICIAL RECORDS.

(58) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED SEPTEMBER 30, 1986 AS FILE NO. 86-435379 OF OFFICIAL RECORDS.

(59) AN EASEMENT FOR THE INSTALLATION, CONSTRUCTION, MAINTENANCE, REPAIR, REPLACEMENT, RECONSTRUCTION AND INSPECTION OF AN ENCLOSED OR UNENCLOSED FLOOD DRAINAGE CHANNEL AND ALL STRUCTURES INCIDENTAL THERETO, AND FOR THE FLOWAGE OF ANY WATERS AND INCIDENTAL PURPOSES RECORDED DECEMBER 30, 1987 AS FILE NO. 87-713689 OF OFFICIAL RECORDS.

(60) AN EASEMENT FOR PUBLIC HIGHWAY AND INCIDENTAL PURPOSES RECORDED MARCH 24, 1988 AS FILE NO. 88-134732 OF OFFICIAL RECORDS. SAID INSTRUMENT ALSO GRANTS THE PRIVILEGE AND RIGHT TO EXTEND AND MAINTAIN DRAINAGE STRUCTURES AND EXCAVATION AND EMBANKMENT SLOPES.

(61) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED AUGUST 22, 1988 AS FILE NO. 88-416623 OF OFFICIAL RECORDS. NOT PLOTTABLE.

(62) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED DECEMBER 7, 1988 AS FILE NO. 88-628567 OF OFFICIAL RECORDS.

(64) AN EASEMENT FOR SLOPE, PUBLIC HIGHWAY AND INCIDENTAL PURPOSES RECORDED AUGUST 28, 1990 AS FILE NO. 90-468529 OF OFFICIAL RECORDS.

(67) AN EASEMENT FOR LAYING UNDERGROUND WATER PIPELINES AND LATERALS, MAIN SEWER LINES, SEWER TRUNK LINES, COLLECTION LINES AND LATERALS, SEWER MANHOLES AND OTHER UNDERGROUND AND SURFACE STRUCTURES APPURTENANT TO SAID WATER AND SEWER LINES AND INCIDENTAL PURPOSES RECORDED JUNE 26, 1991 AS FILE NO. 91-0309793 OF OFFICIAL RECORDS.

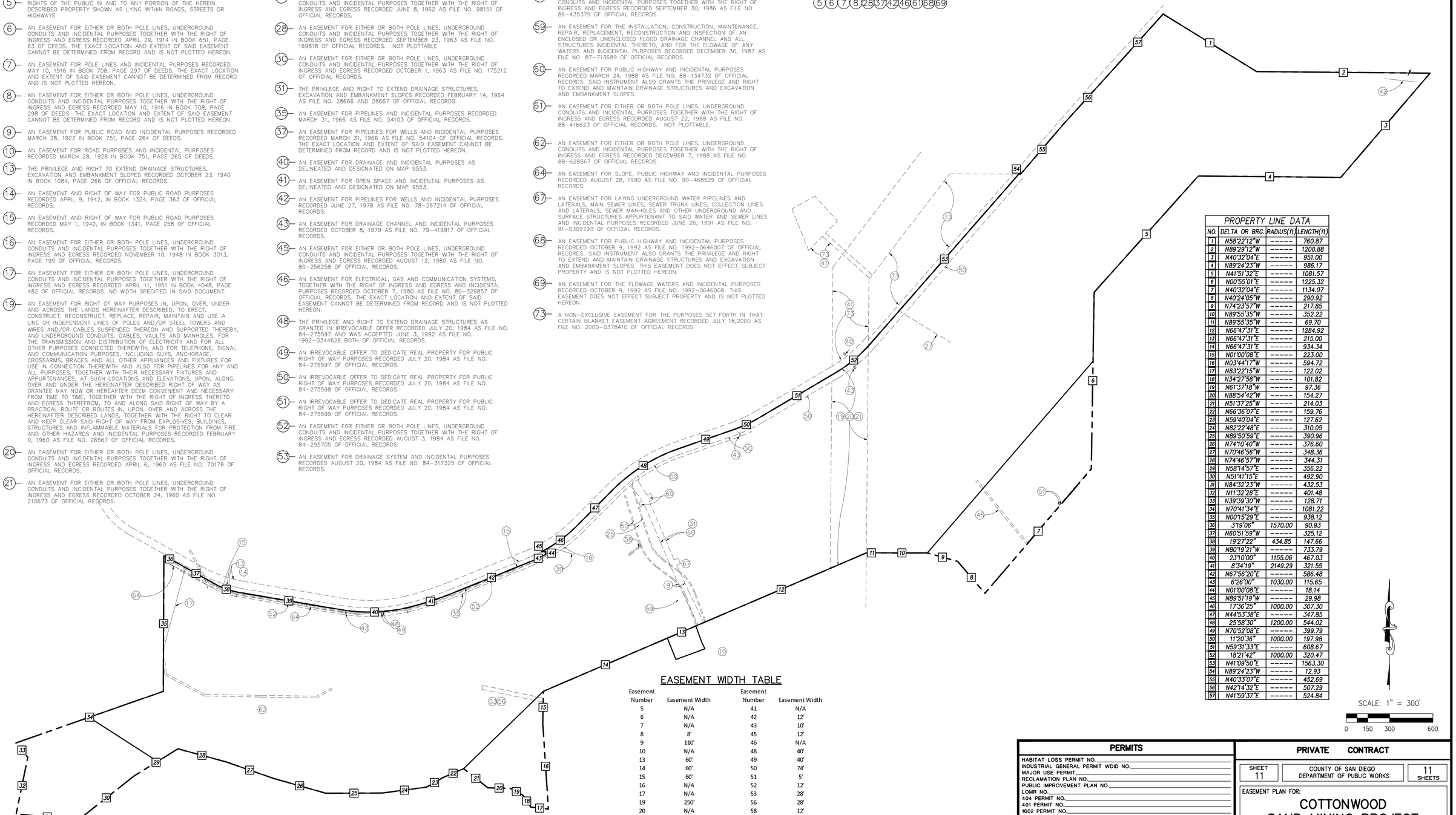
(68) AN EASEMENT FOR PUBLIC HIGHWAY AND INCIDENTAL PURPOSES RECORDED OCTOBER 9, 1992 AS FILE NO. 1992-0646007 OF OFFICIAL RECORDS. SAID INSTRUMENT ALSO GRANTS THE PRIVILEGE AND RIGHT TO EXTEND AND MAINTAIN DRAINAGE STRUCTURES AND EXCAVATION AND EMBANKMENT SLOPES. THIS EASEMENT DOES NOT EFFECT SUBJECT PROPERTY AND IS NOT PLOTTED HEREON.

(69) AN EASEMENT FOR THE FLOWAGE WATERS AND INCIDENTAL PURPOSES RECORDED OCTOBER 9, 1992 AS FILE NO. 1992-0646008. THIS EASEMENT DOES NOT EFFECT SUBJECT PROPERTY AND IS NOT PLOTTED HEREON.

(73) A NON-EXCLUSIVE EASEMENT FOR THE PURPOSES SET FORTH IN THAT CERTAIN BLANKET EASEMENT AGREEMENT RECORDED JULY 18,2000 AS FILE NO. 2000-0378410 OF OFFICIAL RECORDS.

NON-PLOTTABLE EASEMENTS
THE EXACT LOCATION AND EXTENT OF SAID EASEMENT CANNOT BE DETERMINED FROM RECORD AND IS NOT PLOTTED HEREON.

(5) (6) (7) (8) (28) (37) (42) (46) (61) (68) (69)



PROPERTY LINE DATA

NO.	DELTA OR BRG.	RADIUS(ft)	LENGTH(ft)
1	N58°22'12"W	------	760.87
2	N89°29'12"W	------	1200.88
3	N40°32'04"E	------	951.00
4	N89°24'23"W	------	986.17
5	N41°51'32"E	------	1081.57
6	N00°55'01"E	------	1225.32
7	N40°32'04"E	------	1134.07
8	N40°24'05"W	------	290.92
9	N74°23'57"W	------	217.85
10	N89°55'35"W	------	352.22
11	N89°55'35"W	------	69.70
12	N66°47'31"E	------	1284.92
13	N66°47'31"E	------	215.00
14	N66°47'31"E	------	934.34
15	N01°00'08"E	------	223.00
16	N03°44'17"W	------	594.72
17	N83°22'15"W	------	122.02
18	N34°27'58"W	------	101.82
19	N61°37'18"W	------	97.36
20	N88°54'42"W	------	154.27
21	N51°37'25"W	------	214.03
22	N66°36'07"E	------	159.76
23	N59°40'04"E	------	127.62
24	N82°22'48"E	------	310.05
25	N89°50'59"E	------	390.96
26	N74°10'40"W	------	376.60
27	N70°46'56"W	------	348.36
28	N74°46'57"W	------	344.31
29	N58°14'57"E	------	356.22
30	N51°41'15"E	------	492.90
31	N84°32'23"W	------	432.53
32	N11°32'28"E	------	401.48
33	N39°39'30"W	------	128.71
34	N70°41'34"E	------	1081.22
35	N00°15'29"E	------	938.12
36	3°19'06"	1570.00	90.93
37	N60°51'59"W	------	325.12
38	19°27'22"	434.85	147.66
39	N80°19'21"W	------	733.79
40	23°10'00"	1155.06	467.03
41	8°34'19"	2149.29	321.55
42	N67°56'20"E	------	586.48
43	6°26'00"	1030.00	115.65
44	N01°00'08"E	------	18.14
45	N89°51'19"W	------	29.98
46	17°36'25"	1000.00	307.30
47	N44°53'38"E	------	347.85
48	25°58'30"	1200.00	544.02
49	N70°52'08"E	------	399.79
50	11°20'36"	1000.00	197.98
51	N59°31'33"E	------	608.67
52	18°21'42"	1000.00	320.47
53	N41°09'50"E	------	1563.30
54	N89°24'23"W	------	12.93
55	N40°33'07"E	------	452.69
56	N42°14'32"E	------	507.29
57	N41°59'37"E	------	524.84

SCALE: 1" = 300'

0 150 300 600

EASEMENT WIDTH TABLE

Easement Number	Easement Width	Easement Number	Easement Width
5	N/A	41	N/A
6	N/A	42	12'
7	N/A	43	10'
8	8'	45	12'
9	110'	46	N/A
10	N/A	48	40'
13	60'	49	40'
14	60'	50	74'
15	60'	51	5'
16	N/A	52	12'
17	N/A	53	28'
19	250'	56	28'
20	N/A	58	12'
21	250'	59	20'
25	60'	60	N/A
27	12'	61	4'
28	N/A	62	12'
30	5'	64	N/A
31	60'	67	20'
35	30'	68	N/A
37	15'	69	N/A
40	N/A	73	N/A

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

PRIVATE CONTRACT

SHEET 11 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

EASEMENT PLAN FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210-1791

Approved
COUNTY ENGINEER
BY:
Date

Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

FOR REVIEW ONLY

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FILE NO.

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Attachment B.

Revegetation Plan

Cottonwood Sand Mine Project

Conceptual Revegetation Plan

PDS2018-MUP-18-023
PDS2018-RP-18-001
PDS2018-ER-18-19-007

Prepared for:

County of San Diego
Planning and Development Services
5510 Overland Avenue, Suite 310
San Diego, CA 92123

Project Proponent:

New West Investment Group, Inc.
565 N. Magnolia Avenue
El Cajon, CA 92020

Prepared by:
HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

~~March 2023~~May 2025 | 02975.00002.002

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ACRONYMS AND ABBREVIATIONS

AMSL	above mean sea level
BOS	Biological Open Space
BTR	Biological Technical Report
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
CFG	California Fish and Game
County	County of San Diego
CWA	Clean Water Act
CWMW	California Wetlands Monitoring Workgroup
CY	cubic yards
DCSS	Diegan Coastal Sage Scrub
GPS	global positioning system
ft	feet
HELIX	HELIX Environmental Planning, Inc.
m	meter
MSCP	Multiple Species Conservation Program
MUP	Major Use Permit
NRCS	Natural Resources Conservation Service
PAMA	Pre-Approved Mitigation Area
POC	Point of Connection
Project	Cottonwood Sand Mine Project
RPO	Resource Protection Ordinance
RWQCB	Regional Water Quality Control Board
SDG&E	San Diego Gas & Electric
SDNWR	San Diego National Wildlife Refuge
SHBs	shot-hole borers
SMARA	Surface Mining and Reclamation Act
SR	State Route
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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1.0 INTRODUCTION

This report presents a revegetation plan for impacts resulting from the Cottonwood Sand Mine Project (project) located in the unincorporated community of Rancho San Diego in eastern San Diego County, California. This plan addresses revegetation of areas temporarily impacted as part of mining activities pursuant to the Surface Mining and Reclamation Act (SMARA) and Sections 1810 and 6550-6556 of the County of San Diego (County) Zoning Ordinance, as well as restoration of wetland buffer areas disturbed as part of mining activities in accordance with Section 86.605(d) of the County's Resource Protection Ordinance (RPO) requirements (County 2011). Included in this document is an implementation, maintenance, and monitoring plan for the on-site revegetation of approximately 108.87 acres of wetland and riparian associated habitat, 11.92 acres of Diegan coastal sage scrub (DCSS) habitat, and 97.90 acres of stabilized non-sensitive uplands (i.e., erosion control areas). This report has been prepared in conformance with the County's Report Format and Content Requirements for Revegetation Plans (County 2007).

Revegetation is proposed to ensure that areas disturbed as part of mining activities are reclaimed (i.e., adequately revegetated and stabilized) in accordance with SMARA and County requirements, and that existing wetland buffer areas are appropriately restored pursuant to the County RPO (County 2011). A portion of the reclaimed site will also provide compensatory mitigation for impacts to wetland and water resources under the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA; 33 USC 1344), Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA, and California Department of Fish and Wildlife (CDFW) pursuant to Sections 1600 et seq. of the California Fish and Game (CFG) Code, and to areas considered County RPO wetlands. Restoration of the mitigation area is addressed separately from this plan within the project's Conceptual Wetland Mitigation Plan (HELIX Environmental Planning, Inc. [HELIX] 2025~~3~~a). The wetland mitigation area and native revegetation areas will be concurrently preserved within the project's biological open space area.

Nomenclature used in this report follows Holland (1986) and Oberbauer (2008) for vegetation; Jepson eFlora (2023) and Calflora (2023) for plants; Pelham (2022) and Davenport (2018) for butterflies; Society for the Study of Amphibians and Reptiles (2023) for reptiles and amphibians; American Ornithological Society (2022) for birds; and Bradley et al. (2014) and Tremor et al. (2017) for mammals.

2.0 PROJECT DESCRIPTION

2.1 RESPONSIBLE PARTIES

New West Investment, Inc. (or its successor in interest) will be responsible for financing the installation and maintenance and monitoring of the revegetation proposed in this plan. Contact information is provided below:

Contact: Jim Conrad, Owner's Representative
New West Investment, Inc.
565 N. Magnolia
El Cajon, CA 92020
619-441-1463

2.2 PROJECT LOCATION

The approximately 280-acre project site is located in the unincorporated community of Rancho San Diego in eastern San Diego County, California (Figure 1, *Regional Location*). It is depicted within unsectioned lands of Township 16 South, Ranges 1 West and 1 East of the Jamul Mountains and El Cajon, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps (Figure 2, *USGS Topograph*y). The site lies north of State Route (SR) 94 and east of SR 54 within the Cottonwood Golf Club. More specifically, the site occurs southeast of Willow Glen Drive, north of Jamul Drive, east of Jamacha Road, and west of Hillsdale Road at 3121 Willow Glen Drive, El Cajon, California (Figure 3, *Aerial Vicinity*). Steele Canyon Road bisects the project site from north to south, near the center of the site. The project site occurs within the following 24 Assessor Parcel Numbers: 506-021-19-00, 506 020-52, 518-012-13, 518-012-14, 518-030-05 through 518-030-08, 518-030-10, 518-030-12, 518 030-13, 518-030-15, 518-030-21, 518-030-22-00, 519-010-15, 519-010-17, 519-010-20, 519-010-21, 519-010-33, 519-010-34, 519-010-37, 519-011-03, 506-021-31, and 506-021-30.

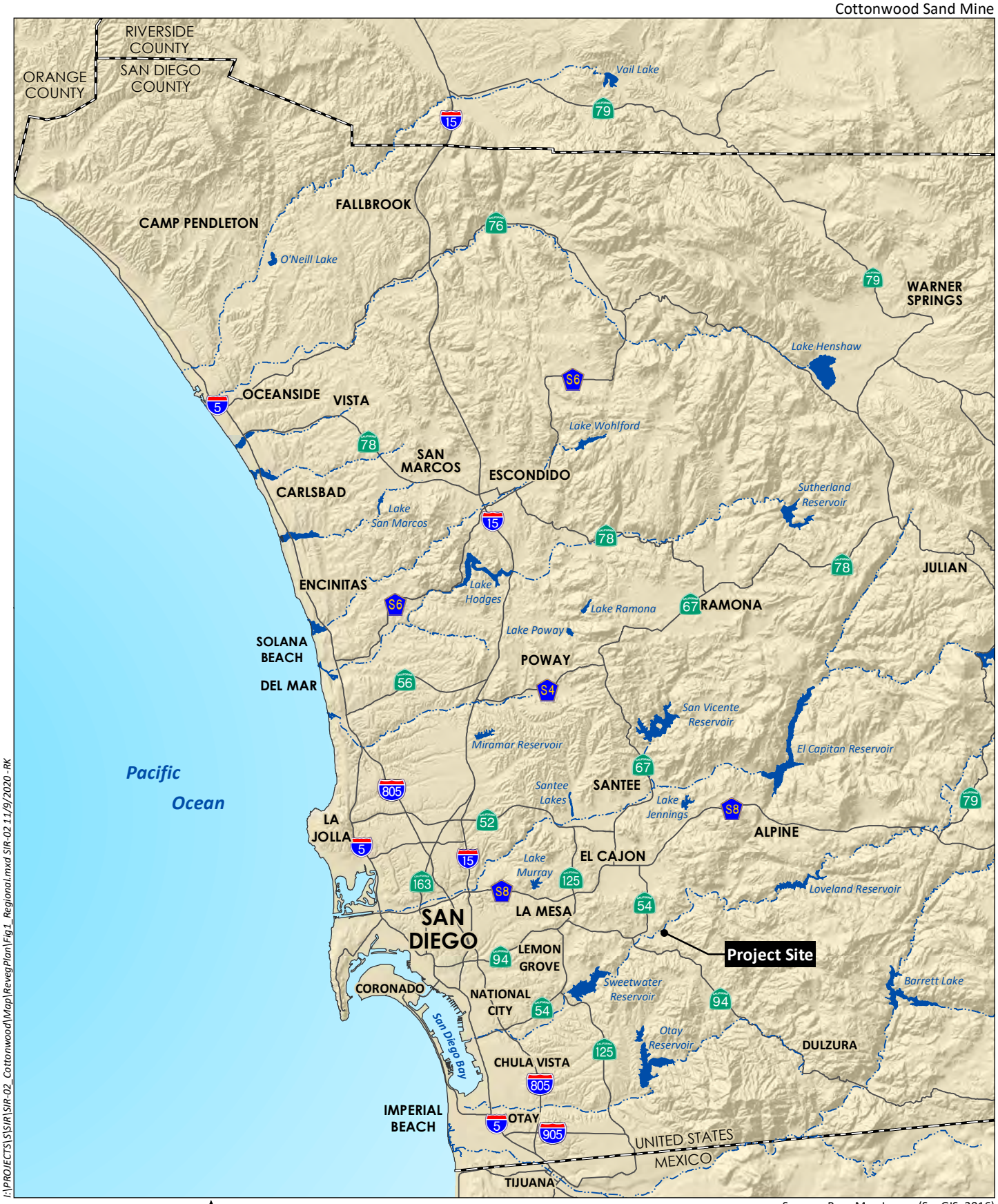
The site is located on unincorporated lands within the South County and Metro-Lakeside-Jamul segments of the County's Multiple Species Conservation Program (MSCP) Subarea Plan (Figure 4, *MSCP Designations*). Within the MSCP, portions of the site along the northeastern, southern, and southeastern boundaries occur within areas identified as Pre-Approved Mitigation Area (PAMA), and Minor Amendment lands occur in the southwestern portion of the site along the Sweetwater River (Figure 4).

2.3 PROJECT SUMMARY

2.3.1 Project Description

The project site is currently occupied by the Cottonwood Golf Club, which consists of two 18-hole golf courses, one east of Steele Canyon Road and the other located to the west. Currently, only the eastern course is operational; operation of the western course was suspended in 2017. The project proposes to convert the two golf courses into a sand mining operation that would be conducted in three phases over 10 years, with a fourth phase for cleanup, equipment removal, and final reclamation (Figure 5, *Site Plan and Mine Phasing*). The project's mining operations would extract, process, and transport sand using conventional earth-moving and processing equipment. Approximately 4.3 million cubic yards (CY; 6.40 million tons) of material are proposed to be extracted, with approximately 3.8 million CY (5.7 million tons) of sand and gravel for market use, with a 10 percent waste factor from the total amount extracted that includes wash fines and materials undesirable for processing (approximately 427,000 CY). These materials would be retained on-site and utilized for backfilling. In addition, approximately 2.5 million CY would be imported to the site to meet the backfill requirements. The imported material would consist of inert debris only. Inert debris would consist of excavated soil material from development projects, clean demolition materials, and possibly concrete, asphalt, and rock. The project would be conditioned to only accept materials suitable for the end use of the site.

Extraction operations would be limited to a maximum production of 380,000 CY (570,000 tons) of construction grade aggregate (sand) per calendar year. Material extracted and processed at the site would be suitable for construction uses and would be available to customers in San Diego County. Approximately 214.4 acres of the approximately 251.1~~0~~ -acre Major Use Permit (MUP) boundary are proposed for extractive use under a phased extraction program. Surface areas not disturbed by mining would either be left in their current condition or be subject to enhancement through the removal of



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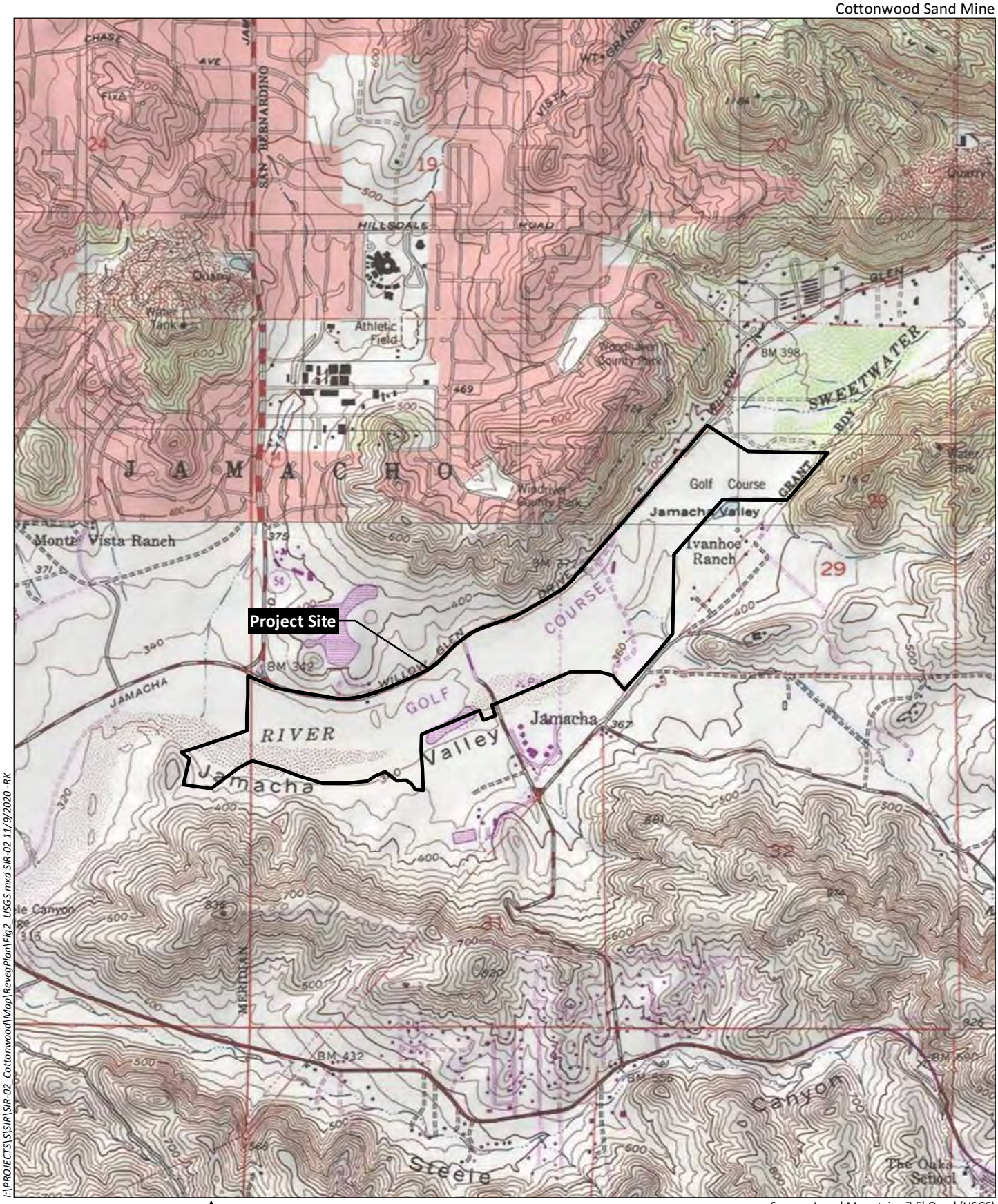
0 8 Miles

Source: Base Map Layers (SanGIS, 2016)

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Regional Location

Figure 1



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0 2,000 Feet

Source: Jamul Mountains 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2

Cottonwood Sand Mine



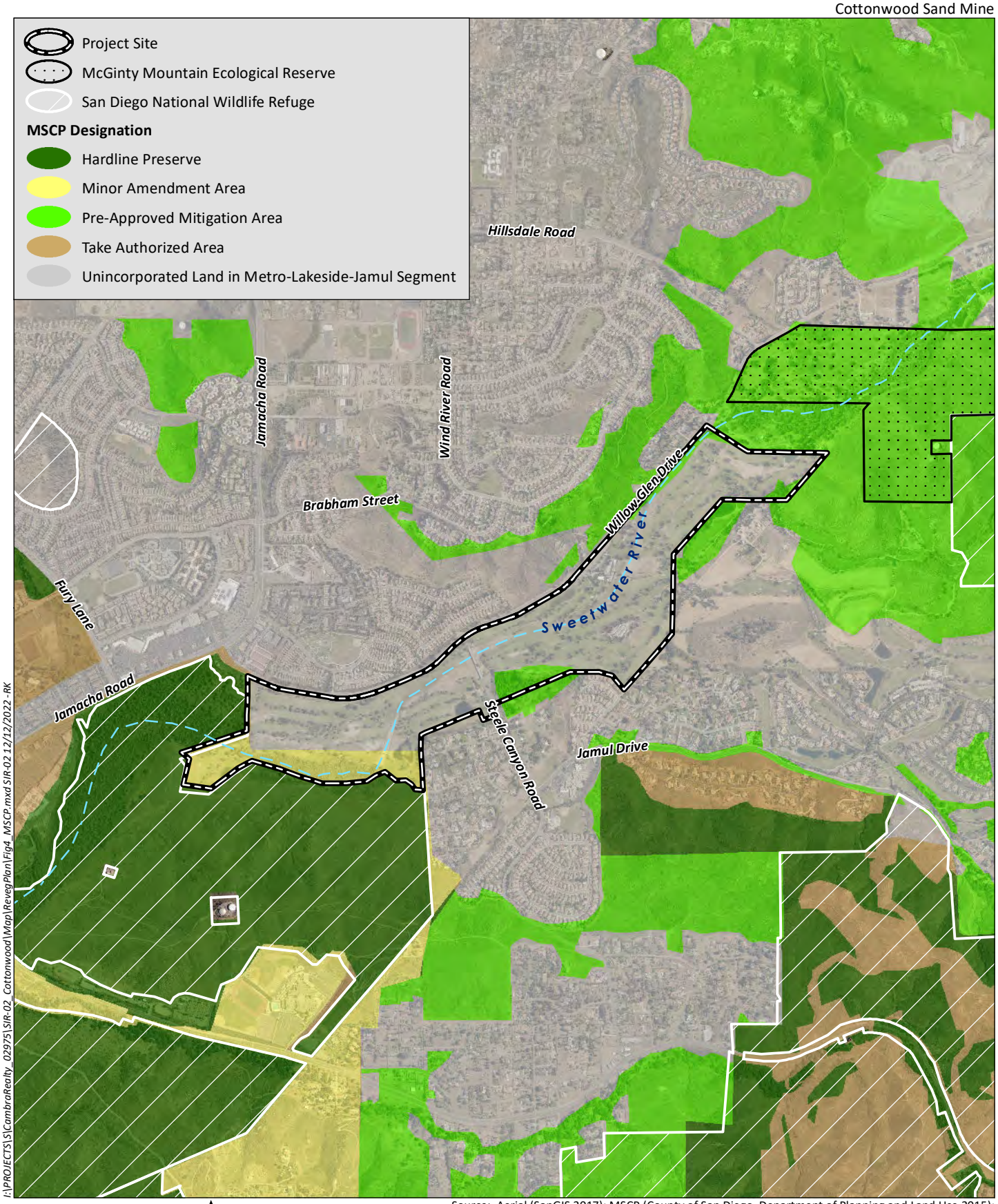
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Source: Aerial (SanGIS 2019); NWR (U.S. Fish and Wildlife Service 2016)

HELIX Environmental Planning

Aerial Vicinity

Figure 3



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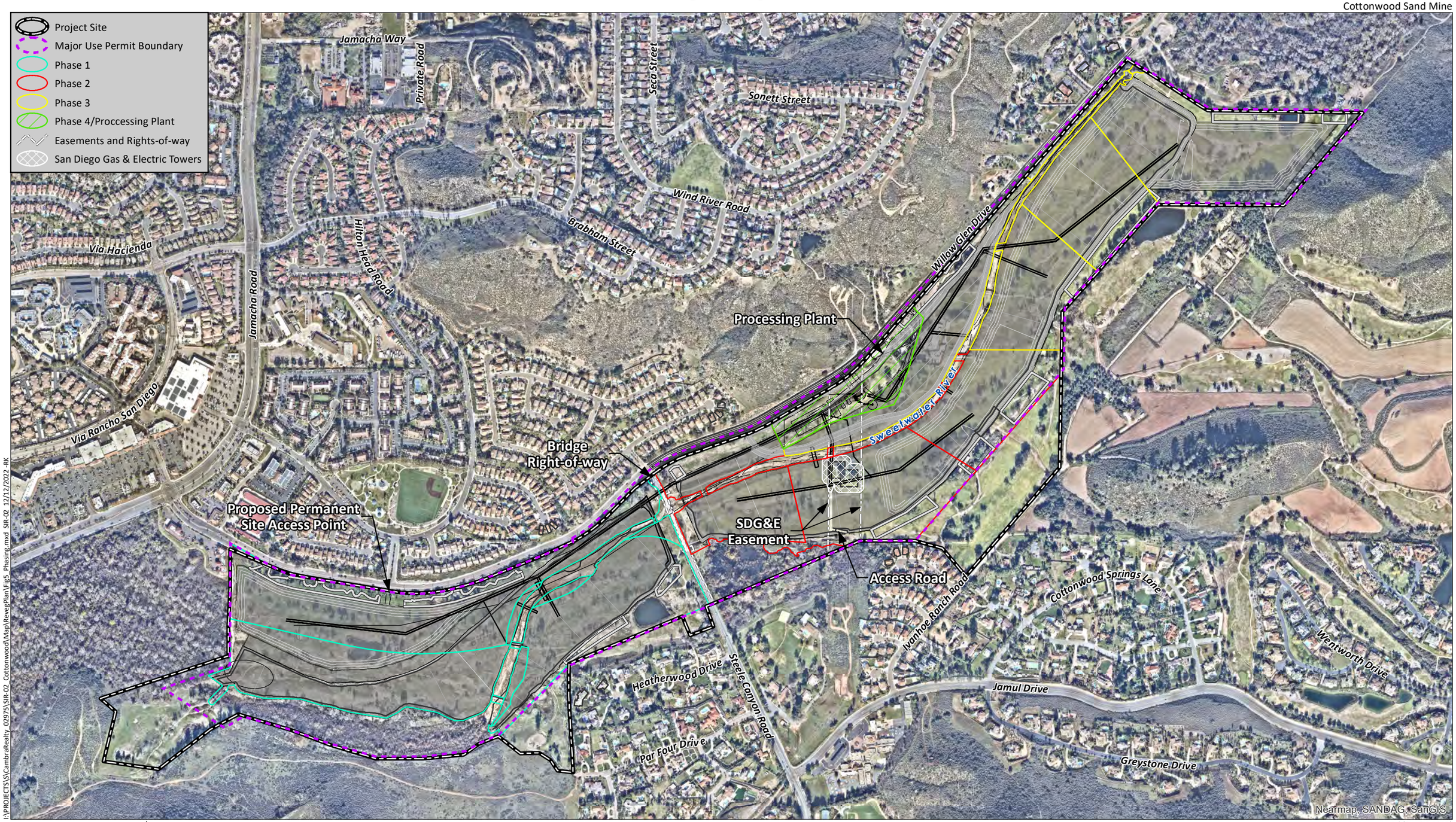
Source: Aerial (SanGIS 2017); MSCP (County of San Diego, Department of Planning and Land Use 2015); NWR (U.S. Fish and Wildlife Service 2016); Ecological Reserves (CDFW 2013)

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MSCP Designations

Figure 4

Cottonwood Sand Mine



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0 700 Feet

Source: Aerial (SanGIS 2019)

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Site Plan and Mine Phasing

Figure 5

invasive species. The existing Sweetwater River channel and the majority of native habitat that currently exists on the site would be retained.

The project would be mined in three incremental, and partially overlapping phases, with three to four sub-phases in each major phase. Reclamation would begin after the first sub-phase of mining is complete and would be conducted on a continuous basis following the completion of each mining sub-phase. Pre-mining activities proposed prior to the initiation of Phase 1 include the restriping of Willow Glen Drive from Steele Canyon Road to the northeastern property boundary to provide Class II buffered bike lanes on both sides of the roadway, improvements to the access point from Willow Glen Drive to the Phase 1 excavation area, and installation of screening landscaping and a pedestrian pathway. To facilitate the deceleration of right-turning vehicles into the project ingress driveway, a dedicated right-turn lane would be constructed, which would serve as the primary access for mining operations, material sales, employees, and vendors. Additionally, a pedestrian pathway would be provided along the northern project frontage/Willow Glen Drive east of Steele Canyon Road to provide pedestrian access within the project vicinity where there are no existing sidewalks. Phase 1 would begin with the placement of the processing plant and the conveyor line from the plant to the western portion of the property, where excavation would begin. Processing facilities would be located near the center of the project area, adjacent to Willow Glen Drive and west of the existing golf course parking lot. The plant site would consist of the aggregate processing and washing facilities, three settling ponds, a loadout area, and support structures and buildings (e.g., scale, kiosk, and office trailer). A portable conveyor line would be installed to minimize the use of on-site roads to transport excavated materials from the excavation area to the processing plant.

Mining operations would commence in the western portion of the site as part of Phase 1 and proceed east as subsequent phases are initiated: Phase 1 would be located within the area currently occupied by the closed Lakes Course to the west of Steele Canyon Road; Phase 2 would be located in the center of the site, east of Steele Canyon Road, on the currently operating Ivanhoe Course; Phase 3 would be located to the east of Phase 2. Existing vegetation and infrastructure within the golf courses would be incrementally removed as mining operations proceed, with approximately 20 to 30 acres subject to mining at any one time. Each phase would include three to four sub-phases that are less than 30 acres each and would begin reclamation as soon as possible following the completion of extraction activities. Excavation in each sub-phase would be completed before moving the conveyor and excavation equipment to the next sub-phase, and reclamation would begin in the completed sub-phase. Upon approval of the project, the Ivanhoe Course would be closed. The existing golf clubhouse would be demolished near the end of Phase 2 mining. As each phase of mining is completed, final contours would be established via grading and backfilling, all final clean-up would be conducted and equipment removed, and the mined area would be reclaimed and revegetated. Following the completion of Phase 3 mining, the processing plant would be removed as part of a final Phase 4 consisting of final clean-up and equipment removal from the project site.

Prior to initiating work in a sub-phase, existing vegetation will be cleared, and topsoil will be salvaged. The existing banks of the low-flow Sweetwater River channel will remain undisturbed up to a minimum height of 3.5 feet to accommodate existing transfer flow rates. To maintain living soil microorganisms, topsoil will be stored on-site in windrows not more than three feet tall, in an area cleared of existing vegetation. The maximum excavation depth is proposed to be 40 feet below the existing land surface, with the average depth of excavation outside the main Sweetwater River channel expected to be approximately 20 feet below the existing land surface. Excavation would not occur within the bottom of the existing low-flow river channel ~~in order~~ to retain existing hydrologic characteristics. Up to three

temporary channel crossings would be utilized to transport heavy equipment across the low-flow river channel during mining operations. Channel crossings would only be used when there is no water flow in the channel. An operating procedure would be established to maintain communication with the Sweetwater Authority prior to, and during, water transfers to ensure channel crossings during water flows are avoided. As soon as excavation within a sub-phase is completed, the conveyor and excavation equipment would be moved to the next sub-phase, and reclamation of the completed sub-phase would begin.

The project proposes to restripe Willow Glen Drive between Steele Canyon Road and the project ingress driveway to provide Class II buffered bike lanes on both sides of the roadway per the County Roadway Standards and the General Plan Mobility Element roadway classification. To facilitate the deceleration of right-turning vehicles into the Project ingress driveway, a dedicated right-turn lane would also be constructed, which would serve as the primary access for mining operations, material sales, employees, and vendors. A new egress point would be established in the approximate center of the existing parking lot. The project also proposes to construct an acceleration lane between the ingress and egress driveways, which would serve as a refuge lane for trucks to complete their outbound maneuver. A pedestrian pathway would be provided along the northern project frontage/Willow Glen Drive east of Steele Canyon Road to provide pedestrian access within the project vicinity where there are no existing sidewalks. In addition, a new access point to the property from Willow Glen Drive west of Steele Canyon Road (Phase 1 area) would be necessary as the clearance height of the bridge that crosses the Sweetwater River on Steele Canyon Road would not allow most large trucks used by service vendors to pass beneath the bridge. Additional access points are proposed to be constructed at the intersection of Willow Glen Drive and Muirfield Drive. The new driveway would be restricted to servicing the mining operations.

The site would be progressively reclaimed following the completion of extraction activities within each subphase area in accordance with the mining and reclamation plan (EnviroMINE 2021). Reclamation would include: (1) removal of all artificial structures (with the exception of permanent erosion control features); (2) grading and backfilling to achieve final landforms; (3) incorporation of accumulated wash fines, imported material, and salvaged topsoil (as applicable); and (4) revegetation and monitoring. Final grading would begin after mining and backfilling have been completed within a given area, and as extractive operations proceed to the east. Reclamation would be an ongoing process that commences where mining operations have ceased within a given sub-phase area and continues until all mining-related disturbance is reclaimed.

Post-reclamation, the final landform of the overall mining area is proposed to be a relatively flat plain that gently slopes downward from east to west, with an expanded floodplain bisecting the length of the site. The expanded floodplain is expected to range in width from approximately 400 to 700 feet~~average approximately 450 to 720 feet in width~~ and would be slightly higher in elevation than the existing low-flow river channel~~lower in elevation than the existing ground level across the site~~. The existing low-flow river channel would be retained in place with banks up to a minimum height of 3.5 feet to accommodate annual water transfers from Loveland Reservoir to Sweetwater Reservoir that are controlled by the Sweetwater Authority. The low-flow river channel banks would slope down to the expanded floodplain, which will be at a similar elevation to the existing low-flow river channel or slightly higher. In some areas, benches may be constructed at the edges of the floodplain to accommodate varying vegetation types and/or multi-use trails. Slopes bordering the expanded floodplain would slope up to the plain surface at a 3:1 ratio or shallower, with an elevation difference of up to 25 feet between the top of slope and bottom of the ~~expanded floodplain~~low-flow river channel. Reclaimed and revegetated areas would

be restored to an end-use of ~~native vegetation within a widened floodplain~~open space, ~~recreational~~ multi-use trails, and land suitable for uses allowed by the ~~Open Space~~ General Plan land use designation and existing zoning classifications. Maintenance and monitoring of the restored and revegetated native habitat areas would continue until final performance standards are met in all revegetation areas. Following revegetation completion, nearly 54~~55~~ percent of the project site (~~150.7~~149.0 acres) ~~will~~ would be preserved in a biological open space (BOS) easement, which ~~will~~ would protect these lands in perpetuity, and ~~will~~ would restrict future uses to protect their biological value.

2.3.2 Current Environmental Setting and Site Conditions

The project site is generally located within the Sweetwater River Valley ecoregion of southeast San Diego County. It occurs within the boundaries of the Rancho San Diego Specific Plan Area of the Valle de Oro Community Planning Area. Generalized climate in the region is regarded as dry, sub-humid mesothermal, with warm dry summers and cold moist winters. Mean annual precipitation is between 14 and 18 inches, and the mean annual temperature is between 60- and 62-degrees Fahrenheit. The frost-free season is 260 to 300 days.

The project site has been subjected to past human disturbances and habitat modification associated with the development of the golf course and intermittent mining. Prior to the 1940s, the site was used for commercial ranching and agriculture, most of which had ended by the 1950s. A 1953 aerial photograph of the site indicates that the floodplain of the Sweetwater River was primarily undeveloped, with the presence of a small, wooden house/structure adjacent to Willow Glen Drive to the west of Steele Canyon Road. Since the 1960s, the project site has operated as a public golf course with intermittent mining. Construction of the golf course initially began in 1962 and was completed in 1964. Mining activities within the site began in the early 1950s to the south of the Sweetwater River and continued through the 1970s, allowing for the creation of water hazards and expanded fairways associated with golf course construction and improvements. The site currently operates as a public golf course, though golf play and irrigation of landscaped turf in the western portion of the site was discontinued in 2017.

Vegetation within the project site reflects the site's disturbed and developed nature. Approximately 244.8 acres (88 percent) of the site is currently occupied by a public golf course, or is otherwise disturbed by past land uses, including 1.7 acres of non-native woodland, 2.6 acres of eucalyptus woodland, 7.5 acres of non-native vegetation, 3.0 acres of artificial pond, and 230.0 acres of disturbed habitat and developed lands containing a combination of active and inactive golf course areas, in addition to a clubhouse, parking lot, maintenance facilities and other buildings, golf cart paths, and other areas of hardscape or maintained landscaping. Undeveloped areas are concentrated along the western and eastern edges of the site and consist primarily of native upland scrub and riparian forest communities. The dominant native habitat type present on-site is southern cottonwood-willow riparian forest, which covers approximately 12.87 acres (five percent) of the site. The Sweetwater River and associated floodplain have been severely modified as a result of previous golf course development. The river has been channelized through the site and its width has been constricted to allow for the development of golf course fairways. Additionally, the hydrological regime of the Sweetwater River has been heavily altered from the creation of several artificial impoundments upstream and downstream of the project site, such as the Loveland Reservoir and Sweetwater Reservoir, which are subject to water transfers and controlled releases by the Sweetwater Authority.

The project site occurs within both the northeastern portion of the South County Segment and the southwestern portion of the Metro-Lakeside-Jamul Segment of the adopted County MSCP Subarea Plan (County 1997). Three small areas of PAMA, totaling 16.40 acres (six percent), occur along the northeastern, southeastern, and southern project boundaries (Figure 4). Additionally, approximately 37.79 acres (14 percent) of the site at the southwestern boundary represent a Minor Amendment Area.

Land uses in the surrounding area include residential and rural residential developments to the north and south, extractive operations to the east, and an adjacent golf course to the southeast. Open space is present in the hills south, east, and west of the site. The San Diego National Wildlife Refuge (SDNWR) abuts the western project boundary along the Sweetwater River.

2.3.3 Topography and Soils

Elevations on-site generally decrease from east to west across the site, with the lowest elevations (approximately 320 feet (ft) above mean sea level [AMSL]) occurring along the southwestern boundary, and the highest elevations (approximately 380 ft AMSL) along the northeastern boundary. The Sweetwater River runs through the length of the site entering at the northeastern project boundary and continuing in a mostly east-west direction to the southern boundary, where it exits the site and continues southwest towards Sweetwater Reservoir. The Sweetwater River extends from its headwaters in the Cuyamaca Mountains (east of the site) to the Pacific Ocean, approximately 15 miles downstream of the site.

Six soil series, which comprise nine soil types, have been mapped on-site (Natural Resources Conservation Service [NRCS] 2022; Figure 6, *Soils*), with the majority classified as sandy loams. Soil types covering the most area on-site include~~s~~ Riverwash and those in the Tujunga series. The soil and geologic study conducted for the project by Geocon also found that the site was predominately comprised of alluvial channel and alluvial flood plain deposits (Geocon 2020).

2.3.4 Vegetation Communities

Fifteen vegetation communities/land use types occur on the project site (Table 1, *Existing Vegetation Communities/Land Use Types*; Figure 7, *Vegetation and Sensitive Resources/Impacts*). The numeric codes in parentheses following each community/land use type name are from the Holland classification system (Holland 1986) and as added to by Oberbauer (2008) as presented in the County's Biology Guidelines (County 2010).

Table 1
EXISTING VEGETATION COMMUNITIES/LAND USE TYPES

Vegetation Community[1]	Acres[2]		
	Within MUP	Outside MUP	Total
Tier I[3]			
Disturbed Wetland (11200)	10.25	0	10.25
Freshwater Marsh (52400)	0.22	0	0.22
Southern Cottonwood-willow Riparian Forest (61330)	9.43	2.42	11.85
Southern Cottonwood-willow Riparian Forest - disturbed (61330)	0.87	0.15	1.02
Southern Willow Scrub - disturbed (63320)	4.82	0	4.82
Tamarisk Scrub (63810)	1.20	0.03	1.23

Vegetation Community[1]	Acres[2]		
	Within MUP	Outside MUP	Total
Open Water (64140)[4]	1.68	0	1.68
Arundo-dominated Riparian (65100)	0.48	0.08	0.56
Tier II			
Diegan Coastal Sage Scrub (32500)	0.8	0.5	1.3
Diegan Coastal Sage Scrub – disturbed (32500)	0.5	<0.1	0.5
Tier IIIB			
Non-native Grassland (42200)	0	0.2	0.2
Tier IV			
Non-native Woodland (79000)	1.5	0.2	1.7
Eucalyptus Woodland (79100)	2.1	0.5	2.6
Non-native Vegetation (11000)	6.6	0.9	7.5
Disturbed Habitat (11300)	79.0	12.3	93.1
N/A			
Artificial Pond (64140)[4]	3.0	0	3.0
Developed Land (12000)	122.0	14.9	136.9
TOTAL	**244.45**	**32.18**	**276.63**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01; thus, totals reflect rounding.
[3] County Subarea Habitats and Tiers within the MSCP.
[4] The numerical Holland/Oberbauer code refers to Fresh Water which describes year-round bodies of fresh water in the form of lakes, streams, ponds, or rivers and is the most appropriate vegetation community that represents these areas.

Sensitive vegetation communities/habitat types mapped on the project site include disturbed wetland, freshwater marsh, southern cottonwood-willow riparian forest (including disturbed), disturbed southern willow scrub, tamarisk scrub, open water, arundo-dominated riparian, DCSS (including disturbed), and non-native grassland. Non-native woodland, eucalyptus woodland, non-native vegetation, disturbed habitat, artificial pond, and developed lands do not meet the definition of sensitive habitat under the County's Biology Guidelines (County 2010).

2.3.5 Flora

A total of 190 plant species were identified within the project site, of which 80 (42 percent) are native species, and 110 (28 percent) are non-native species (HELIX 2025~~3~~b).

2.3.6 Wildlife

A total of 129 animal species were observed or otherwise detected on the project site during recent biological surveys, including 14 invertebrate, one fish, four amphibian, six reptile, 85 bird, and 19 mammal species (HELIX 2025~~3~~b).

2.3.7 Special-~~-~~Status Species

No federal- or state-listed plant species were observed within the project site during recent surveys (HELIX 2025~~3~~b); however, four species with other special status were observed: San Diego sagewort (*Artemisia palmeri*), San Diego County viguiera (*Bahiopsis laciniata*), Palmer's goldenbush (*Ericameria*

palmeri var. *palmeri*), and southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*). Additionally, although not found on-site, U.S. Fish and Wildlife Service (USFWS) critical habitat for the federally endangered San Diego ambrosia (*Ambrosia pumila*) is present in the southwestern portion of the site (Figure 8, *Critical Habitat*).

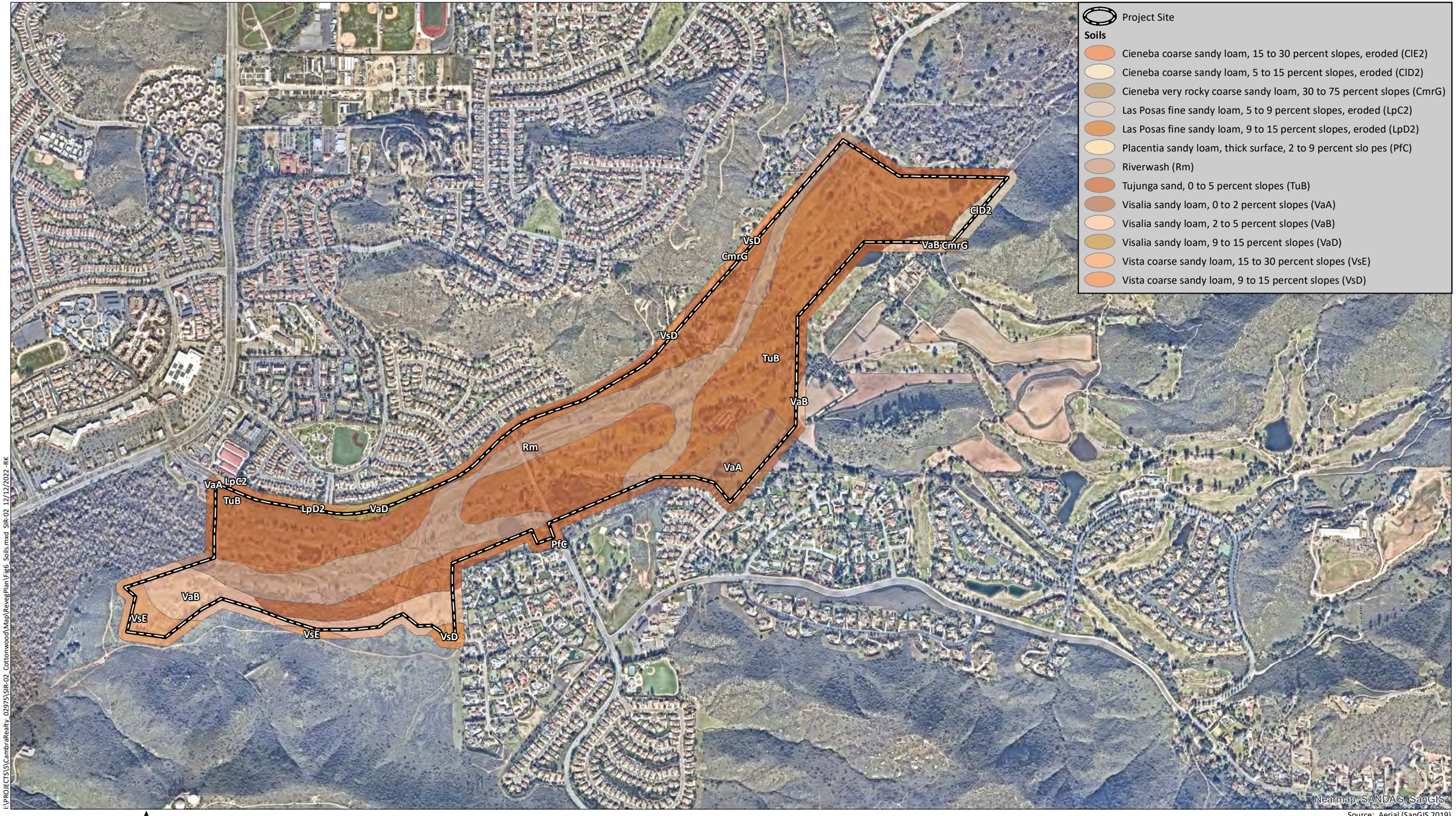
Two federal- and/or state-listed wildlife species were observed within the project site during recent surveys (HELIX 2025~~3~~b): coastal California gnatcatcher (*Polioptila californica californica*) and least Bell's vireo (*Vireo bellii pusillus*). An additional 21 other special-~~-~~status animal species were observed or detected on or directly adjacent to the project site or observed flying over the project site: barn owl (*Tyto alba*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), Cooper's hawk (*Accipiter cooperii*), great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), Lawrence's goldfinch (*Spinus lawrencei*), Monarch butterfly (*Danaus plexippus*), oak titmouse (*Baeolophus inornatus*), peregrine falcon (*Falco peregrinus*), red-shouldered hawk (*Buteo lineatus*), small-footed myotis (*Myotis ciliolabrum*), Townsend's big-eared bat (*Corynorhinus townsendii pallescens*), turkey vulture (*Cathartes aura*), vermilion flycatcher (*Pyrocephalus rubinus*), western bluebird (*Sialia mexicana*), western mastiff bat (*Eumops perotis*), western red bat (*Lasiurus blossevillii*), white-tailed kite (*Elanus leucurus*), yellow-breasted chat (*Icteria virens*), yellow warbler (*Setophaga petechia*), and Yuma myotis (*Myotis yumanensis*). Additionally, USFWS critical habitat for the coastal California gnatcatcher and least Bell's vireo occurs in the southwestern portion of the site, and critical habitat for the southwestern willow flycatcher (*Empidonax traillii extimus*) is present immediately adjacent to the site (Figure 8).

2.3.8 Project Impacts

2.3.8.1 Sensitive Vegetation

The project would permanently impact 2.34 acres of sensitive vegetation communities, including 1.2 acres of uplands and 1.14 acres of wetlands. Impacts to 1.2 acres of sensitive upland vegetation communities consist entirely of DCSS (Table 2, *Project Impacts to Vegetation Communities/Habitat Types*; Figure 7; HELIX 2025~~3~~b). Impacts to wetlands include including 0.55 acre of disturbed wetland, 0.44 acre of southern cottonwood-willow riparian forest (including disturbed), 0.13 acre of disturbed southern willow scrub, 0.01 acre of tamarisk scrub, and 0.01 acre of arundo-dominated riparian (Table 2; Figure 7).

Cottonwood Sand Mine



Project Site

Soils

- Cieneba coarse sandy loam, 15 to 30 percent slopes, eroded (ClE2)
- Cieneba coarse sandy loam, 5 to 15 percent slopes, eroded (ClD2)
- Cieneba very rocky coarse sandy loam, 30 to 75 percent slopes (CmrG)
- Las Posas fine sandy loam, 5 to 9 percent slopes, eroded (LpC2)
- Las Posas fine sandy loam, 9 to 15 percent slopes, eroded (LpD2)
- Placentia sandy loam, thick surface, 2 to 9 percent slo pes (PfC)
- Riverwash (Rm)
- Tujunga sand, 0 to 5 percent slopes (TuB)
- Visalia sandy loam, 0 to 2 percent slopes (VaA)
- Visalia sandy loam, 2 to 5 percent slopes (VaB)
- Visalia sandy loam, 9 to 15 percent slopes (VaD)
- Vista coarse sandy loam, 15 to 30 percent slopes (VsE)
- Vista coarse sandy loam, 9 to 15 percent slopes (VsD)

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Source: Aerial (SanGIS 2019)

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Soils

Figure 6

Cottonwood Sand Mine

- Project Site
- Major Use Permit Boundary
- Phase 1
- Phase 2
- Phase 3
- Phase 4/Proccessing Plant
- Impact Area
- Impact Neutral Area
- Roadway Improvement Impacts
- Trail Impacts
- Conceptual Multi-Use Trails (Post-Reclamation)
- Proposed Pathway

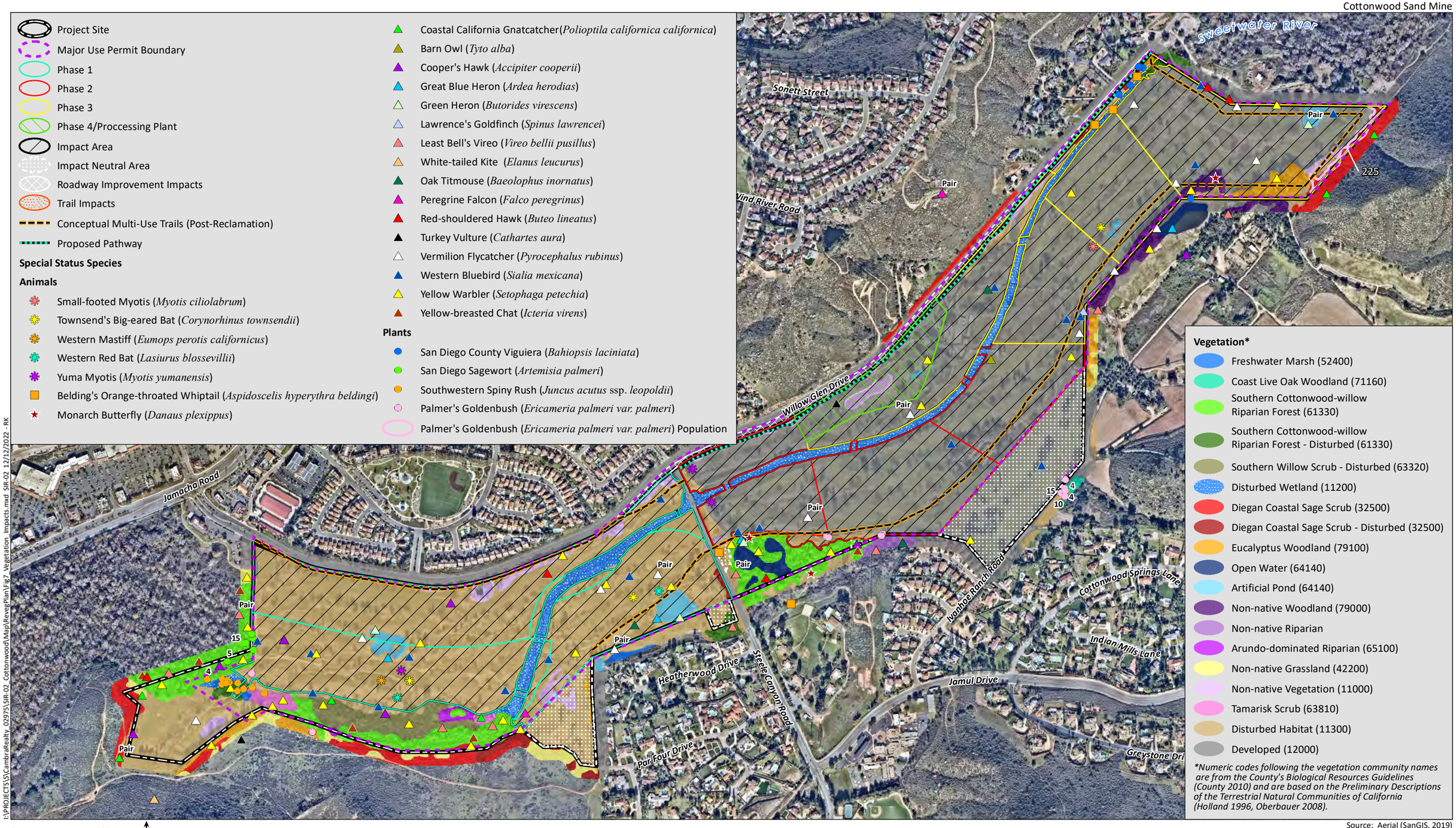
Special Status Species

Animals

- Small-footed Myotis (*Myotis ciliolabrum*)
- Townsend's Big-eared Bat (*Corynorhinus townsendii*)
- Western Mastiff (*Eumops perotis californicus*)
- Western Red Bat (*Lasiurus blossevillii*)
- Yuma Myotis (*Myotis yumanensis*)
- Belding's Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)
- Monarch Butterfly (*Danaus plexippus*)
- Coastal California Gnatcatcher(*Polioptila californica californica*)
- Barn Owl (*Tyto alba*)
- Cooper's Hawk (*Accipiter cooperii*)
- Great Blue Heron (*Ardea herodias*)
- Green Heron (*Butorides virescens*)
- Lawrence's Goldfinch (*Spinus lawrencei*)
- Least Bell's Vireo (*Vireo bellii pusillus*)
- White-tailed Kite (*Elanus leucurus*)
- Oak Titmouse (*Baeolophus inornatus*)
- Peregrine Falcon (*Falco peregrinus*)
- Red-shouldered Hawk (*Buteo lineatus*)
- Turkey Vulture (*Cathartes aura*)
- Vermilion Flycatcher (*Pyrocephalus rubinus*)
- Western Bluebird (*Sialia mexicana*)
- Yellow Warbler (*Setophaga petechia*)
- Yellow-breasted Chat (*Icteria virens*)

Plants

- San Diego County Viguiera (*Bahiopsis laciniata*)
- San Diego Sagewort (*Artemisia palmeri*)
- Southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*)
- Palmer's Goldenbush (*Ericameria palmeri var. palmeri*)
- Palmer's Goldenbush (*Ericameria palmeri var. palmeri*) Population



Vegetation*

- Freshwater Marsh (52400)
- Coast Live Oak Woodland (71160)
- Southern Cottonwood-willow Riparian Forest (61330)
- Southern Cottonwood-willow Riparian Forest - Disturbed (61330)
- Southern Willow Scrub - Disturbed (63320)
- Disturbed Wetland (11200)
- Diegan Coastal Sage Scrub (32500)
- Diegan Coastal Sage Scrub - Disturbed (32500)
- Eucalyptus Woodland (79100)
- Open Water (64140)
- Artificial Pond (64140)
- Non-native Woodland (79000)
- Non-native Riparian
- Arundo-dominated Riparian (65100)
- Non-native Grassland (42200)
- Non-native Vegetation (11000)
- Tamarisk Scrub (63810)
- Disturbed Habitat (11300)
- Developed (12000)

**Numeric codes following the vegetation community names are from the County's Biological Resources Guidelines (County 2010) and are based on the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1996, Oberbauer 2008).*

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Source: Aerial (SanGIS, 2019)

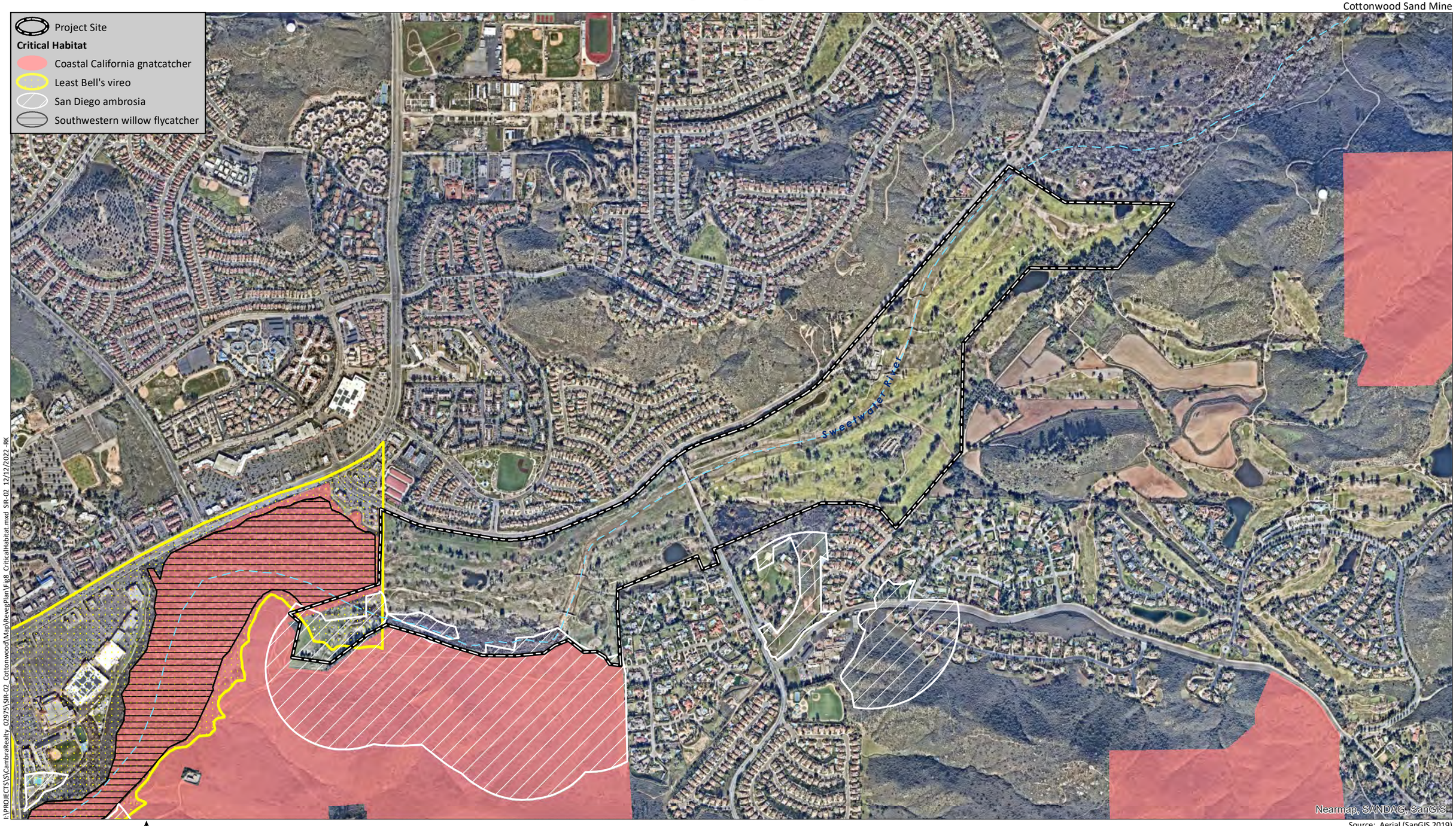
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Vegetation and Sensitive Resources/Impacts

Figure 7

Cottonwood Sand Mine



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Source: Aerial (SanGIS 2019)

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Critical Habitat

Figure 8

Table 2
PROJECT IMPACTS TO VEGETATION COMMUNITIES/HABITAT TYPES

Vegetation Community	Impact Neutral Areas (Acres)[1]	Project Impacts (Acres)[1]					Road Improvement Impacts (Acres)[1]	Total Impacts (Acres)[1]		
		Phase 1	Phase 2	Phase 3	Phase 4	Total On-Site		On-Site	Off-Site	Total
Sensitive Vegetation Communities										
Tier I[2]										
Disturbed Wetland	0	0.16	0.26	0.13	0	0.55	0	0.55	0	0.55
Freshwater Marsh	0	0	0	0	0	0	0	0	0	0
Southern Cottonwood-willow Riparian Forest – including disturbed	0.30	0.27	0.12	0.05	0	0.44	0	0.44	0	0.44
Southern Willow Scrub – including disturbed	0	0.13	0	0	0	0.13	0	0.13	0	0.13
Tamarisk Scrub	0.02	0.01	0	0	0	0.01	0	0.01	0	0.01
Open Water	0	0	0	0	0	0	0	0	0	0
Arundo-dominated Riparian	0.07	0.01	0	0	0	0.01	0	0.01	0	0.01
Tier II										
Diegan Coastal Sage Scrub	0.1	0.2	0	0.9	0	1.1	0.1	1.1	0.1	1.2
Tier IIIB										
Non-native Grassland	<0.1	0	0	0	0	0	0	0	0	0
Subtotal Sensitive Communities	*0.49*	*0.63*	*0.26*	*0.49*	*0.06*	*1.43*	*0.1*	*2.24*	*0.10*	*2.34*
Non-Sensitive Vegetation Communities										
Tier IV										
Non-native Woodland	0	0	0	1.7	0	1.7	0	1.7	0	1.7
Eucalyptus Woodland	0.4	<0.1	0	2.1	0	2.1	<0.1	2.1	<0.1	2.1
Non-native Vegetation	0.4	3.2	0.6	1.5	1.2	6.5	2.0	6.5	2.0	8.5
Disturbed Habitat	5.6	71.8	1.8	2.4	0	76.0	0.1	76.0	0.1	76.1
N/A										
Artificial Pond	0	2.2	0	0.4	0.1	2.7	0	2.7	0	2.7
Developed Land	14.8	0.5	47.3	64.8	7.9	120.5	2.8	120.7	2.6	123.3
Subtotal Non-Sensitive Communities	*21.2*	*77.7*	*49.7*	*72.9*	*9.2*	*209.5*	*4.9*	*209.7*	*4.7*	*214.4*
TOTAL	**21.69**	**78.48**	**50.08**	**73.98**	**9.20**	**211.74**	**5.0**	**211.94**	**4.8**	**216.74**

[1] Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01; thus, totals reflect rounding.
[2] County Subarea Habitats and Tiers within the MSCP.

2.3.8.2 Special-Status Plants

The project would result in impacts to four special-status plant species: Palmer's goldenbush, San Diego sagewort, southwestern spiny rush, and San Diego County viguiera. Palmer's goldenbush is a CRPR 1B.1 species, County List B, MSCP covered, and MSCP narrow endemic species. Approximately 234 individuals would be impacted by the proposed project. Southwestern spiny rush is a CRPR 4.2 species and County List D species. Three individuals occurring within the southwestern portion of the project along the Sweetwater River would be impacted by the removal of an existing bridge crossing. San Diego viguiera is a CRPR 4.3 and County List D species. Five San Diego County viguiera shrubs would be impacted by the proposed project along the site's northeastern boundary, including three shrubs located within the project site and two shrubs located outside of the project site within the road widening impact area. San Diego sagewort is a CRPR 4.2 and County List D species. Two San Diego sagewort individuals observed at the western project boundary at the edge of southern riparian forest habitat would be impacted by the proposed project.

Impacts to San Diego sagewort, southwestern spiny rush, and San Diego County viguiera are considered significant and would be mitigated through on-site habitat re-establishment, rehabilitation, revegetation, and preservation. Impacts to Palmer's goldenbush are considered significant. As a County List B plant species, species-based mitigation is required at a minimum 1:1 ratio pursuant to County Requirements (2010a). Impacts to Palmer's goldenbush would be mitigated through planting and seeding of the species within on-site native revegetation area in accordance with this plan.

2.3.8.3 Special-Status Wildlife

The project would result in impacts to suitable breeding or foraging habitat for 23 special-status animal species observed or detected on or adjacent to the site, including coastal California gnatcatcher, least Bell's vireo, Cooper's hawk, oak titmouse, red-shouldered hawk, turkey vulture, peregrine falcon, white-tailed kite, yellow-breasted chat, vermilion flycatcher, Lawrence's goldfinch, monarch butterfly, Belding's orange-throated whiptail, great blue heron, green heron, yellow warbler, western bluebird, barn owl, small-footed myotis, Townsend's big-eared bat, western mastiff bat, western red bat, and Yuma myotis. The project would result in impacts to 1.2 acres of disturbed Diegan coastal sage scrub, which provides potential habitat for the coastal California gnatcatcher. Impacts to potential gnatcatcher habitat would be significant. The project site provides suitable breeding habitat for least Bell's vireo and multiple individuals were detected within, and adjacent to, the project site during protocol surveys conducted in 2019 (HELIX 2025~~3~~b). The project would impact 0.44 acre of southern cottonwood-willow riparian forest (including disturbed), 0.13 acre of disturbed southern willow scrub, and 0.01 tamarisk scrub at the edge of existing habitat located along the Sweetwater River, including areas where vireos have been detected. Impacts to suitable vireo breeding habitat would be significant.

Project impacts to potential breeding and foraging habitat for coastal California gnatcatcher, least Bell's vireo, and other special-status wildlife would be mitigated through on-site habitat re-establishment, rehabilitation, revegetation, and preservation, combined with other project-specific mitigation measures to address potential impacts, such as restrictions on clearing and grubbing during the avian breeding season. Mitigation for impacts to wetland and riparian habitats are addressed separately from this plan in the Conceptual Wetland Mitigation Plan (HELIX 2025~~3~~a).

2.3.9 Required Compensatory Mitigation

A summary of project impacts to biological resources and required mitigation is provided in the Biological Technical Report (BTR; HELIX 2025~~3~~b). The project would result in impacts to a total of 2.34 acres of riparian habitat or other sensitive natural communities (Table 2; Figure 9, *Conceptual Reclamation Revegetation and Compensatory Mitigation Areas*), including 0.55 acre of disturbed wetland, 0.44 acre of southern cottonwood-willow riparian forest (including disturbed), 0.13 acre of southern willow scrub, 0.01 acre of tamarisk scrub, 0.01 acre of arundo-dominated riparian, and 1.2 acres of Diegan coastal sage scrub (including disturbed). This plan addresses mitigation for impacts to sensitive upland vegetation communities (i.e., DCSS), special-status plant species, potential breeding and foraging habitat for special-status animal species, and revegetation of areas temporarily disturbed as part of mining activities. Mitigation for impacts to sensitive wetland and riparian habitats are addressed in the Conceptual Wetland Mitigation Plan (HELIX 2025~~3~~a). As required by the County's Report Format and Content Requirements for Revegetation Plans (County 2007), relevant sections of the BTR (i.e., mitigation requirements and habitat being impacted) will be included as an appendix to the Final Revegetation Plan.

BIO-1 Mitigation for impacts to 1.2 acres of potential foraging habitat for coastal California gnatcatcher, comprised solely of Diegan coastal sage scrub, shall occur at a 1.5:1 ratio for a total mitigation requirement of 1.8 acres. Mitigation shall occur through the on-site preservation of 0.6 acre of Diegan coastal sage scrub and on-site revegetation of 11.3 acres of Diegan coastal sage scrub for a total of 11.9 acres of Diegan coastal sage scrub to be preserved within the biological open space easement.

BIO-3 Mitigation for impacts to 0.58 acre of potential nesting and foraging habitat for least Bell's vireo (southern cottonwood-willow riparian forest, disturbed southern willow scrub, and tamarisk scrub) shall occur at a minimum 3:1 ratio with at least 1:1 creation (establishment/re-establishment) for a total mitigation requirement of 1.74 acres. Mitigation shall occur through on-site preservation of 13.85 acres of wetland and riparian habitat, on-site rehabilitation of 7.36 acres of riparian habitat, and on-site re-establishment and revegetation of 107.63 acres of riparian habitat for a total of 128.84 acres of wetland riparian habitat to be preserved within the biological open space easement.

BIO-6 Impacts to 234 individuals of Palmer's goldenbush shall be mitigated at a 1:1 ratio. Mitigation shall occur through planting and/or seeding of the species within on-site native revegetation areas in accordance with a revegetation plan to be approved by the County and Wildlife Agencies (USWFS and CDFW).

BIO-8 Upon completion of all extraction activities, reclamation and final grading to establish the final landform shall occur in accordance with the approved Reclamation Plan. Revegetation with native species will occur within the expanded Sweetwater River floodplain and constructed bordering slopes according to a revegetation plan to be approved by the County and Wildlife Agencies (USWFS and CDFW).

BIO-9 Mitigation for impacts to 0.44 acre of southern cottonwood-willow riparian forest, 0.13 acre of disturbed southern willow scrub, 0.01 acre of tamarisk scrub, 0.01 acre of arundo-dominated riparian, and 0.55 acre of disturbed wetland shall occur at a 3:1 ratio with at least 1:1 creation (establishment/re-establishment) for a total mitigation requirement of 3.42 acres. Mitigation

shall occur through on-site preservation of 13.85 acres of wetland and riparian habitat, on-site rehabilitation of 7.36 acres of riparian habitat, and on-site re-establishment and revegetation of 107.63 acres of riparian habitat for a total of 128.84 acres of wetland riparian habitat to be preserved within the biological open space easement.

BIO-10 Mitigation for 1.2 acres of impacts to Diegan coastal sage scrub shall occur at a 1.5:1 ratio with 1.8 acres of Tier II or Tier I habitat in the South County MSCP area within a biological resource core area. Mitigation shall occur through on-site preservation of 0.6 acre of Diegan coastal sage scrub and on-site revegetation of 11.3 acres of Diegan coastal sage scrub for a total of 11.9 acres of Tier II Diegan coastal sage scrub to be preserved within the biological open space easement.

Table 3, *Project Impacts to Sensitive Vegetation Communities and Required Mitigation Summary*, provides a summary of project impacts to sensitive vegetation communities and required mitigation. The applicable conditions of the Resolution of Approval will be attached to the Final Revegetation Mitigation Plan submitted after discretionary approval and prior to issuance of any permit, and prior to occupancy or use of the premises in the reliance of this permit.

Table 3
PROJECT IMPACTS TO SENSITIVE VEGETATION COMMUNITIES AND REQUIRED MITIGATION SUMMARY -(acre[s])[1]

Habitat	Impacts	Required Mitigation			
		Ratio	Establishment	Establishment, Re-establishment, Rehabilitation, and/or Enhancement	Total
Tier I					
Disturbed Wetland	0.55	3:1	0.55	1.10	**1.65**
Southern Cottonwood-willow Riparian Forest – including disturbed	0.44	3:1	0.44	0.88	**1.32**
Southern Willow Scrub	0.13	3:1	0.13	0.26	**0.39**
Tamarisk Scrub	0.01	3:1	0.01	0.02	**0.03**
Arundo-Dominated Riparian	0.01	3:1	0.01	0.02	**0.03**
Subtotal	***1.14***	**--**	***1.14***	***2.28***	***3.42***
Tier II					
Diegan Coastal Sage Scrub – including disturbed	1.2	1.5:1	--	1.80	**1.80**
Subtotal	***1.2***	**--**	**--**	***1.80***	***1.80***
TOTAL	**2.34**	**--**	**1.14**	**4.08**	**5.22**

[1] Rounded to the nearest 0.01 acre; totals reflect rounding.

Mitigation for impacts to Tier I riparian habitats and jurisdictional waters and wetlands are addressed separately in the Conceptual Wetland Mitigation Plan (HELIX 2025~~3~~a). Mitigation for impacts to Tier II upland sensitive habitats (DCSS [including disturbed]) will be met through on-site preservation of 0.6 acre of existing DCSS and the preservation of 11.3 acres of DCSS revegetated as part of site reclamation within a biological open space easement, with no restoration component. The Resolution of Approval, including applicable conditions of approval, will be attached to the Final Revegetation Plan submitted after discretionary approval and prior to grading permit issuance.

Cottonwood Sand Mine

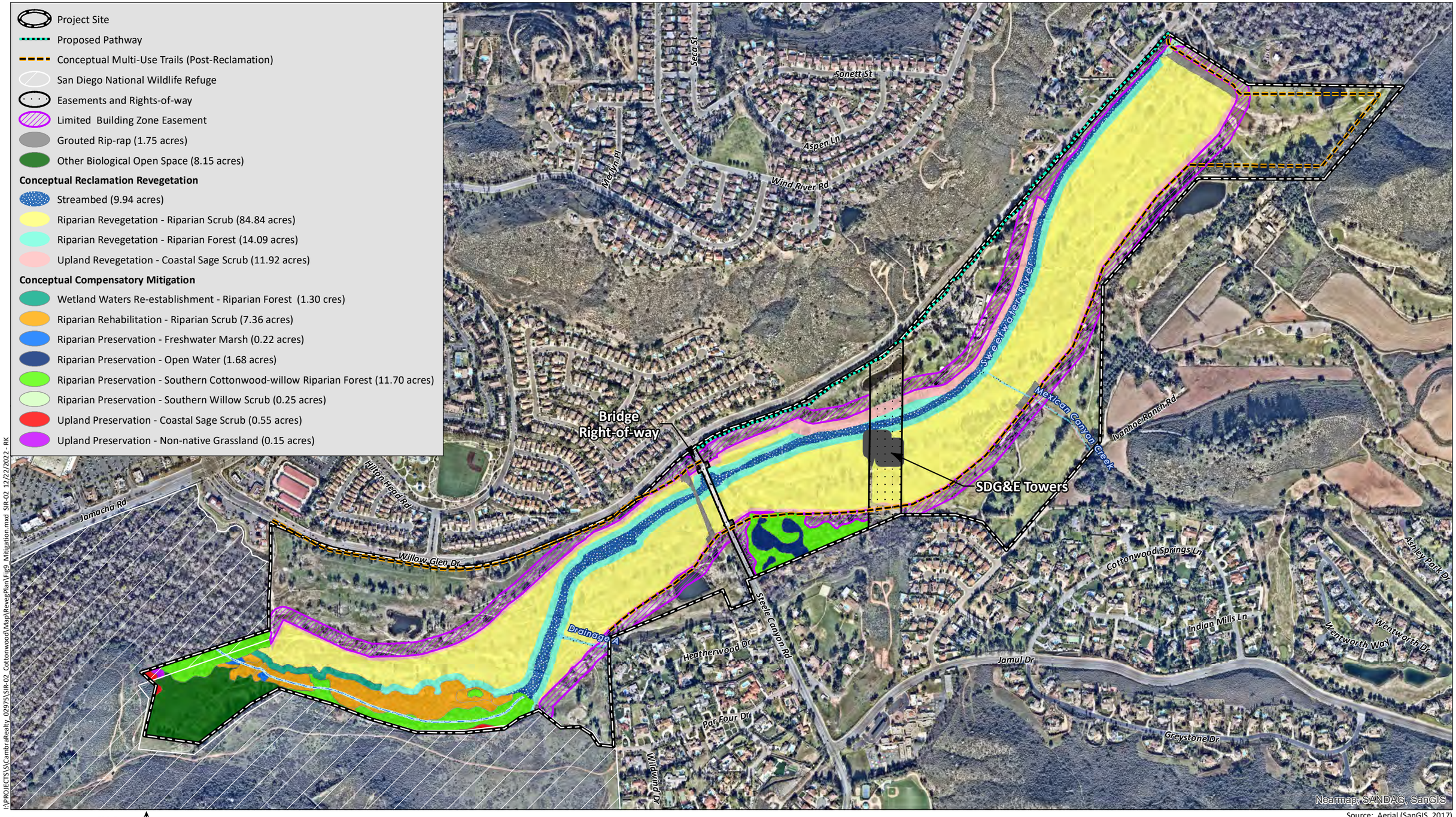
- Project Site
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- San Diego National Wildlife Refuge
- Easements and Rights-of-way
- Limited Building Zone Easement
- Grouted Rip-rap (1.75 acres)
- Other Biological Open Space (8.15 acres)

Conceptual Reclamation Revegetation

- Streambed (9.94 acres)
- Riparian Revegetation - Riparian Scrub (84.84 acres)
- Riparian Revegetation - Riparian Forest (14.09 acres)
- Upland Revegetation - Coastal Sage Scrub (11.92 acres)

Conceptual Compensatory Mitigation

- Wetland Waters Re-establishment - Riparian Forest (1.30 cres)
- Riparian Rehabilitation - Riparian Scrub (7.36 acres)
- Riparian Preservation - Freshwater Marsh (0.22 acres)
- Riparian Preservation - Open Water (1.68 acres)
- Riparian Preservation - Southern Cottonwood-willow Riparian Forest (11.70 acres)
- Riparian Preservation - Southern Willow Scrub (0.25 acres)
- Upland Preservation - Coastal Sage Scrub (0.55 acres)
- Upland Preservation - Non-native Grassland (0.15 acres)



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Source: Aerial (SanGIS, 2017)

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Conceptual Reclamation Revegetation and Compensatory Mitigation Areas

Figure 9

2.3.10 Mining Reclamation

Areas temporarily disturbed by mining activities are required to be reclaimed in accordance with the Reclamation Standards as identified in the Public Resources Code, Article 9, Section 3705, and Sections 1810 and 6550-6556 of the County Zoning Ordinance. Extraction activities will temporarily impact approximately 211.94 acres which are required to be reclaimed. Reclamation includes revegetation of areas that contained vegetation prior to mining.

Additionally, Section 86.605(d) of the County RPO (County 2011) requires that the project implement the following mitigation measures as conditions of the project's Major Use Permit:

- Any wetland buffer area shall be restored to protect environmental values of adjacent wetlands;
- In a floodplain, any net gain in functional wetlands and riparian habitat shall result in or adjacent to the area of extraction;
- Native vegetation shall be used on steep slope lands to revegetate and landscape cut and fill areas ~~in order~~ to substantially restore the original habitat value, and slopes shall be graded to produce contours and soils which reflect a natural landform, which is consistent with the surrounding area; and
- Mature riparian woodland may not be destroyed or reduced in size due to sand, gravel, or mineral extraction.

Currently, wetland buffer areas within the project site consist of patches of existing riparian habitat and extensive areas of golf course development bordering the Sweetwater River. To meet the requirements of the RPO, wetland buffer areas disturbed by mining will be restored via a combination of re-establishment of wetland waters and riparian habitat addressed in the Conceptual Wetland Mitigation Plan (HELIX 2025~~1~~a) and native habitat revegetation addressed in this plan (Figures 10a through 10e, *Conceptual Reclamation Revegetation Areas*).

The proposed project would involve the widening of the Sweetwater River floodplain by lowering existing upland elevations to a final height that is similar to, or slightly above, that of the existing Sweetwater River low-flow Sweetwater River channel. The expanded floodplain will be revegetated with wetland and riparian forest and scrub habitat resulting in a net gain of functional wetlands and riparian habitat. Cut slopes constructed along the margins of the expanded floodplain will be revegetated with native upland habitat (i.e., DCSS), improving upon the current site conditions and resulting in a biologically superior condition.

Existing RPO wetlands within the project site shall be preserved in place and their existing environmental values shall be enhanced through the rehabilitation of existing riparian habitat addressed in the Conceptual Wetland Mitigation Plan (HELIX 2025~~3~~a). All riparian re-establishment and rehabilitation addressed in the mitigation plan, combined with the revegetation addressed in this plan, shall be preserved within a biological open space easement and managed in perpetuity in accordance with the Conceptual Resource Management Plan (HELIX 2025~~3~~c).

3.0 GOALS OF REVEGETATION

The goal of this revegetation plan is to provide sufficient vegetative cover to the reclaimed site such that the soil surface is stabilized, existing wetland buffer areas are restored, long-term erosion is prevented, and the post extractive land use objectives of the site are met.

3.1 RESPONSIBILITIES

3.1.1 Project Proponent

New West Investment, Inc. (or its successor in interest, in the event a sale of the property takes place) will be responsible for financing the installation, maintenance, and monitoring of the proposed on-site revegetation effort. Ultimately, the native habitat revegetation areas, together with all biological open space designated on-site, may be transferred in fee title (subject to County approval) to a public or private entity specializing in the long-term management of open space. If such a transfer were to occur prior to County sign-off of the implemented mitigation and revegetation effort, this entity would become responsible for the maintenance program described herein.

3.1.2 County of San Diego

As part of the monitoring program, annual reports prepared by the Restoration Specialist will be submitted to the County and Wildlife Agencies (USFWS and CDFW). The County will review these reports for completeness and will determine the success of the revegetation effort together with the Wildlife Agencies.

3.1.3 Revegetation Project Designer

The Final Revegetation Plans (i.e., revegetation construction drawings) will consist of construction drawings, including irrigation and planting plans, prepared by a California registered landscape architect. These plans will meet the requirements set forth in Section 2.11 of the County's Report Format and Content Requirements for Revegetation Plans (County 2007). The Landscape Architect will inspect the irrigation system prior to seeding and planting, as needed, to help ensure proper installation and complete coverage of the revegetation area while minimizing runoff into the adjacent habitat.

3.1.4 Grading Contractor

The Grading Contractor will be responsible for salvaging topsoil from each mining subphase prior to impacts, in coordination with the Restoration Specialist. Following the completion of all mining activities in each mining subphase, the Grading Contractor will establish final grades and install salvaged topsoil per the Final Mitigation and Revegetation Plans (grading plans). As part of the project, approximately 2.5 million CY of soil material will be imported to the site to backfill areas excavated as part of mining operations and complete final grades. Imported soils are anticipated to be used in construction of the upland slopes and backfilling of an excavation pit in Phases 2 and 3 (Figure 10a, *Conceptual Reclamation Revegetation Areas – Overview*). Imported soil material used in the native revegetation areas would meet specifications provided by the Restoration Specialist to ensure that the soils are appropriate for the targeted vegetation type. The contractor will have at least five years of experience in successful

Cottonwood Sand Mine

- Project Site
- Phase 1
- Phase 2
- Phase 3
- Phase 4/Proccessing Plant
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- San Diego National Wildlife Refuge
- Overexcavation Pits
- Easements and Rights-of-way
- Erosional Control Seed Mix (97.90 acres)
- Grouted Rip-rap (1.75 acres)

Conceptual Reclamation Revegetation

- Streambed (9.94 acres)
- Riparian Revegetation - Riparian Scrub (84.84 acres)
- Riparian Revegetation - Riparian Forest (14.09 acres)
- Upland Revegetation - Coastal Sage Scrub (11.92 acres)

Bridge Right-of-way

SDG&E Towers

Sweetwater River

Greencrest Dr
Greencrest Ct
Woodpine Dr
Meadow Pl
Seca St
Sonett St
Aspen Ln
Wind River Rd
Via Rancho San Diego
Hilton Head Rd
Jamacha Rd
Willow Glen Dr
Ivanhoe Ranch Rd
Steele Canyon Rd
Heatherwood Dr
Par Four Dr
Wildwind Dr
Cottonwood Springs Ln
Indian Mills Ln
Jamul Dr
Greystone Dr
Ashley Park Dr
Wentworth Way
Wentworth Dr

Nearmap, SANDAG, SanGIS

0 700 Feet

N

Source: Aerial (SanGIS, 2019)

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HELIX Environmental Planning

Conceptual Reclamation Revegetation Areas - Overview

Figure 10a

Cottonwood Sand Mine

- Project Site
- Phase 1
- Phase 2
- Phase 3
- Phase 4/Proccessing Plant
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- San Diego National Wildlife Refuge
- Overexcavation Pits
- Easements and Rights-of-way
- Erosional Control Seed Mix
- Grouted Rip-rap

Conceptual Reclamation Revegetation

- Streambed
- Riparian Revegetation - Riparian Scrub
- Riparian Revegetation - Riparian Forest
- Upland Revegetation - Coastal Sage Scrub

Bridge Right-of-way

SDG&E Towers

Sweetwater River

Greencrest Dr
Greencrest Ct
Seca St
Sonett St
Aspen Ln
Madlyn Pl
Wind River Rd
Woodpine Dr
Via Rancho San Diego
Hilton Head Rd
Jamacha Rd
Willow Glen Dr
Ivanhoe Ranch Rd
Steele Canyon Rd
Heatherwood Dr
Par Four Dr
Wildwind Dr
Cottonwood Springs Ln
Indian Mills Ln
Jamul Dr
Greystone Dr
Ashley Park Dr
Wentworth Way
Wentworth Dr

Nearmap, SANDAG, SanGIS

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0 700 Feet

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Source: Aerial (SanGIS, 2019)

HELIX Environmental Planning

Conceptual Reclamation Revegetation Areas - Phase 1

Figure 10b

Cottonwood Sand Mine

- Project Site
- Phase 1
- Phase 2
- Phase 3
- Phase 4/Proccessing Plant
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- San Diego National Wildlife Refuge
- Overexcavation Pits
- Easements and Rights-of-way
- Erosional Control Seed Mix
- Grouted Rip-rap

Conceptual Reclamation Revegetation

- Streambed
- Riparian Revegetation - Riparian Scrub
- Riparian Revegetation - Riparian Forest
- Upland Revegetation - Coastal Sage Scrub

Bridge Right-of-way

SDG&E Towers

Sweetwater River

Greencrest Dr
Greencrest Ct
Madyn Pl
Seca St
Sonett St
Aspen Ln
Wind River Rd
Woodpine Dr
Via Rancho San Diego
Hilton Head Rd
Jamacha Rd
Willow Glen Dr
Ivanhoe Ranch Rd
Steele Canyon Rd
Heatherwood Dr
Par Four Dr
Wildwind Dr
Cottonwood Springs Ln
Indian Mills Ln
Jamul Dr
Greystone Dr
Wentworth Way
Wentworth Dr
Ashley Park Dr

Nearmap, SANDAG, SanGIS

0 700 Feet

N

Source: Aerial (SanGIS, 2019)

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HELIX Environmental Planning

Conceptual Reclamation Revegetation Areas - Phase 2

Figure 10c

Cottonwood Sand Mine

- Project Site
- Phase 1
- Phase 2
- Phase 3
- Phase 4/Proccessing Plant
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- San Diego National Wildlife Refuge
- Overexcavation Pits
- Easements and Rights-of-way
- Erosional Control Seed Mix
- Grouted Rip-rap

Conceptual Reclamation Revegetation

- Streambed
- Riparian Revegetation - Riparian Scrub
- Riparian Revegetation - Riparian Forest
- Upland Revegetation - Coastal Sage Scrub

Bridge Right-of-way

SDG&E Towers

Sweetwater River

Greencrest Dr
Greencrest Ct
Seca St
Sonett St
Aspen Ln
Madlyn Pl
Wind River Rd
Woodpine Dr
Via Rancho San Diego
Hilton Head Rd
Jamacha Rd
Willow Glen Dr
Ivanhoe Ranch Rd
Cottonwood Springs Ln
Ashley Park Dr
Indian Mills Ln
Wentworth Way
Wentworth Dr
Steele Canyon Rd
Heatherwood Dr
Par Four Dr
Wildwind Dr
Jamul Dr
Greystone Dr

Nearmap, SANDAG, SanGIS

0 700 Feet

Source: Aerial (SanGIS, 2019)

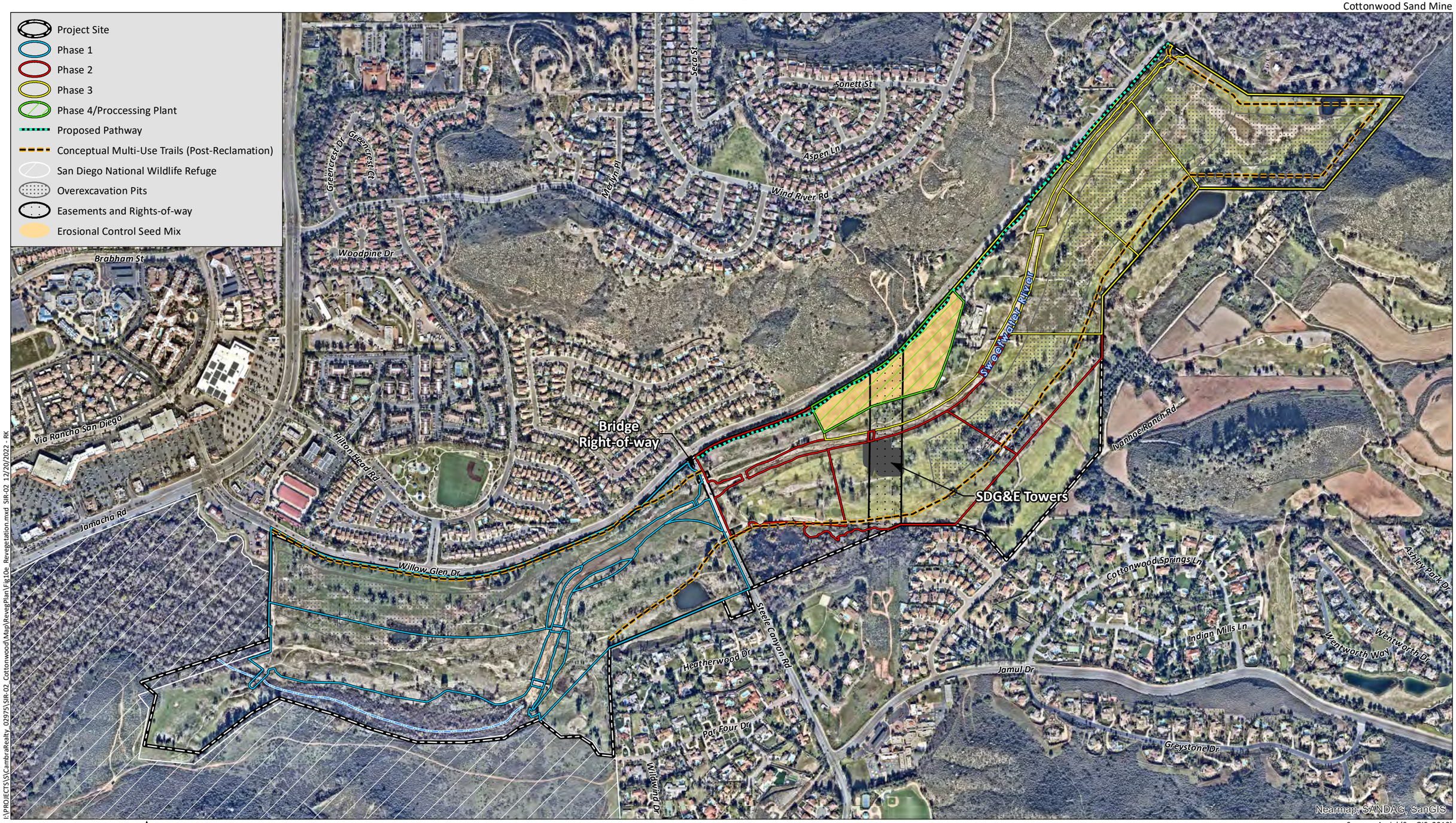
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HELIX Environmental Planning

Conceptual Reclamation Revegetation Areas - Phase 3

Figure 10d

Cottonwood Sand Mine



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0 700 Feet

Source: Aerial (SanGIS, 2019)

HELIX Environmental Planning

Conceptual Reclamation Revegetation Areas - Phase 4

Figure 10e

mine reclamation grading. Final grading, use of imported soil material, and topsoil application will be coordinated with the Restoration Specialist.

3.1.5 Installation Contractor

The Installation Contractor will have at least five years of experience in successful native upland and wetland habitat restoration in Southern California and be under the direction of the Restoration Specialist, who will assist the contractor with the installation of the target vegetation type. Different contractors may be used for the installation and maintenance phases of the revegetation effort, or they may be the same entity. The Project Proponent may change contractors at its discretion, as long as the contractor has the required level of experience, as stated above. Installation may include, but is not limited to, ordering plantings and seed, removing non-native plants and trash, mulching dead trees, installing irrigation lines, container plants, and seed.

3.1.6 Restoration Specialist

Overall supervision of the installation, maintenance, and monitoring of this revegetation effort will be the responsibility of a qualified Restoration Specialist with at least five years of experience with successful native upland and wetland habitat restoration in Southern California. The Restoration Specialist will oversee the efforts of the Installation and Maintenance Contractor(s) for the duration of the revegetation effort. Specific tasks of the Restoration Specialist include educating all participants with regard to revegetation goals and requirements, as well as directly overseeing final grading, topsoil application, weeding, planting, and seeding, as well as maintenance activities for the duration of the five-year maintenance period. The Restoration Specialist will explain to the contractor how to avoid impacts to existing sensitive habitat and sensitive species. When necessary to keep the revegetation effort on track to meet~~ing~~ final success criteria, the Restoration Specialist will provide the project proponent and contractor with a written monitoring memorandum, including a list of items in need of attention. The Restoration Specialist also will conduct annual assessments of the revegetation effort and prepare and submit an annual report to the County and Wildlife Agencies each year during the five-year maintenance and monitoring period.

3.1.7 Maintenance Contractor

The Maintenance Contractor will have at least five years of experience in successful native upland and wetland habitat restoration in Southern California and be under the direction of the Restoration Specialist, who will assist the contractor with the maintenance of the target vegetation type. Different contractors may be used for the installation and maintenance phases of the revegetation effort, or they may be the same entity. The Project Proponent may change contractors at its discretion, as long as the contractor has the required level of experience, as stated above. The Maintenance Contractor will service the entire revegetation area as required, meet the Restoration Specialist at the site when requested, and perform all checklist items in a timely manner as directed by the project proponent. This contractor will be knowledgeable regarding the maintenance of native habitat and the difference between native and non-native plants. Maintenance would include but not be limited to non-native plant species control, trash removal, irrigation adjustments and repairs, and potentially re-seeding and/or re-planting. All maintenance activities would be seasonally appropriate and approved by the Restoration Specialist.

3.1.8 Nursery (Seed/Plant Procurement)

Plants and seed may be purchased from a nursery or supplier specializing in native plants or contract grown. Plant and seed material should be locally propagated and collected from central San Diego County, within 25 miles of the site. Plant/seed orders should be placed by the Installation Contractor at least six months prior to installation.

3.2 TYPES AND AREAS OF HABITAT TO BE REVEGETATED

Areas temporarily disturbed by mining activities are required to be reclaimed in accordance with the Reclamation Standards as identified in the Public Resources Code, Article 9, Section 3705, and Sections 1810 and 6550-6556 of the County Zoning Ordinance. Additionally, wetland buffer areas disturbed as part of mining activities are required to be restored in accordance with Section 86.605(d) of the County RPO (County 2011). A portion of the reclaimed area, totaling 1.3 acres, will be re-established to wetland waters and riparian habitat ~~in order~~ to fulfill compensatory mitigation requirements as described in the Conceptual Wetland Mitigation Plan (HELIX 2025~~3~~a). ~~The~~ A total of 218.69 acres of remaining ~~areas to be reclaimed~~reclamation shall consist of 108.87 acres of wetland and riparian forest and riparian scrub revegetation located within the widened Sweetwater River floodplain, 11.92 acres of native upland (DCSS) revegetation on cut slopes~~, that will be revegetated with native upland vegetation (DCSS),~~ and 97.90 acres of erosion control on level pads that will ~~to~~ be seeded with an erosion control seed mix (Figure 9; Table 4, *Reclamation Revegetation by Mining Phase*).

Table 4
RECLAMATION REVEGETATION BY MINING PHASE
~~(~~acre[s])[1]

Habitat Type	Mining Phase				Total
	Phase 1	Phase 2	Phase 3	Phase 4	
Native Habitat Revegetation					
Diegan Coastal Sage Scrub	2.94	3.27	5.71	0	11.92
Upland Revegetation Subtotal	*2.94*	*3.27*	*5.71*	*0*	*11.92*
Riparian Forest	7.41	3.63	3.05	0	14.09
Riparian Scrub	28.68	28.11	28.05	0	84.84
Streambed (Emergent Wetland)	4.02	3.55	2.37	0	9.94
Wetland/Riparian Revegetation Subtotal	*40.11*	*35.29*	*33.47*	*0*	*108.87*
Native Habitat Revegetation Total	**43.05**	**38.56**	**39.18**	**0**	**120.79**
Other Reclamation					
Erosion Control Mix	39.68	12.30	36.73	9.19	97.90
TOTAL	**82.73**	**50.86**	**75.91**	**9.19**	**218.69**

[1] Areas are presented in acre(s) rounded to the nearest 0.01.

In addition to the compensatory mitigation and reclamation revegetation requirements, the project is required to provide species-specific mitigation for impacts to Palmer's goldenbush in accordance with mitigation measure BIO-6 (HELIX 2025~~3~~b). Impacts to 234 Palmer's goldenbush shall be mitigated at a 1:1 ratio through planting and/or seeding of the species within on-site native revegetation areas in accordance with this plan.

3.3 FUNCTIONS AND VALUES

Native habitat revegetation will (1) increase the value of the existing riparian corridor for native flora and fauna; (2) improve areas mapped as USFWS critical habitat for San Diego ambrosia, least Bell's vireo, and coastal California gnatcatcher; (3) provide additional cover for wildlife movement; and (4) provide foraging and nesting habitat for riparian species known from the area, many of which are sensitive, such as least Bell's vireo, yellow warbler, and yellow-breasted chat (HELIX 2025~~3~~b). The expanded floodplain and revegetated native habitat are expected to provide functions and services typical of naturally occurring intermittent stream channels, such as stream-energy dissipation, to reduce erosion and improve water quality, groundwater recharge, sediment transport, water purification, and foraging, breeding, live-in, and dispersal habitat for wildlife. At the end of five years of maintenance and monitoring, the native revegetation area is expected to provide self-sustaining native habitat (i.e., capable of self-regeneration without continued dependence on irrigation, soil amendments, or fertilizer) that continues on the trajectory toward developing functions and values of adjacent native habitat without further active management.

A total of 97.90 acres of flat or gently sloped areas outside of the riparian corridor will be hydroseeded with an erosion control mix to aid in soil stabilization and control erosion. These upland areas are not expected to support native habitat; however, native wildlife may use these areas as foraging habitat.

3.4 TIME LAPSE

Mining operations will occur in three separate phases, in addition to a fourth phase for final reclamation, site cleanup, and equipment removal. It is anticipated that all four phases of mining and final reclamation will be completed in approximately 16 years (Table 5, *Approximate Timing of Mining and Reclamation Activities*). Each of the three main mining phases will include multiple subphases, with each subphase totaling less than 30 acres per phase. Each subphase will begin with vegetation removal, followed by topsoil salvage, resource extraction, backfilling, and finally reclamation of the impacted area. While the precise location and timing of mining and reclamation subphases are subject to market demand and variations in geologic conditions encountered in the field, overall mining followed by reclamation for each subphase will progress, as shown on Figure 5. Reclamation, and subsequent revegetation, will occur within each subphase immediately following the completion of mining activities. Reclamation shall consist of backfilling of excavated areas, grading of final contours, application of salvaged topsoil, and planting of container stock and/or application of seed mix. Sign-off of the revegetation effort is expected by the end of the five-year maintenance and monitoring period for each individual subphase.

Table 5
APPROXIMATE TIMING OF MINING AND RECLAMATION ACTIVITIES

Mining Phase	Acres	Mining			Reclamation		
		Mining Duration (Years)	Mining Initiation Date (est.)	Mining Completion Date (est.)	Reclamation Completion Date (est.)	Revegetation Initiation Date (est.)	Revegetation Completion Date (est.)
Phase 1							
Subphase 1A	~~26.86~~22.20	1	2025~~3~~	2026~~4~~	2028~~25~~	~~2025~~2028	~~2030~~2033
Subphase 1B	~~23.38~~26.46	1	2026~~4~~	2027~~5~~	2029~~26~~	~~2026~~2029	~~2031~~2034
Subphase 1C	~~32.49~~30.42	1	2027~~5~~	2028~~6~~	2030~~27~~	~~2027~~2030	~~2032~~2035
Phase 1 Total	***~~82.73~~78.98***	***3***	***2025~~3~~***	***2028~~6~~***	***2030~~27~~***	***~~2025~~2028***	***~~2032~~2023***

Mining Phase	Acres	Mining			Reclamation		
		Mining Duration (Years)	Mining Initiation Date (est.)	Mining Completion Date (est.)	Reclamation Completion Date (est.)	Revegetation Initiation Date (est.)	Revegetation Completion Date (est.)
Phase 2							
Subphase 2A	~~15.15~~15.26	1	2028~~6~~	2029~~7~~	2031~~28~~	~~2028~~2031	~~2033~~2036
Subphase 2B	~~18.67~~19.08	1	2029~~7~~	2030~~28~~	2032~~29~~	~~2029~~2032	~~2034~~2037
Subphase 2C	~~17.04~~13.74	1	2030~~28~~	2031~~29~~	2033~~0~~	~~2030~~2033	~~2035~~2038
Phase 2 Total	***~~50.86~~48.18***	***3***	***2028~~6~~***	***2031~~29~~***	***2033~~28~~***	***~~2028~~2033***	***~~2033~~2038***
Phase 3							
Subphase 3A	~~29.39~~29.42	1	2031~~29~~	2032~~0~~	2034~~1~~	~~2031~~2034	~~2036~~2039
Subphase 3B	~~14.62~~16.15	1	2032~~0~~	2033~~1~~	2035~~2~~	~~2032~~2035	~~2037~~2040
Subphase 3C	~~16.30~~14.13	1	2033~~1~~	2034~~2~~	2036~~3~~	~~2033~~2036	~~2038~~2041
Subphase 3D	~~15.60~~18.87	1	2034~~2~~	2035~~3~~	2037~~4~~	~~2034~~2037	~~2039~~2042
Phase 3 Total	***~~75.91~~78.57***	***4***	***2031~~29~~***	***2035~~33~~***	***2037~~1~~***	***~~2031~~2037***	***~~2039~~2042***
Phase 4	~~9.19~~8.65	<1	2035~~2~~	2035~~3~~	2037~~4~~	~~2034~~2037	~~2039~~2042
TOTAL	**~~218.69~~214.4**	**~~11~~10***	**~~2023~~2025**	**~~2033~~2035**	**~~2034~~2037**	**~~2034~~2037**	**~~2039~~2042**

* Reclamation activities would occur concurrently with mining operations. Phase 4 is not considered as part of the mining duration (10 years) since it involves the final work for reclamation rather than an active mining phase for the entire duration.

Compensatory mitigation for impacts to riparian habitat, other sensitive vegetation communities, and jurisdictional waters and wetlands will occur prior to or concurrent with initiation of project grading for Phase 1 (Table 6, *Compensatory Mitigation and Reclamation Revegetation Phasing*). Preservation of existing native riparian habitat and riparian habitat rehabilitation will occur prior to or concurrent with initiation of project grading for Subphase 1A. Initiation of wetland waters re-establishment would occur prior to or during the fall of the year in which project reclamation is completed, and revegetation is initiated for Subphase 1B. Sign off of the on-site wetland mitigation effort is expected by the end of the five-year maintenance and monitoring period.

Table 6
COMPENSATORY MITIGATION AND RECLAMATION PHASING
(acre[s])[1]

Habitat	Phase 1		Phase 2		Phase 3		Phase 4		Total	
	M^2	R^2	M^2	R^2	M^2	R^2	M^2	R^2	M^2	R^2
Conceptual Reclamation Revegetation										
Native Habitat Revegetation										
Riparian Forest	0	7.41	0	3.63	0	3.05	0	0	0	14.09
Riparian Scrub	0	28.68	0	28.11	0	28.05	0	0	0	84.84
Streambed (Emergent Wetland)	0	4.02	0	3.55	0	2.37	0	0	0	9.94
Coastal Sage Scrub	0	2.94	0	3.27	0	5.71	0	0	0	11.92
Subtotal	*0*	*43.05*	*0*	*38.56*	*0*	*39.18*	*0*	*0*	*0*	*120.79*
Other Reclamation										
Erosion Control ~~Mix~~Areas	0	39.68	0	12.30	0	36.73	0	9.19	0	97.90
Revegetation Total	***0***	***82.73***	***0***	***50.86***	***0***	***75.91***	***0***	***9.19***	***0***	***218.69***
Conceptual Compensatory Mitigation										
Wetland Waters Re-Establishment										
Riparian Forest	1.30	0	0	0	0	0	0	0	1.30	0
Rehabilitation										

Habitat	Phase 1		Phase 2		Phase 3		Phase 4		Total	
	M^2	R^2	M^2	R^2	M^2	R^2	M^2	R^2	M^2	R^2
Riparian Scrub	7.36	0	0	0	0	0	0	0	7.36	0
Preservation										
Open Water	1.68	0	0	0	0	0	0	0	1.68	0
Freshwater Marsh	0.22	0	0	0	0	0	0	0	0.22	0
Southern Cottonwood-Willow Riparian Forest	11.70	0	0	0	0	0	0	0	11.70	0
Southern Willow Scrub	0.25	0	0	0	0	0	0	0	0.25	0
Coastal Sage Scrub	0.55	0	0	0	0	0	0	0	0.55	0
Non-native grassland	0.15	0	0	0	0	0	0	0	0.15	0
Mitigation Total	**23.21**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15.53**	**0**
TOTAL	**23.21**	**82.73**	**0**	**50.68**	**0**	**75.91**	**0**	**9.19**	**23.21**	**218.69**

[1] Areas are presented in acre(s) rounded to the nearest 0.01.

[2] M = Compensatory Mitigation; R = Reclamation Native Habitat Revegetation.

3.5 COST

A draft cost of $450,000 for the life of the project for biological monitoring and reporting, and approximately $100,000 per acre on average for the native revegetation installation and maintenance for five years was estimated for the overall reclamation addressed in this plan (averaged for irrigated and non-irrigated areas). Due to the extended nature of this project, this cost is preliminary and does not include the cost of inflation. This cost also does not include any grading, topsoil salvage or application, maintenance during the construction period, fencing installation/repairs, or erosion control for native habitat revegetation areas.

4.0 DESCRIPTION OF THE REVEGETATION ~~SITE~~AREAS

4.1 SITE SELECTION

Target habitat types to be revegetated within the portions of the site disturbed by mining activities were selected based on proposed final landform contours, landscape position, hydrology, existing habitats, and other biological factors. Post-reclamation, the site's final landform will be a relatively flat plain that gently slopes downward from east to west, with a widened river floodplain bisecting the length of the site. The widened floodplain is expected to average approximately 450 to 720 feet in width and would be lower in elevation than the existing ground level across the site. The existing low-flow river channel would be retained in place with banks up to a minimum height of 3.5 feet to accommodate annual water transfers from Loveland Reservoir (located upstream of the site) to Sweetwater Reservoir (located downstream of the site) that are controlled by the Sweetwater Authority. The low-flow river channel banks would slope down to the expanded floodplain, which will be at a similar elevation to the existing low-flow river channel or slightly higher. In some areas, benches may be constructed at the edges of the floodplain to accommodate varying vegetation types. Slopes bordering the expanded floodplain would slope up at a 3:1 ratio or shallower, with an elevation difference of up to 25 feet between the top of slope and bottom of the expanded floodplain.

The widened river floodplain shall be vegetated with riparian forest habitat within approximately 50 feet of the existing channel, and riparian scrub habitat in the remainder of the floodplain (Figure 9). Riparian habitat occurs immediately upstream and downstream of the project site, indicating that the site contains suitable hydrology to support riparian habitat. Sweetwater River conveys intermittent flows that are artificially modified by the Sweetwater Authority, which conducts controlled releases and water transfers from Loveland Reservoir (located upstream of the site) to Sweetwater Reservoir (located downstream of the site). The existing low-flow river channel would be retained in place to convey these flows. Exotic and non-native plant species within the low-flow river channel would be removed and the streambed would be seeded with an emergent wetland seed mix. The broadened floodplain area bordering the river shall be graded to an elevation similar to or slightly higher than the low-flow river channel bottom which will allow floodwaters that breach the low-~~-~~flow channel to spread out in the adjacent floodplain area. Mapped soils within the widened river channel are primarily Riverwash and Visalia Sandy Loam (Figure 6), which are frequently found in alluvial floodplains within and near wetlands. Additionally, the soil and geologic study conducted by Geocon found alluvial channel and alluvial floodplain deposits within the expanded floodplain and riparian forest and riparian scrub revegetation areas at and below the final grade depth which is estimated to be between 320 and 355 AMSL (Geocon 2020). The expanded floodplain in Phases 1a to 1c and Phase 2a will be mined to final elevation heights and are not anticipated to require backfilling with imported material. Portions of expanded floodplain in Phases 2b and 2c and Phases 3a to 3c that overlap with an excavation pit would be excavated below the final elevation heights and backfilled with wash fines and imported material that would consist of inert debris (Figure 10a). Imported soils within the expanded floodplain would be required to meet specifications provided by the Restoration Specialist to ensure that the soils are appropriate for the targeted vegetation type.

The slopes bordering the widened river channel shall be vegetated with DCSS (Figure 10a), which occurs within the project site and surrounding area (Figure 7). The flat graded pads outside of the widened river floodplain shall be seeded with an erosion control seed mix in an effort to stabilize soils and prevent erosion.

4.2 LOCATION AND SIZE OF REVEGETATION ~~SITE~~AREAS

The revegetation area is located on-site, between approximately 32.753919 and 32.740810 north latitude, and between -116.905365 and -116.928629 west longitude. A total of 218.69 acres of disturbed areas would be reclaimed and revegetated; 108.87 acres of wetland and riparian forest and riparian scrub revegetation located within the widened Sweetwater River floodplain, 11.92 acres of cut slopes that would be revegetated with native upland vegetation (DCSS), and 97.90 acres of level pads to be seeded with an erosion control seed mix (Figure 11, *Conceptual Biological Open Space*). Additionally, 1.30 acres of wetland waters re-establishment would be completed as detailed within the Conceptual Wetland Mitigation (HELIX 2025~~3~~a).

In addition to the revegetation areas, wetland restoration to fulfill the project's compensatory mitigation requirements will occur contiguously with the proposed revegetation, at the downstream portion of the Sweetwater River, in the southwestern portion of the site (Figure 9). The wetland mitigation effort, which includes a total of 22.51 acres of wetland waters re-establishment, rehabilitation, and preservation of wetland and riparian habitat on-site, is detailed in the Conceptual Wetland Mitigation Plan (HELIX 2025~~3~~a).

Cottonwood Sand Mine

- Project Site
- Proposed Pathway
- Conceptual Multi-Use Trails (Post-Reclamation)
- Open Space Conceptual Signage Location
- Existing Fencing
- Proposed Fencing
- Easements and Rights-of-way
- Limited Building Zone Easement
- Biological Open Space
- Non-Biological Open Space
- Additional Reclaimed Areas*
- Retained in Existing Condition

**Additional reclaimed areas are composed of graded upland pads located outside of the expanded Sweetwater River floodplain that will be seeded with an erosion control seed mix.*

Jamacha Way
Sonett St
Aspen Ln
Wind River Rd
Sweetwater River
Sea Pines Rd
Via Rancho San Diego
Jamacha Rd
Augusta Ct
Hilton Head Rd
Willow Glen Dr
Bridge Right-of-way
SDG&E Towers
Access Road
SDG&E Easement
Ivanhoe Ranch Rd
Steele Canyon Rd
Heatherwood Dr
Par Four Dr
Jamul Dr
Greystone Dr
Cottonwood Springs Ln
Indian Mills Ln
Wentworth Way
Ashley Park Dr

Nearmap, SANDAG, SanGIS

0 700 Feet

Source: Aerial (SanGIS, 2019)

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HELIX Environmental Planning

Proposed Biological Open Space

Figure 11

4.3 FUNCTIONS AND VALUES

The areas proposed for revegetation are currently characterized by golf course fairways and associated infrastructure (i.e., cart paths, artificial ponds, clubhouse, etc.), ruderal vegetation and disturbed habitat associated with previous golf course development and operation, and a mixture of native and non-native planted landscaped trees. The existing functions and values of these areas are limited as a result of previous development into a golf course; the area is currently dominated by Bermuda grass (*Cynodon dactylon*) or bare ground. Planted trees within the golf course currently provide potential breeding habitat for bird species such as the sensitive western bluebird, which was observed throughout the project site (HELIX 2025~~3~~b). Patches of existing riparian habitat located east of Steele Canyon Road and in the downstream portion of the Sweetwater River provide habitat for birds, small rodents and mammals, and lizards and amphibians for both foraging, breeding, and live-in habitat. The least Bell's vireo was detected within this area during biological surveys conducted in 2019 and 2022 and confirmed to be breeding within existing riparian habitat located to the east of Steele Canyon Road (HELIX 2025~~3~~b).

4.4 PRESENT AND PROPOSED USES

The current general land uses on the project site include a public golf course in addition to expanded fairways associated with golf course improvements. Construction of the golf course began in the 1960s and continued into the 1970s as the golf course expanded and improved. The site currently contains one operational and one abandoned public golf course (golf play and maintenance of landscaped turf in the western portion of the site was discontinued in 2017). The proposed project would convert the two golf courses into a sand mining operation that would be conducted in three phases over 10 years, with a final fourth phase for cleanup, equipment removal, and final reclamation.

Following mining and reclamation activities, the project site would be characterized by an expanded Sweetwater River floodplain and associated riparian corridor that would be preserved within the project's biological open space (Figure 11). The biological open space would be managed over the long term by a habitat manager according to a Resource Management Plan (HELIX 2025~~3~~c). Hiking trails are proposed to be established around the perimeter of the biological open space area following site reclamation; no hiking trails are proposed within the expanded Sweetwater River floodplain or associated DCSS slopes.

There are two easements that bisect the biological open space that would remain following mining activities and site reclamation. One of the easements consists of the Steele Canyon Road bridge right-of-way (ROW) that occurs within the central portion of the site (Figure 7). The Steele Canyon Road bridge ROW comprises the Steele Canyon Road bridge and associated footings that bisect the project's biological open space in a generally north-to-south direction across the Sweetwater River. The Steele Canyon Road bridge ROW has been excluded from the biological open space; therefore, the presence of the bridge ROW is not expected to affect the long-term viability and management of the biological open space. The second easement consists of a San Diego Gas & Electric (SDG&E) easement, which occurs within the central portion of the site, east of Steele Canyon Road, and crosses over the northeastern portion of the project site, where reclamation and revegetation activities are proposed to occur (Figure 9). The SDG&E easement bisects the project's biological open space area. The easement consists of overhead utility lines that run in a north/south direction across the Sweetwater River. Three transmission tower~~s~~ poles and other associated infrastructure have been excluded from the biological open space; therefore, the presence of the SDG&E easement is not expected to affect the long-term viability and management of the biological open space.

A small portion of the area to be revegetated with native habitat following mining activities, approximately 3.16 acres, would occur within the SDG&E and would be excluded from the biological open space area. The easement will be revegetated with the same plant palette as the rest of the revegetation area. Existing elevations would be lowered by 15 to 20 feet, but the three transmission towers would remain at their current elevation, leaving a raised "island" within the expanded Sweetwater River floodplain. An access ramp would be constructed on the western side of the island to connect to a 28-foot-wide access road within the existing SDG&E right-of-way easement that runs from the towers to the top of the constructed southern slope at the southern boundary of the expanded floodplain. The ramp, access road, and slopes surrounding the towers would be compacted and lined, as needed, for access and to prevent erosion. It is expected that periodic trimming of vegetation to facilitate vehicle access by SDG&E maintenance crews would need to be conducted within the access road. This work would be conducted as needed by SDG&E. Fencing and signage would be installed along the ramp and access road to prevent unauthorized access and impacts to the native habitat revegetation area and biological open space located adjacent to the access road.

4.5 REVEGETATION REFERENCE SITE

Native habitat within the southwestern portion of the site was used as a reference site for the riparian forest and scrub habitats and DCSS habitat. Revegetation goals and success criteria presented in this plan have been based on visual estimates of native cover noted in the reference site during biological surveys conducted for the biological technical report (HELIX 2025~~3~~b). No reference site was established for erosion control areas.

5.0 IMPLEMENTATION PLAN

This section provides the details for the execution of the proposed revegetation.

5.1 RATIONALE FOR EXPECTING IMPLEMENTATION SUCCESS

The proposed revegetation effort is anticipated to be successful based on the following: (1) occurrence of healthy native upland and wetland vegetation within the project site; (2) the presence of appropriate soils within the riparian forest and riparian scrub revegetation areas following completion of mining activities based on the project's geologic study (Geocon 2020), proposed post-reclamation final landforms and elevations, and requirements for use of imported soils within the expanded floodplain based on the specifications provided by, and approval of, the Restoration Specialist; (3) flows through the nearby existing Sweetwater River channel, and associated groundwater levels, combined with natural rainfall and periodic surface flooding following major rain events, are expected to provide sufficient hydrology to support riparian vegetation within the riparian forest and riparian scrub revegetation areas; (4) the use of plantings and seed of native species known to occur on-site; (5) the use of temporary irrigation to aid plant establishment; and (6) a financial commitment to ensure the long-term management of the revegetated areas.

The proposed erosion control is anticipated to be successful because the areas proposed for temporary reclamation will be relatively flat, thereby retaining seed and providing a suitable growth medium for seed establishment. A combination of native species in the applied seed mix, as well as non-native annual grasses, will be acceptable cover in the erosion control areas.

5.2 FINANCIAL ASSURANCES

A revegetation agreement shall be signed and notarized by the property owner following the approval of this Revegetation Plan and be accompanied by the required security as agreed upon by the County.

5.3 SCHEDULE

Plant and seed orders should be placed at least six months prior to targeted installation because some species may need to be specially collected and/or grown for the project. Topsoil salvage should occur prior to extraction activities within each mining subphase area. Revegetation activities will be initiated for each subphase immediately following the completion of mining activities in that area, as detailed above in Tables 5 and 6. Reclamation grading of the revegetation area and topsoil application using heavy equipment will follow the bird breeding season timing restrictions outlined in more detail further below. Irrigation (as applicable), plantings, and seed will be installed after final grades have been established.

~~-~~Maintenance of the revegetation area will begin following the completion of installation and ~~will~~ continue for five years within each individual subphase, or until final performance standards have been met for the respective subphase. Monitoring and coordination will begin during topsoil salvage, ~~and will~~and continue during site preparation, revegetation installation, and through the five years after revegetation has been installed, or until final performance standards have been met. Maintenance and monitoring of the erosion control areas shall begin following hydroseed application, and continue for two years, or until performance standards established for these areas have been met.

5.4 REVEGETATION AREA ~~SITE~~ PREPARATION

5.4.1 Protective Fencing

As part of the project design, temporary fencing will be installed around the perimeter of the project site where fencing is currently not present or in need of repair. In addition, during mining, temporary environmental fencing shall be installed around active work areas to protect sensitive biological resources, such as the Sweetwater River and native vegetation communities. All construction-related fencing would be removed within an area that is being actively revegetated. No temporary fencing is proposed to be installed along the boundaries of the wetland and riparian forest and riparian scrub revegetation areas since it would be located within the expanded Sweetwater River floodplain and is expected to periodically flood.

5.4.2 Topsoil Salvage

Prior to mining a subphase, the top two inches of soil will be scraped off and removed from the site to reduce the existing weed seed bank. The next 6 to 12 inches of soil, as determined by the Restoration Specialist during salvage operations, would then be collected and stored on-site in windrows that are no more than three feet in height in an area that had been prepared for topsoil storage by clearing all vegetation and scraping away the top two inches. Stored topsoil should not be disturbed until it is installed in the revegetation area. Salvaged topsoil will be applied to the native revegetation as directed by the Restoration Specialist.

5.4.3 Weed Control

Weed control shall be implemented during mining operations as directed in the project's Reclamation Plan (EnviroMINE 2025~~2~~). Periodic monitoring through visual observations shall be conducted to identify and monitor non-native and invasive plant species populations within the project site. Weed control shall be implemented, if determined to be necessary, to control invasive weed species within the site. Non-native vegetation will be removed by hand or through the use of the wetland-approved herbicide.

5.4.4 Reclamation Grading and Salvaged Topsoil Application

Grading the revegetation area shall be completed as part of site reclamation immediately following the completion of mining operations within each subphase. Grading would include the establishment of all final slopes and topographic features and incorporation of accumulated wash fines, fill soils where necessary, and salvaged topsoil. Material that has been imported to fill the excavation areas in Phases 2b and 2c and Phases 3a to 3c will meet the specifications provided by the Restoration Specialist to ensure that appropriate soils and texture are used for the target vegetation types. The existing ~~Sweetwater River~~ low-flow Sweetwater River channel would be retained in place to convey controlled releases and water transfers from Loveland Reservoir (located upstream of the site) to Sweetwater Reservoir (located downstream of the site), as operated by the Sweetwater Authority. The riparian forest and riparian scrub revegetation areas will be graded in accordance with the grading sheets of the Final Revegetation Plans. The banks of the low-flow river channel would be a minimum of 3.5 feet in height and will slope down the expanded floodplain. The elevations of the expanded floodplain would be similar to or slightly higher than the bottom of the low-flow river channel. Graded areas within the expanded Sweetwater River floodplain would be left in a rough grade state with micro topographic relief that mimics natural topography. Salvaged topsoil will be applied to all revegetation areas, including upland slopes, under the direction of the Restoration Specialist. Planting and irrigation should not be installed until the Restoration Specialist has approved the grading.

Rip rap energy dissipation structures are proposed as part of the reclamation (Figures 9 and 10a through 10e). The purpose of the rip rap energy dissipation structures would be to dissipate stream flow energy, protect downstream areas from erosion, and protect existing infrastructure (i.e., Steele Canyon Road bridge and SDG&E transmission towers and powerlines). A rock drop structure is proposed to be installed downstream (west) of the Steele Canyon Road bridge within the widened Sweetwater River channel perpendicular to stream flows. Rock rip rap would be installed in two areas along the cut fill slopes: along the eastern slope of the widened channel where the Sweetwater River enters the project site, and along the southern slope to the east of Steele Canyon Road at the confluence of Mexican Canyon Creek and Sweetwater River.

Reclamation grading and installation of salvaged topsoil will occur outside of the general bird nesting season (February 15 to August 31), coastal California gnatcatcher nesting season (March 1 to August 15), and least Bell's vireo nesting season (March 15 to September 15) to avoid impacts to nesting birds. If grading and reclamation activities must occur during one of these bird breeding seasons, the relevant mitigation measures contained in the project's BTR (HELIX 2025~~3~~b), such as pre-construction surveys, shall be implemented.

5.4.5 Initial Weed Control

The native habitat revegetation areas and erosion control areas will have been recently graded following mining and reclamation activities and are not expected to require any initial weed control.

5.4.6 Soil Amendments

No soil amendments are recommended for the native riparian habitat revegetation areas due to the proximity of healthy native riparian habitat and soils mapping, indicating that soils in this area consist of Riverwash and Tujunga sand (Figure 6; NRCS 2022), both appropriate for riparian forest and riparian scrub habitat. Soil amendments are likewise not expected for the DCSS habitat area due to the use of salvaged topsoil. Lastly, soil amendments will not be used in erosion control areas since they are not needed to fulfill the primary purpose of stabilization of disturbed areas.

5.4.7 Erosion Control

Erosion control BMP measures will be installed upstream of active revegetation areas wherever deemed necessary to prevent sediment movement ~~to prevent sediment movement into the areas~~ from nearby mining. Potential erosion control measures may include, but are not limited to, windrows of cut vegetation, organic matting, fiber rolls (straw wattles), and silt fencing. Any installed erosion control materials will be removed from the ~~site~~ revegetation areas once sufficient native plant cover is established. In addition, both in the DCSS revegetation areas, as well as in the erosion control areas located on the graded pads outside of the widened floodplain, a hydro-slurry containing tackifier and wood fiber/mulch will be applied with the seed mixture to help provide erosion control ~~across the site~~.

5.5 PLANTING PLAN

5.5.1 Native Habitat Revegetation

Planting Palettes/Seed Mixes

After site preparation and irrigation installation have been completed within each reclaimed subphase, native plantings and/or seed will be installed within the riparian forest (Table 7, *Riparian Forest Plant Palette*), riparian scrub (Table 8, *Riparian Scrub Plant Palette*), emergent wetland (Table 9, *Streambed (Emergent Wetland) Plant Palette*), and upland (Table 10, *Diego Coastal Sage Scrub Plant Palette*) revegetation areas~~, and an erosion control seed mix (Table 11, *Erosion Control Seed Mix*) will be applied to the graded pads located outside of the widened Sweetwater River floodplain (Figures 10a through 10e)~~. Plantings will be irrigated with well water. The existing low-flow river channel will be seeded with low-growing herbaceous wetland vegetation to facilitate channel stability while not impeding potential channel maintenance activities.

The species selected for planting and seeding within native revegetation areas have been observed within the on-site habitat or are known to occur within the surrounding area. These species grow in a variety of moisture regimes, and the plant palettes are intended to provide the flexibility for vegetation to establish based on microenvironmental variations in moisture within the riparian forest and scrub areas within the expanded floodplain. Fast-growing annual species that are quick to germinate will be included in the seed mix to provide initial cover and help protect against soil erosion. Slower-growing perennials will provide long-term cover and further protection against erosion.

All plants and seed should be obtained from southern San Diego County, whenever possible. Container stock orders or production from seed may be needed up to 12 months prior to the anticipated installation date. Species substitutions, quantity changes, or use of ~~commercial seed~~bulk-grown native seed may be allowed, if necessary, at the discretion of the Restoration Specialist. The Restoration Specialist must approve all seed and container stock orders, including source locations, prior to ordering.

Whenever possible, plant and seed installation shall be conducted during the wet season, between November 1 and February 15, although irrigation may extend these dates. All efforts will be made to plant and seed during this timeframe since beneficial temperatures and rainfall will aid in germination, establishment, and growth of target species. Hydroseeding should be conducted early in the day, when winds are relatively calm. ~~The Restoration Specialist must inspect all plant material prior to installation; root bound material, any material with Argentine ants or other pests, and any other plants deemed damaged will not be accepted. Fast-growing annual species that are quick to germinate will be included in the seed mix to provide initial cover and help protect against soil erosion. Slower-growing perennials will provide long-term cover and further protection against erosion.~~

Table 7
RIPARIAN FOREST PLANT PALETTE[1] (14.09 acres)

CONTAINER STOCK[2]				
Scientific Name	**Common Name**	**Spacing on Center (ft.)**	**Grouping Size**	**Number Per Acre**
Artemisia dracunculus	tarragon	5	5	100
Baccharis salicifolia	mule fat	6	10	200
Distichlis spicata	saltgrass	10	3	150
Iva hayesiana	San Diego marsh elder	5	5	120
Platanus racemosa	western sycamore	15	3	50
Populus fremontii ssp. *fremontii*	western cottonwood	15	3	50
Quercus agrifolia	California live oak	15	3	50
Rosa californica	California wild rose	5	3	100
Salix exigua	sand bar willow	8	5	120
Salix gooddingii	black willow	12	5	150
Salix laevigata	red willow	12	5	180
Salix lasiolepis	arroyo willow	12	5	180
Sambucus nigra	blue elderberry	10	3	50
			Total	**1,500**

SEED MIXTURE[2]			
Scientific Name	**Common Name**	**%Purity/ Germination**	**Pounds per Acre**
Ambrosia psilostachya	western ragweed	45/45	4
Anemopsis californica	yerba mansa	55/80	1
Artemisia douglasiana	Douglas' sagewort	15/40	3
Artemisia palmeri	Palmer's sagebrush	20/50	2
Baccharis salicifolia	mule fat	10/20	3
Baccharis sarothroides	broom baccharis	7/42	1
Bolboschoenus maritimus	alkali bulrush	90/60	1
Eleocharis macrostachys	pale spike-rush	95/60	1
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	95/80	1
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5

Oenothera elata ssp. *hookeri*	evening primrose	98/84	0.5
Pluchea odorata	salt marsh fleabane	30/40	2
		Total	**20.0***

[1] The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities.

[2] Substitutions require approval of the Restoration Specialist.

* No less than 20 lbs. per acre of seed shall be installed.

Table 8
RIPARIAN SCRUB PLANT PALETTE[1] (84.84 acres)

	CONTAINER STOCK[2]			
Scientific Name	**Common Name**	**Spacing on Center (ft.)**	**Grouping Size**	**Number Per Acre**
Ambrosia pumila [3,4]	San Diego ambrosia	5	5	25
Artemisia dracunculus	tarragon	5	5	200
Asclepias fascicularis	narrow leaf milkweed	5	3	50
Baccharis salicifolia	mule fat	6	10	220
Croton californicus	California croton	5	5	200
Distichlis spicata	saltgrass	10	3	200
Ericameria palmeri var. *palmeri* [4]	Palmer's goldenbush	5	5	50
Iva hayesiana	San Diego marsh elder	5	5	200
Platanus racemosa	western sycamore	15	3	30
Populus fremontii ssp. *fremontii*	western cottonwood	15	3	30
Rosa californica	California wild rose	5	3	50
Salix exigua	sand bar willow	8	5	180
Salix gooddingii	black willow	12	5	100
Salix laevigata	red willow	12	5	30
Salix lasiolepis	arroyo willow	12	5	30
Sambucus nigra	blue elderberry	10	3	100
			Total	**1,695**

SEED MIXTURE[2]			
Scientific Name	**Common Name**	**%Purity/ Germination**	**Pounds per Acre**
Ambrosia psilostachya	western ragweed	45/45	4
Artemisia douglasiana	Douglas' sagewort	15/40	3
Artemisia palmeri	Palmer's sagebrush	20/50	2
Baccharis salicifolia	mule fat	10/20	3
Baccharis sarothroides	broom baccharis	7/42	1
Bolboschoenus maritimus	alkali bulrush	90/60	1
Croton californicus	California croton	90/40	1
Eleocharis macrostachys	pale spike-rush	95/60	1
Isocoma menziesii	goldenbush	18/40	1
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	95/80	1
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5
Oenothera elata ssp. *hookeri*	evening primrose	98/84	0.5
Pluchea odorata	salt marsh fleabane	30/40	2
		Total	**21.0***

1 The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities.
2 Substitutions require approval by the Restoration Specialist.
3 If available at a nursery; should be installed in the higher elevation portions of this habitat (i.e., closer to the upland slopes).
4 Special status species.
* No less than 20 lbs. per acre of seed shall be installed.

Table 9
STREAMBED (EMERGENT WETLAND) SEED MIX[1] (9.94 acres)

SEED MIXTURE[2]			
Scientific Name	**Common Name**	**%Purity/ Germination**	**Pounds per Acre**
Anemopsis californica	yerba mansa	55/80	1
Artemisia douglasiana	Douglas' sagewort	15/40	3
Bolboschoenus maritimus	alkali bulrush	90/60	1
Cyperus eragrostis	tall flatsedge	80/75	1
Eleocharis macrostachys	pale spike-rush	95/60	1
Erythranthe cardinalis (*Mimulus cardinalis*)	Cardinal monkey flower	5/64	0.5
Erythranthe guttata (*Mimulus guttatus*)	seep monkey flower	10/69	0.5
Euthamia occidentalis	western goldenrod	24/45	1
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5
Pluchea odorata	salt marsh fleabane	30/40	2
		Total	**11.5***

1 The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities.
2 Substitutions require approval of the Restoration Specialist.
* No less than 10 lbs. per acre of seed shall be installed.

Table 10
DIEGAN COASTAL SAGE SCRUB PLANT PALETTE[1] (11.92 acres)

CONTAINER STOCK[2]				
Scientific Name	**Common Name**	**Spacing on Center**	**Grouping Size**	**Number per Acre**
Artemisia californica	California sagebrush	5	25	250
Asclepias fascicularis	narrow leaf milkweed	5	3	50
Bebbia juncea	rough sweetbush	10	3	50
Encelia californica	coast sunflower	5	20	100
Eriogonum fasciculatum	flat top buckwheat	5	25	250
Hazardia squarrosa	saw-toothed goldenbush	5	10	100
Hesperoyucca whipplei	chaparral yucca	3	3	50
Heteromeles arbutifolia	toyon	10	3	150
Mimulus aurantiacus	bush monkey flower	5	10	100
Rhus integrifolia	lemonadeberry	10	5	50
Salvia apiana	white sage	5	10	250
			TOTAL	**1,400**

SEED MIX[2]			
Scientific Name	**Common Name**	**Percent Purity/ Germination**	**Pounds Per Acre**
Acmispon glaber	deerweed	95/80	0.5
Amsinckia intermedia	common fiddleneck	45/65	1
Artemisia californica	California sagebrush	30/60	4
Deinandra fasciculata	fascicled tarplant	25/65	3
Encelia californica	California encelia	30/45	2
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	N/A	2
Eriogonum fasciculatum	flat top buckwheat	50/20	7
Eriophyllum confertiflorum	golden-yarrow	N/A	2
Eschscholzia californica	California poppy	98/80	2

SEED MIX[2]			
Scientific Name	**Common Name**	**Percent Purity/ Germination**	**Pounds Per Acre**
Lupinus bicolor	miniature lupine	98/85	1
Phacelia parryi	Parry's phacelia	95/80	1
Salvia apiana	white sage	88/30	3
Stipa lepida, deawned	foothill needlegrass	90/71	3
Stipa pulchra, deawned	purple needlegrass	90/75	3
		TOTAL	**34.5***

[1] The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities.
[2] Substitutions require approval of the Restoration Specialist.
* No less than 30 lbs. per acre of seed shall be installed.

~~**Table 11**~~
~~**EROSION CONTROL SEED MIX[1,2] (97.90 acres)**~~

~~**Scientific Name**~~	~~**Common Name**~~	~~**Percent Purity/ Germination**~~	~~**Pounds Per Acre**~~
~~*Ambrosia psilostachya*~~	~~western ragweed~~	~~45/45~~	~~6~~
~~*Bromus carinatus*~~	~~California bromegrass~~	~~95/90~~	~~8~~
~~*Plantago insularis*~~	~~plantain~~	~~98/75~~	~~20~~
~~*Vulpia microstachys*~~	~~small fescue~~	~~90/80~~	~~20~~
		~~**TOTAL**~~	~~**54***~~

~~[1] The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities.~~
~~[2] Substitutions require approval of the Restoration Specialist.~~
~~* No less than 50 lbs. per acre of seed shall be installed.~~

Container Plantings

Container plantings will be installed in irrigated revegetation areas, including riparian forest, riparian scrub, and DCSS areas. Container stock should be one-gallon size, rooted appropriately (i.e., neither root bound nor insufficiently developed), and should be installed in holes that are the same size as the planting container and backfilled afterward. Holes will be dug with mechanical augers where possible and by hand elsewhere. Plants should be installed in a way that mimics natural plant distribution; therefore, container plantings will be installed in groupings proportional to their density per acre. Upland planting holes should be filled with water twice before plantings are installed~~,~~ and then watered in after planting.

~~The Restoration Specialist must inspect all plantings for signs of disease on the day of delivery.~~ The Restoration Specialist must inspect all plant material prior to installation; root-bound material, any material with Argentine ants or other pests, and any other plants deemed damaged will not be accepted. They must be able to specifically identify Kuroshio shot-hole borer, gold-spotted oak borer, and thousand-canker fungus. Any diseased plants will be rejected and returned to the seller.

Cuttings

Cuttings of riparian trees or shrubs may be used in the riparian forest and riparian scrub revegetation areas. Any ~~riparian tree or shrub~~ cuttings would be in addition to the container plantings and seed specified in Table 7 and Table 8. If feasible, cuttings should be collected from within the existing riparian

corridor or the same watershed by personnel experienced in cutting collection and installation. Any species listed for planting can also be readily grown from cuttings installed directly into the ground, with the exception of blue elderberry (*Sambucus nigra*) and western sycamore (*Platanus racemosa*).

Prior to taking cuttings, it is essential that all equipment being used, typically consisting of a bucket of water and wood cutters, is sterilized so no pathogen cross-contamination occurs. All collected material must be inspected by a Restoration Specialist or nursery staff trained to detect Kuroshio shot-hole borer, gold spotted oak borer, and thousand canker fungus. Any infested material that is collected must be immediately mulched to pieces small than 1 inch in size. To maintain genetic diversity within the restored areas, no more than 10 cuttings should be taken from any one plant. Ideally, cuttings should be stored in water for approximately one week to encourage root development following planting.

In general, willow (*Salix* spp.) and cottonwood (*Populus fremontii*) pole cuttings should be at least three feet long and 0.75 to 1.25 inches in diameter, with the end that will be inserted into the ground (snipped closest to the tree trunk) cut at a 45-degree angle to facilitate soil penetration and maximize surface area for root growth. Mule fat (*Baccharis salicifolia*) cuttings can be slightly smaller. Any foliage or side branches should be stripped from each cutting to minimize water translocation and allow the cutting to put its energy into root growth.

Prior to installation the Restoration Specialist must inspect all cuttings for signs of disease. They must be able to specifically identify Kuroshio shot-hole borer, gold-spotted oak borer, and thousand canker fungus. Any diseased plants will be returned to the nursery where they will be destroyed (mulched to pieces smaller than 1 inch in size.

Cuttings should be installed a few feet into the ground such that the base of the cutting is at the water table. If the cutting is not in the water table or getting surface water (e.g., from supplemental irrigation), it will quickly dry out and die. Typically, a pole cutting is installed two to three feet deep. Cuttings should be installed in groupings according to the spacing recommendations made in Tables 6 and 7. Smaller species such as mule fat can be interspersed between larger over-story plants such as willows and cottonwoods.

Seed

Within the riparian forest and riparian scrub revegetation areas and~~, as well as within~~ the existing channel streambed~~,~~ seed will be dispersed by hand and/or with the use of a rotary seed applicator and raked into the soil ~~as needed~~.

~~-~~The DCSS revegetation areas and ~~other~~ the ~~reclaimed areas (i.e.,~~ 97.90 ~~-~~acres ~~of~~ erosion control ~~seed mix~~ areas~~)~~ will be hydroseeded with a tackifier to add ground stabilization. The hydroseed mixture shall consist of the following materials:

- 2,000 lbs./acre cellulose fiber
- 140 lbs./acre “M” Binder (tackifier)
- 200 lbs./acre Milogranite (fertilizer if required)
- Seed mix as listed (Table 10).

5.5.2 Erosion Control Areas

After site preparation and irrigation installation have been completed within each reclaimed subphase, an erosion control seed mix (Table 11, *Erosion Control Seed Mix*) will be applied to the graded pads located outside of the widened Sweetwater River floodplain (Figures 10a through 10e).

The species selected for seeding within erosion control areas have been observed within the on-site habitat or are native to southern California. These species grow in upland or transitional wetland/upland habitats. One of the species selected is an herbaceous perennial (western ragweed [*Ambrosia psilostachya*]), while the other three species are native annuals. All four species are only expected to provide cover during winter/spring months, and only in years with sufficient rainfall to allow for establishment from seed. These are the times of year and conditions when erosion is most likely to occur.

All seed should be obtained from southern San Diego County, whenever possible. Seed orders should be placed up to 12 months prior to the anticipated installation date to allow for sufficient seed production. Species substitutions, quantity changes, or use of bulk-grown native seed may be allowed, if necessary, at the discretion of the Restoration Specialist. The Restoration Specialist must approve all seed and container stock orders, including source locations, prior to ordering.

Table 11
EROSION CONTROL SEED MIX[1,2] (97.90 acres)

Scientific Name	Common Name	Percent Purity/ Germination	Pounds Per Acre
Ambrosia psilostachya	western ragweed	45/45	6
Bromus carinatus	California bromegrass	95/90	8
Plantago insularis	plantain	98/75	20
Vulpia microstachys	small fescue	90/80	20
		TOTAL	**54***

1 The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities.
2 Substitutions require approval of the Restoration Specialist.
* No less than 50 lbs. per acre of seed shall be installed.

~~5.5~~5.6 IRRIGATION PLAN

Temporary, above-ground irrigation lines will be installed in the riparian forest, riparian scrub, and DCSS native habitat revegetation areas ~~(i.e., riparian forest, riparian scrub, and DCSS)~~, which will be temporarily irrigated with well water, if accessible~~;~~, otherwise, other irrigation connections will need to be established. The project landscape architect, together with the Installation Contractor, will inspect the irrigation system as well as coverage prior to plant/seed installation. Irrigation will not be installed on the graded pads located outside of the expanded Sweetwater River floodplain and bordering slopes (i.e., the erosion control areas) or within the existing low-flow river channel.

Irrigation plan sheets included with the Final Revegetation Plans will show the Point of Connection (POC), available pressure, controller location, valves, piping, and head locations. If the POC is beyond the limits of the native habitat revegetation areas, the off-site irrigation service line to the POC will be identified. Irrigation plans will provide the required backflow protection at the POC~~,~~ and identify the power source for the irrigation controller, if applicable.

6.0 MAINTENANCE PLAN

6.1 MAINTENANCE ACTIVITIES

6.1.1 Native Habitat Revegetation

A five-year maintenance program, which will be initiated immediately following revegetation installation, is proposed to ensure the successful establishment and persistence of riparian forest/riparian scrub and DCSS habitat within the revegetated portions of the project site. The five-year period will start separately for each sub-phase as revegetation/erosion control reclamation is completed in that area. The maintenance program will involve the removal of non-native ~~species~~ vegetation and trash, irrigation maintenance, and any remedial measures deemed necessary for the success of the revegetation program (e.g., re-seeding and/or re-planting). Maintenance activities will be directed by the Restoration Specialist and implemented by the Maintenance Contractor.

The maintenance guidelines ~~specified herein~~for the native habitat revegetation areas are tailored for native plant establishment. Maintenance personnel will be informed of the goals of the revegetation effort and the maintenance requirements. A professional with experience and knowledge in native habitat restoration maintenance will supervise maintenance. It is the Maintenance Contractor's responsibility to keep seeded and planted areas free of debris, to monitor irrigation function and scheduling as well as plant material condition and health, and to remove non-native vegetation. The Maintenance Contractor will also be responsible for replacing any dead or terminally stressed plants, at the direction of the Restoration Specialist. Damage to plants, irrigation systems, and other facilities occurring as a result of unusual weather or vandalism will be repaired as directed by the Restoration Specialist. The cost of such repairs will be paid for as extra work. The contractor will be responsible for damage caused by the contractor's inadequate maintenance or operation of irrigation systems, as determined by the Restoration Specialist.

Irrigation

The goal is to obtain germination and growth with the least amount of irrigation. Too much irrigation results in abnormal habitat and encourages invasion by non-native plants, leaches nutrients from the soil, and can increase erosion; therefore, water will be applied infrequently and only as needed to prevent plant mortality.

The irrigation system within the riparian forest, riparian scrub and DCSS revegetation areas will be maintained until the Restoration Specialist determines that supplemental water is no longer required. At that time, irrigation will be permanently disconnected (e.g., the mainline will be cut), but not removed. Above-ground portions of irrigation will be removed when directed by the Restoration Specialist, or following restoration sign off by the County.

Non-native Plant Control

Particular emphasis will be placed on the proactive removal of non-native vegetation. As non-native plants become evident, they should be removed by hand or controlled with the proper herbicides (if approved by the Restoration Specialist). The Restoration Specialist will oversee non-native plant control by the Maintenance Contractor; however, maintenance personnel must be knowledgeable in

distinguishing non-native species from desirable native vegetation. If maintenance personnel mistakenly remove native species, the Maintenance Contractor will be responsible for rectifying the damage, at the direction of the Restoration Specialist.

Non-native plants considered to be moderately or highly invasive by the California Invasive Plant Council (Cal-IPC 2020) shall be eradicated within the boundaries of all native habitat revegetation areas for all five years of maintenance. Examples of invasive plants observed on-site, include but are not limited to, tamarisk (*Tamarix* spp.), giant reed (*Arundo donax*), Mexican fan palm (*Washingtonia robusta*), fennel (*Foeniculum vulgare*), Italian thistle (*Carduus pycnocephalus*), stinkwort (*Dittrichia graveolens*), pampas grass (*Cortaderia selloana*), and purple fountain grass (*Pennisetum setaceum*). Additional species may be added to this list, at the discretion of the Restoration Specialist. Non-native grasses listed as moderately or highly invasive will be controlled on-site, but due to their abundance in the local area, total eradication is not considered feasible.

Pruning

No post-installation pruning is necessary unless otherwise directed by the Restoration Specialist. For example, if it is necessary to remove an obstruction from or for the repair of the irrigation system.

Trash

All trash observed within the native habitat revegetation area should be removed for the duration of maintenance work in the respective sub-phase. All trash will be properly disposed of at a licensed landfill.

Pests

Insects, vertebrate pests, and diseases will be monitored. Generally, pests will be tolerated unless they pose a significant threat to restoration success. If deemed necessary, a licensed pest control adviser will make specific pest control recommendations. All applicable federal and state laws and regulations will be closely followed. The Restoration Specialist will be consulted on any pest control matters and will specifically monitor the native habitat revegetation areas for evidence of invasive Kuroshio shot-hole borers, gold-spotted oak borer, and thousand canker fungus. If identified, diseased trees will be mulched into pieces smaller than 1 inch in size in-situ or the Restoration Specialist will evaluate any other potential methods for control to determine if they are appropriate at the revegetation area.

Fertilization

Fertilizer will not be applied in the maintenance phase, except in extraordinary circumstances and only following~~at~~ the written direction of the Restoration Specialist.

Special-~~-~~Status Species Issues

Maintenance activities are not anticipated to include the use of heavy equipment or vehicles and as such are not anticipated to have adverse effects on sensitive species. However, mechanical line trimmers may be used if deemed necessary by the Restoration Specialist, and all maintenance activities will be carried out under the direction of the Restoration Specialist, as necessary, to avoid any impacts to sensitive species.

Remedial Installation

Areas with low seed germination and establishment of native cuttings/plantings within the riparian forest and riparian scrub revegetation areas or associated DCSS slopes will be re-seeded and/or re-planted~~,~~ at the direction of the Restoration Specialist. Areas seeded with the erosion control mix outside of the widened Sweetwater River channel will not be re-seeded.

6.1.2 Erosion Control Areas

A two-year maintenance program, which will be initiated immediately following hydroseed application, is proposed for the 97.90-acre~~s of~~ erosion control areas. The two-year period will start separately for each sub-phase as erosion control reclamation is completed in that area. The maintenance program will involve the removal of non-native vegetation and trash. Maintenance activities will be directed by the Restoration Specialist and implemented by the Maintenance Contractor.

The maintenance guidelines specified for the erosion control areas are tailored for establishing target cover to stabilize soils against potential erosion. Maintenance personnel will be informed of the goals of the erosion control revegetation effort and the maintenance requirements.

Non-Native Plant Control

Particular emphasis will be placed on the proactive removal of non-native vegetation. As non-native plants become evident, they should be removed by hand or controlled with the proper herbicides (if approved by the Restoration Specialist). The Restoration Specialist will oversee non-native plant control by the Maintenance Contractor; however, maintenance personnel must be knowledgeable in distinguishing non-native species from desirable native vegetation. If maintenance personnel mistakenly remove native species, the Maintenance Contractor will be responsible for rectifying the damage, at the direction of the Restoration Specialist.

Non-native plants considered to be moderately or highly invasive by the California Invasive Plant Council (Cal-IPC 2020) shall be substantially limited within the boundaries of the erosion control revegetation areas for both years of maintenance. Non-native annual grasses listed as moderately or highly invasive will be allowed to persist in the erosion control areas.

Remedial Installation

Areas seeded with the erosion control mix outside of the widened Sweetwater River channel will not be re-seeded.

6.2 SCHEDULE

6.2.1 Native Habitat Revegetation

Maintenance Schedule

Maintenance will be performed as necessary to prevent re-seeding by non-native plants and will likely change with varying site conditions and seasons. The schedule outlined herein (Table 12, *5-Year Maintenance Schedule for Native Habitat Revegetation Areas*) serves only as a guideline, and more

frequent maintenance may be required to prevent re-seeding by non-native vegetation and/or to meet interim cover limits for non-native vegetation. The Maintenance Contractor will complete maintenance requests from the Restoration Specialist within 14 days of any written request.

At a minimum, the Maintenance Contractor will be responsible for all maintenance activities during the five-year maintenance period. For the first three years, maintenance is expected to be required every month between January through June (to cover the peak establishment period of spring germinating species) and two additional times during the remainder of the year. Maintenance visits may be reduced to four per year in Years 4 and 5 if approved by the Restoration Specialist and County, and shall be timed to best control invasive species, based on weather patterns and monitoring results. The Maintenance Contractor will complete maintenance requests from the Restoration Specialist within 14 days of any written request or monitoring report.

Table 12
5-YEAR MAINTENANCE SCHEDULE FOR NATIVE HABITAT RE~~E~~VEGETATION AREAS[1]

Phase	Schedule
~~**Maintenance Contractor**~~	
Year 1 through Year 3 January to June July to December	Total Eight Visits/Year Every Month (six Visits) Two Visits Total
Years 4 and 5	Total Four Visits/Year (Three in Spring and one in Summer)

[1] This schedule is only a guideline; maintenance will be performed as necessary and as directed by the Restoration Specialist.

Irrigation Schedule

Following the start of the maintenance period, irrigation shall be applied daily (unless directed otherwise by the Restoration Specialist) to stimulate seed germination and ensure the survival of installed plantings. Once container plantings, cuttings, and seed are established, irrigation should become less frequent and deeper (usually accomplished with several consecutive irrigation events in a 24-hour period followed by several days with no irrigation). Native plants that are infrequently irrigated may grow slower initially but will ultimately be better able to withstand natural variations in rainfall and, therefore, be more successful long-term. Irrigation will be minimized to limit runoff and will be turned off during and following natural rainfall events. In the absence of rain events, irrigation will occur at a minimum of three times per week for the first two years to ensure plant establishment. By Year 3, irrigation shall be reduced and occur mainly during the natural rainy season (October through April), as needed to mimic an average rainy season. If the Restoration Specialist determines that there is sufficient native cover and plants are well-established, irrigation may be deactivated prior to the end of Year 3. To demonstrate that vegetation is self-sustaining, the irrigation system must be turned off for at least two years prior to the end of the five-year maintenance/monitoring period.

6.2.2 Erosion Control Areas

Within the erosion control areas, maintenance will be performed as necessary to prevent re-seeding by non-native plants and will likely change with varying site conditions and seasons. The schedule outlined herein (Table 13, *2-Year Maintenance Schedule for Erosion Control Areas*) serves only as a guideline, and more frequent maintenance may be required to prevent re-seeding by non-native vegetation and/or to

meet interim cover limits for non-native vegetation. The Maintenance Contractor will complete maintenance requests from the Restoration Specialist within 14 days of any written request.

At a minimum, the Maintenance Contractor will be responsible for all maintenance activities during the five-year maintenance period. For the first three years, maintenance is expected to be required every month between January through June (to cover the peak establishment period of spring germinating species) and two additional times during the remainder of the year. Maintenance visits may be reduced to four per year in Years 4 and 5 if approved by the Restoration Specialist and County, and shall be timed to best control invasive species, based on weather patterns and monitoring results. The Maintenance Contractor will complete maintenance requests from the Restoration Specialist within 14 days of any written request or monitoring report.

Table 13
2-YEAR MAINTENANCE SCHEDULE FOR EROSION CONTROL AREAS[1]

Phase	Schedule
Year 1 through Year 2	Total Eight Visits/Year
January to June	Every Month (six Visits)
July to December	Two Visits Total

[1] This schedule is only a guideline; maintenance will be performed as necessary and as directed by the Restoration Specialist.

7.0 MONITORING PLAN

7.1 PERFORMANCE STANDARDS

7.1.1 Native Habitat Revegetation

Success criteria provide specific standards to evaluate the progress of the revegetation effort. Attainment of these standards indicates that an area is progressing toward the goals and habitat functions and services specified by this plan. Success of the native habitat revegetation area will be determined by comparing planting survivorship, vegetative cover, and species richness within the native habitat revegetation area to targets that have been established based on visual observations of similar native habitat in San Diego County (Table 14~~3~~, *Success Criteria Milestones for the Native Habitat Revegetation Areas*). Success criteria shall only apply to native habitat revegetation areas; no success criteria shall be applied to the erosion control pad.

Table 14~~3~~
SUCCESS CRITERIA MILESTONES FOR THE NATIVE HABITAT REVEGETATION AREAS

Criteria	Target				
	Year 1	Year 2	Year 3	Year 4	Year 5
Diegan Coastal Sage Scrub Revegetation					
Minimum planting survivorship (percent)	90	80	--	--	--
Minimum native cover (percent)	--	--	40	50	60
Minimum native species richness (number of species)	4	4	5	6	7
Maximum non-native forb cover (percent)	5	5	5	5	5
Maximum non-native annual grass cover (percent)	5	5	10	15	20
Maximum target invasive cover[1] (percent)	0	0	0	0	0

Criteria	Target				
	Year 1	Year 2	Year 3	Year 4	Year 5
Irrigation	YES	YES	YES	NO	NO
Riparian Forest Revegetation					
Planting survivorship (percent)	90	80	--	--	--
Minimum native cover (percent)	--	--	40	50	60
Minimum native species richness (number of species)	7	6	5	5	5
Maximum non-native cover (percent)	10	10	10	10	10
Maximum target invasive cover[1] (percent)	0	0	0	0	0
Irrigation	YES	YES	YES	NO	NO
Riparian Scrub Revegetation					
Planting survivorship (percent)	90	80	--	--	--
Minimum native cover (percent)	--	--	30	35	40
Minimum native species richness (number of species)	8	7	6	6	6
Maximum non-native cover (percent)	10	10	10	10	10
Maximum target invasive cover[1] (percent)	0	0	0	0	0
Irrigation	YES	YES	YES	NO	NO
Streambed (Emergent Wetland) Seeding[2]					
Maximum non-native forb cover (percent)	5	5	5	5	5
Maximum target invasive cover[1] (percent)	0	0	0	0	0

[1] Seedlings of invasive species are expected to volunteer each year; however, no target invasive species should be allowed to persist, or drop seed within the native habitat revegetation areas; excludes invasive annual grasses.

[2] Sweetwater River is subjected to periodic heavy flows as a result of water releases and transfers between Loveland Reservoir and Sweetwater Reservoir, as controlled by the Sweetwater Authority. As such, vegetation along the Sweetwater River is anticipated to be dynamic and transition between sections of unvegetated streambed and vegetated streambed and no minimum native cover requirement is required.

Survivorship

Container plant survival within the riparian forest, riparian scrub, and DCSS revegetation areas should be 90 percent of the initial plantings in Year 1 and 80 percent in Year 2 (Table 1~~3~~4). If these targets are not met, dead plants should be replaced unless their function has been replaced by natural recruitment.

Native Cover

Cover by native vegetation within the riparian forest and shrub habitat revegetation area should increase over time and ultimately approach that of the similar native habitat that occurs on-site and within adjacent areas. By the end of the five years, native cover in the riparian forest revegetation areas and on the DCSS slopes should be at least 60 percent, while native cover in the relatively dry but periodically scoured riparian scrub revegetation area should be at least 40 percent (Table 1~~4~~3). No native cover criterion has been established for the ~~Sweetwater River~~ low-flow Sweetwater River channel (i.e., streambed/emergent wetland) as the river is subjected to periodic heavy flows as a result of water releases and transfers between Loveland Reservoir and Sweetwater Reservoir, as controlled by the Sweetwater Authority. As such, vegetation along the Sweetwater River is anticipated to be dynamic and transition between sections of the unvegetated streambed and vegetated streambed. If native cover during Years 1 and 2 does not appear to be on track toward attaining Year 3 targets, additional measures, such as supplemental plant and seed installation, irrigation adjustments, or increased weed control, may be implemented, per the direction of the Restoration Specialist.

Native Species Richness

Species richness is the number of native species present in a given area. During the annual monitoring, species richness within the native habitat revegetation area will be determined by visual assessment only in Years 1 and 2 and within the belt and point intercept transects in Years 3 through 5. Annual success criteria for species richness for native species vary by year with at least seven native species present on the DCSS slopes, five species in riparian forest revegetation areas, and six native species present in the riparian scrub revegetation areas at the end of Year 5 (Table 1~~3~~4). If the species richness goal for a given year is not met, corrective measures (e.g., reseeding, planting, etc.), will be taken to ensure the eventual achievement of the five-year goal.

Non-Native Cover

Non-native cover is typically a problem with habitat restoration, particularly at the outset of a restoration effort. However, as the revegetation effort takes hold, and with diligent maintenance efforts, non-native cover should decrease to an acceptable level. Given the maintenance schedule for the site, non-native cover (including invasive annual grasses) within the existing ~~Sweetwater River~~ low-flow Sweetwater River channel and riparian forest and riparian scrub revegetation areas should not exceed 10 percent for all five years of the revegetation effort (Table 1~~3~~4). On DCSS slopes, non-native annual grasses are expected to slightly increase over time within a native shrub understory, up to a maximum of 20 percent cover. Cover by non-native forbs, however, should be kept to no more than five percent throughout the five-year maintenance effort (Table 14~~3~~). If non-native cover limits are exceeded, additional weed control (either frequency or thoroughness) may be recommended by the Restoration Specialist.

Target Invasive Cover

Target invasive non-native plants ranked as moderately or highly invasive by the Cal-IPC (2020) should be completely eradicated from the native habitat revegetation area each year. New seedlings of invasive plants are expected since these species occur in surrounding open space; however, no target invasive species shall be allowed to persist, or drop seed, within the ~~Sweetwater River~~ low-flow Sweetwater River channel, riparian forest, riparian scrub, or DCSS revegetation areas. Annual grasses listed as highly or moderately invasive do not need to be eradicated, rather they are included within the non-native annual grass cover success criterion (Table 1~~3~~4). Perennial invasive grasses, such as Bermuda grass, should be counted as invasive species and be targeted for eradication. If target invasive cover limits are exceeded, additional weed control (either frequency or thoroughness) may be recommended by the Restoration Specialist.

Irrigation

To provide evidence that native vegetation is self-sufficient, irrigation of the native habitat revegetation area must be shut off at least two years prior to the end of the maintenance/monitoring period.

Palmer's Goldenbush

In addition to native revegetation performance standards, a total of 234 individuals of Palmer's goldenbush shall successfully be established. This performance standard may be achieved in any phases/subphases of revegetation during the 5 years of monitoring. The number of Palmer's goldenbush

individuals present within the active revegetation area(s) shall be counted in late summer (August/September) during the riparian forest and riparian scrub annual monitoring event until all individuals are counted or the target number of individuals is met.

7.1.2 Erosion Control Areas

Within the erosion control areas, success criteria provide standards to evaluate whether sufficient cover from acceptable vegetation has established to provide protection against erosion (Table 15, *Success Criteria Milestones for the Erosion Control Areas*). The goal is to have at least ~~25~~ 40 percent cover by all acceptable vegetation (native and non-native) at the time of the Year 2 annual assessment, with at least 4 native species present, and no more than 5 percent cover by non-native forbs and 1 percent cover by invasive vegetation (other than annual grasses). Non-native annual grasses are acceptable cover within the erosion control areas and there is no specific requirement for native cover.

Table 15
SUCCESS CRITERIA MILESTONES FOR THE EROSION CONTROL AREAS

Criteria	Target	
	Year 1	Year 2
Minimum vegetation cover (percent) [1]	25	40
Minimum native species richness (number of species)	4	4
Maximum non-native forb cover (percent)	5	5
Maximum target invasive cover[2] (percent)	1	1
Irrigation	N/A	N/A

[1] Includes non-native and invasive annual grasses.

[2] Seedlings of invasive species are expected to volunteer each year; however, few target invasive species should be allowed to persist, or drop seed within the native habitat revegetation areas; excludes invasive annual grasses.

Vegetation Cover

Within the erosion control areas cover by native vegetation and non-native annual grasses should be sufficient to provide protection against seasonal erosion from rainfall. Given that the areas targeted for erosion control will be relatively flat, relatively low cover is needed for erosion control. Cover targets can only be attained in years with sufficient rainfall to enable plant establishment from seed.

Non-Native Cover

Given the maintenance schedule for the site, cover by non-native forbs should not exceed 5 percent for both years of the revegetation effort (Table 15). If non-native cover limits are exceeded, additional weed control (either frequency or thoroughness) may be recommended by the Restoration Specialist.

Target Invasive Cover

Target invasive non-native plants ranked as moderately or highly invasive by the Cal-IPC (2020) should be nearly eradicated from the erosion control areas each year. New seedlings of invasive plants are expected since these species occur in the surrounding open space; however, very few target invasive species shall be allowed to persist~~,~~ or drop seed. Annual grasses listed as highly or moderately invasive do not need to be eradicated. Since their roots bind soils and protect against erosion, they can be left on site and are included as part of the vegetation cover target (Table 15). Perennial invasive grasses, such

as Bermuda grass, should be counted as invasive species and be targeted for eradication. If target invasive cover limits are exceeded, additional weed control (either frequency or thoroughness) may be recommended by the Restoration Specialist.

7.2 TARGET FUNCTIONS AND VALUES

Upon meeting success criteria, the native habitat revegetation area will have a net functional lift in habitat values over the existing condition by providing higher quality foraging and breeding habitat as well as greater vegetative cover and microhabitat features.

7.3 TARGET ACREAGES

The native habitat revegetation area target acreages addressed in this plan include revegetation of 11.99 acres of DCSS, 99.59 acres of riparian forest and riparian scrub habitat, and 9.92 acres of streambed (i.e., Sweetwater River) over five years. In addition, a total of 234 Palmer's goldenbush individuals shall be established.

7.4 MONITORING METHODS

Monitoring will be carried out by the Restoration Specialist, beginning with plant/seed orders as well as all site preparation and habitat installation~~,~~ and continuing through final sign-off of the revegetation areas, approximately five years after initial installation activities are completed. Monitoring of the native habitat revegetation area will include: (1) site preparation/installation monitoring~~,~~; (2) maintenance monitoring~~;~~, and (3) annual technical monitoring. The erosion control areas will be monitored on the same schedule and in the same manner as the native habitat revegetation areas through the end of Year 2. The methods for the annual technical monitoring are provided below. During each visit, the Restoration Specialist will inspect the site to ensure that the revegetation effort is progressing as planned and identify any problems that may affect the effort.

7.4.1 Site Preparation/Installation Monitoring

The Restoration Specialist will coordinate with the Installation Contractor regarding all plant and seed orders/contract growing. In addition, they will coordinate with the Installation Contractor to help direct the harvest of native cuttings, as needed. The Restoration Specialist will be on-site regularly during grading of the final landforms and application of salvaged topsoil, and installation of erosion control measures, irrigation, and plantings/seed to ensure that activities are being conducted per this plan. The Restoration Specialist must inspect and authorize each phase of work before the next phase may begin. The monitoring schedule is outlined in Table 14~~6~~, *Maintenance Monitoring Schedule*; additional monitoring may be needed if there are problems with the Installation Contractor's performance or unexpected difficulties with site preparation.

Table 16~~4~~
MAINTENANCE MONITORING SCHEDULE[1]

Phase	Schedule
Site Preparation/Installation Monitoring	
Site preparation and installation	Daily, or as needed
Maintenance Monitoring	
Year 1 through Year 3 November to April May to October	8 visits Monthly June and August
Years 4 and 5	4 visits
Annual Technical Monitoring	
Once per year	Upland: April/May Wetland: August/September

[1] This schedule is the minimum monitoring frequency; additional monitoring may be required if there are problems with Installation or Maintenance Contractor performance, unexpected difficulties with site preparation, or issues with habitat establishment.

Prior to the start of mining, and again prior to the start of installation for each subphase, the Restoration Specialist will document existing site conditions by taking photographs and noting any special conditions within the proposed native habitat revegetation area. To document the progress of the revegetation effort, the Restoration Specialist will identify at least four photographic documentation locations in each sub-phase area, though additional locations may be established, depending on the exact size of the subphase area. Photo stations will be mapped with a sub-meter accuracy global positioning system (GPS) and plotted on a map. These photos will be used for future comparison with post-installation and annual assessment photos.

7.4.2 Maintenance Monitoring

Maintenance monitoring of the native habitat revegetation area will consist of general site inspections focused on visual observations of native plant establishment and growth and other site conditions (e.g., presence of non-native plants, signs of plant diseases, erosion, etc.), and will document all wildlife observed during each site visit for inclusion in the annual report. Following the installation of irrigation and plantings in the native habitat revegetation area, the Restoration Specialist will monitor and direct maintenance activities for the 5-year maintenance and monitoring period. In Years 1 through 3, visits will be conducted monthly from November through April (to cover the peak establishment and growth period for upland vegetation) and twice in the remainder of the year, for a total of eight visits per year (Table 14). During Years 4 and 5, monitoring will be conducted four times per year, with an emphasis on the spring and summer growing season. This monitoring schedule is the minimum; more frequent inspections may be necessary if there are problems with contractor performance or habitat development. Monitoring memos noting any issues with plant establishment, irrigation, sediment control, etc., will be provided as necessary to the Installation/Maintenance Contractor(s) and the project proponent. Any diseased plants that are identified will be mulched on-site to pieces smaller than 1 inch in size.

7.4.3 Annual Technical Monitoring

The Restoration Specialist will conduct annual technical monitoring of the native habitat revegetation area each year during the five-year maintenance and monitoring period. Annual monitoring will occur in the spring (April/May) for the DCSS slopes, and in late summer (August/September) for the riparian

forest and riparian scrub habitats. The assessments are scheduled to coincide with the peak of the growing season for the respective target habitat types. The exact timing of the visits will depend on on-site and weather conditions.

In the native habitat revegetation area, t~~T~~echnical monitoring of both the DCSS slopes and riparian areas will include both qualitative (visual) and quantitative (based on data collection) sampling, depending on the year. In Years 1 and 2, only qualitative monitoring will be conducted, consisting of the following: (1) photo documentation; (2) visual estimates of container planting survivorship, cover by native and non-native plants, target invasive species cover, and the average height of tree and shrub species; (3) a complete list of plant and animal species observed and detected; (4) general observations of plant health; and (5) observations of site hydrology and erosion. Starting in Year 3, quantitative sampling consisting of transect sampling will be conducted. The success of the wetland mitigation effort will be evaluated by comparing the habitat development with success criteria milestones (Table 14~~3~~).

In the erosion control areas, annual technical monitoring will be limited to a qualitative assessment and comparing the results of that assessment to success criteria milestones identified in Table 15.

7.4.3.1 Photo Documentation

Photos will be taken as part of all five annual monitoring events and will be included in the respective year's annual report. Photos will be taken at the same photo locations that are established prior to the start of the revegetation effort. To visually demonstrate the progress of the revegetation effort, photos taken immediately after installation of each sub-phase will be included in each report for comparison with the respective year's annual assessment photos.

7.4.3.2 General Wildlife

During each of the five annual assessments, all wildlife incidentally observed or detected will be documented. No focused wildlife surveys will be conducted.

7.4.3.3 Transect Sampling

Starting in Year 3, 50-meter (m) transects will be used to collect quantitative data within the native habitat revegetation areas. These transects will be randomly located during the Year 3 annual assessment, marked in the field with PVC pipes, and mapped onto an aerial figure using a GPS. Plant cover data will be collected along each transect using the point intercept line transect sampling methods described in the California Native Plant Society's Field Sampling Protocol (Sawyer and Keeler-Wolf 1995). Native, non-native, and invasive plant cover data will be collected by recording all of the plant species intercepted at each 0.5-m interval along the length of each transect. Vegetation will be recorded separately for herb (0 to 0.6 m), shrub (0.6 to 2 m), and tree (greater than 2 m) layers. Species richness (the number of native species present in a given area) data will be collected by noting all species occurring along a 5-m belt transect centered on each line transect. A minimum of two 50-meter transects will be installed within both riparian forest and riparian scrub habitat in each sub-phase for a total of 40, 50-meter transects. At least one additional 50-meter transect will be sampled in each sub-phase that contains DCSS revegetation on upland slopes. Additional transects may be installed within a given sub-phase depending on the overall size of the revegetation area.

7.5 MONITORING REPORTS

7.5.1 As-Built Report

The Restoration specialist shall submit a brief as-built letter report to the County within 45 days of completion of revegetation of each individual sub-phase. The report will describe revegetation site preparation, installation methods, and the as-built status of the site. To document the implementation of the revegetation plan and baseline site conditions, the letter will include an as-built graphic on an aerial photo base as well as photos taken from the designated photo stations before and after the revegetation installation. The as-built letter will serve as the "time zero" report, noting when the five-year maintenance and monitoring period began.

7.5.2 Annual Reports

An annual report including qualitative and quantitative analysis will be prepared each year during the five-year monitoring period and submitted to the County and Wildlife Agencies. A single report will be submitted for the project site and shall clearly present the current revegetation status and monitoring results for each active individual sub-phase with active revegetation. Monitoring and maintenance field data shall be included as an addendum to each report.

Any significant issue or contingency that arises on the job site (e.g., plant survival issues, fire, or flooding) shall be reported in writing to the County within two weeks from the date of the incident. Accompanying the report shall be a plan for remediation, with an implementation schedule and a monitoring schedule.

8.0 COMPLETION OF REVEGETATION

Revegetation of the project site will be conducted in a staggered timeline as individual sub-phases are progressively reclaimed and revegetated following the completion of mining activities. As such, completion of the revegetation effort will be similarly accomplished in a staggered effort as each sub-phase is successfully revegetated. The County and Wildlife Agencies will be notified of revegetation completion within each sub-phase through the submittal of annual reports.

When sign-off is recommended for a particular project sub-phase, the County and Wildlife Agencies may inspect that area to determine the success of that revegetation effort. If an area meets all success standards, then the revegetation effort will be considered a success; if final success criteria are not met by the end of Year 5, the maintenance and monitoring program for that area may be extended until the standards are met, subject to County and Wildlife Agencies discretion. Specific remedial measures (approved by the County and Wildlife Agencies) will be used during any extension. Monitoring extensions will be done only for areas that fail to meet final success criteria. This process will continue until all Year 5 success criteria are attained or until the County, together with the Wildlife Agencies, determines that supplemental measures are appropriate. Should the revegetation effort meet all goals prior to the end of the five-year monitoring period, the County and Wildlife Agencies, at their discretion, may terminate the monitoring effort.

9.0 CONTINGENCY MEASURES

9.1 INITIATING CONTINGENCY MEASURES

If the County or Wildlife Agencies determine upon receipt of any of the annual monitoring reports that the revegetation effort is not meeting success standards, they shall notify the project proponent in writing that the revegetation effort may require additional measures for successful implementation. The project proponent shall then have 30 days to respond to the notification. During this period, the project proponent may discuss alternatives with the County and Wildlife Agencies.

9.2 ALTERNATIVE LOCATIONS FOR CONTINGENCY COMPENSATORY MITIGATION

Sufficient area for contingency restoration is present at the project site. If the success criteria are not being met, the County and Wildlife Agencies will work together with the project proponent to reach an alternative mutually acceptable solution.

The project proponent, New West Investment, Inc., shall be responsible for all costs associated with any remedial measures.

9.3 NATURAL DISTASTER

Any significant issue or contingency that arises on the job site (e.g., plant survival issues, fire, or flooding) shall be reported in writing to the County of San Diego within two weeks from the date of the incident. Accompanying the report shall be a plan for remediation, with an implementation schedule and a monitoring schedule.

10.0 LIST OF PREPARERS

The following individuals contributed to the preparation of this report.

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Attachment C.

Soil and Geologic Reconnaissance

SOIL AND GEOLOGIC RECONNAISSANCE

COTTONWOOD SAND MINING PIT EL CAJON, CALIFORNIA

GEOCON
INCORPORATED

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

HELIX
ENVIRONMENTAL PLANNING, INC.
LA MESA, CALIFORNIA

JANUARY 4, 2019
REVISED NOVEMBER 4, 2020
PROJECT NO. G2137-42-02

GEOCON
INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. G2137-42-02
January 4, 2019
Revised November 4, 2020

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, California 92942

Attention: Ms. Andrea Bitterling

Subject: SOIL AND GEOLOGIC RECONNAISSANCE
COTTONWOOD SAND MINING PIT
EL CAJON, CALIFORNIA

Dear Ms. Bitterling:

In accordance with your request and our proposal (LG-17295), we have prepared this soil and geologic reconnaissance for the proposed Cottonwood Sand Mining Pit project in El Cajon, California. The accompanying report describes the site soil and geologic conditions, identifies potential geotechnical constraints; and geologic hazards pertinent to the subject property.

Should you have questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

Garry W. Cannon
CEG 2201
RCE 56468

Rodney C. Mikesell
GE 2533

PROFESSIONAL GEOLOGIST ★ STATE OF CALIFORNIA ★ GARRY WELLS CANNON No. 2201 CERTIFIED ENGINEERING GEOLOGIST

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REGISTERED PROFESSIONAL ENGINEER ★ RODNEY C. MIKESELL No.2533 GEOTECHNICAL ★ STATE OF CALIFORNIA ★

GWC:RCM:dmc:arm

(e-mail) Addressee

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SOIL AND GEOLOGIC RECONNAISSANCE

1. PURPOSE AND SCOPE

This report presents the results of a soil and geologic reconnaissance for the proposed Cottonwood Sand Mining Pit project, in El Cajon, California. The purpose of this study is to provide preliminary soil and geologic information for the property and to identify known, if any, geologic hazards that may adversely impact the project.

A summary of reports, maps, and other documents used preparation of this report is presented in the *References* listing at the end of this report.

2. SITE AND PROJECT DESCRIPTION

The site consists of an approximately 280-acre, irregularly shaped parcel located in the Sweetwater River Valley along Willow Glen Drive approximately between Jamacha Boulevard and Hillsdale Road in El Cajon, California (see Vicinity Map, Figure 1). The site is currently utilized as a golf course. Site elevations vary from a high of approximately 380 feet above Mean Sea Level (MSL) at the eastern end, to a low of approximately 328 feet above MSL at the western end.

We understand that the property will be utilized to mine sand for concrete and asphalt. Based on the plans prepared by Change Consultants titled Cottonwood Sand Mining Project, dated October 28, 2020, bottom mine excavations ranging from 295 feet MSL at the west end to 330 feet MSL at the east end are planned. Excavations would average approximately 20 feet below existing ground surface across the property; some areas would be excavated to a depth up to approximately 40 feet below existing ground surface. After the completion of mining, the site will be reclaimed by filing in the mine pits with overburden, wash fines and topsoil. Permanent slopes at the completion of reclamation grading up to approximately 26 feet in height at an inclination of 3:1 (horizontal to vertical) are planned.. Upon completion of mining activities, the project site would be available for uses allowed by the existing land use designations and zoning classifications (Open Space, S80; Specific Planning Area, S88; and Holding Area, S90). Future development of the site is not included in the proposed project, with planned uses including open space and recreational trails.

3. SOIL AND GEOLOGIC CONDITIONS

Based on observations during our site reconnaissance and our review of Tan (2002a), Tan (2002b), and Geocon (2017) the site is underlain by Holocene-age alluvial deposits. The alluvial deposits are divided into channel deposits and flood plain deposits. The approximate limits of the geologic units, based on CSRL (2008), are shown on Figure 2 (Geologic Map). Granitic rock underlies the alluvium. Each of the units are discussed below. There are areas of undocumented fill. The undocumented fill was not mapped.

3.1 Undocumented Fill (not mapped)

Undocumented fill was encountered in previous borings at several locations on the property (Geocon, 2017). The fill was generally found within the upper 6 feet of the ground surface. At some locations, the fill was locally deeper. The fill was generally composed of loose to medium dense, silty to clayey sand (SC) and sandy clay (CL) with trace gravel.

3.2 Alluvium: Channel Deposits (Qalc)

Quaternary age alluvial channel deposits is present generally through the central portion of the project site. The alluvium generally consists of loose, fine- to course-grained sand with varying amounts of silt and gravel.

3.3 Alluvium: Flood Plain Deposits (Qalf)

Quaternary age alluvial flood plain deposits have been mapped flanking the north and south sides of the channel deposits. The flood plain deposits generally consists of soft to firm, micaceous, sandy clay, sandy silt, and silty sand.

3.4 Granitic Rock (Kgr)

Granitic rock was encountered below the alluvium in 4 borings performed during previous drilling (see Geocon, 2017). The granitic rock encountered was weathered and excavated as silty, fine to coarse sand.

4. GROUNDWATER

During our previous investigation (Geocon, 2017) groundwater was encountered within the western approximately three-fourths of the property between elevations of 316 feet MSL and 341 feet MSL. This corresponded to depths of approximately 5 feet to 18 feet below the ground surface. Because the property is situated in a drainage area, groundwater elevation is expected to fluctuate between dry and rainy periods from year to year.

5. GEOLOGIC STRUCTURE

Contacts between stratigraphic units described above are generally flat lying.

6. GEOLOGIC HAZARDS

6.1 Ground Rupture

The USGS (2016) shows that there are no mapped Quaternary faults crossing or trending toward the property. The site is not located within a currently established Alquist-Priolo Earthquake Fault Zone.

No active faults are known to exist at the site. The nearest active fault is the Rose Canyon Fault, which lies approximately 15 miles west of the site. The risk associated with ground rupture hazard is low.

6.2 Seismicity

We performed a deterministic seismic hazard analysis using Risk Engineering (2015). Six known active faults were located within a search radius of 50 miles from the property. We used the 2008 USGS fault database, which provides several models and combinations of fault data, to evaluate the fault information. Based on this database, the Newport-Inglewood/Rose Canyon Fault Zone, located approximately 15 miles west of the site, is the nearest known active fault and is the dominant source of potential ground motion. Earthquakes that might occur on the Newport-Inglewood/Rose Canyon Fault or other faults within the southern California and northern Baja California area are potential generators of significant ground motion at the site. The estimated maximum earthquake magnitude and peak ground acceleration for the Elsinore Fault are 7.5 and 0.0.23g, respectively. The table below lists the estimated maximum earthquake magnitude and peak ground acceleration for the most dominant faults in relation to the site. We calculated peak ground acceleration (PGA) using acceleration-attenuation relationships by: Boore and Atkinson (2008); Campbell and Bozorgnia (2008); and Chiou and Youngs (2008).

TABLE 6.2.1
DETERMINISTIC SPECTRA SITE PARAMETERS

Fault Name	Distance from Site (miles)	Maximum Earthquake Magnitude (Mw)	Peak Ground Acceleration		
			Boore-Atkinson 2008 (g)	Campbell-Bozorgnia 2008 (g)	Chiou-Youngs 2008 (g)
Newport-Inglewood/Rose Canyon	14.7	7.5	0.23	0.17	0.21
Rose Canyon	14.7	6.9	0.19	0.15	0.16
Coronado Bank	25.7	7.4	0.16	0.11	0.13
Palos Verdes/Coronado Bank	25.7	7.7	0.18	0.12	0.15
Elsinore	30.6	7.85	0.17	0.11	0.14

In the event of a major earthquake on the referenced faults or other significant faults in the southern California and northern Baja California area, the site could be subjected to moderate to severe ground shaking. The risk at this site is comparable to others in the general vicinity with respect to seismic shaking hazard.

We performed a probabilistic seismic hazard analysis for the site using Risk Engineering (2015). The computer program assumes that the occurrence rate of earthquakes on each mapped Quaternary fault is proportional to the fault slip rate. The program accounts for earthquake magnitude as a function of

fault rupture length, and site acceleration estimates are made using the earthquake magnitude and distance from the site to the rupture zone. The program also accounts for uncertainty in each of following: (1) earthquake magnitude, (2) rupture length for a given magnitude, (3) location of the rupture zone, (4) maximum possible magnitude of a given earthquake, and (5) acceleration at the site from a given earthquake along each fault. By calculating the expected accelerations from considered earthquake sources, the program calculates the total average annual expected number of occurrences of site acceleration greater than a specified value. We used acceleration-attenuation relationships suggested by Boore-Atkinson (2008), Campbell-Bozorgnia (2008), and Chiou-Youngs (2008) in the analysis. Table 6.2.2 presents the site-specific probabilistic seismic hazard parameters including acceleration-attenuation relationships and the probability of exceedence.

TABLE 6.2.2
PROBABILISTIC SEISMIC HAZARD PARAMETERS

Probability of Exceedence	Peak Ground Acceleration		
	Boore-Atkinson, 2008 (g)	Campbell-Bozorgnia, 2008 (g)	Chiou-Youngs, 2008 (g)
2% in a 50 Year Period	0.41	0.35	0.40
5% in a 50 Year Period	0.31	0.26	0.29
10% in a 50 Year Period	0.24	0.21	0.21

While listing peak accelerations is useful for comparison of potential effects of fault activity in a region, other considerations are important in seismic design, including frequency and duration of motion and soil conditions underlying the site. Seismic design of the structures should be evaluated in accordance with the California Building Code (CBC) guidelines.

6.3 Liquefaction

Due to the loose subsurface soils and the near-surface groundwater, seismically induced soil liquefaction hazard could be high; however, given the nature of the proposed project as a sand mining pit, the associated risk is low.

6.4 Landslides

No evidence of landsliding was encountered at the site during the geotechnical investigation or in our review of historic, stereoscopic aerial photographs (USDA, 1953).

The risk associated with ground movement hazard due to landsliding is low.

6.5 Seiches and Tsunamis

The site is not located within a tsunami inundation zone as defined by California Geological Survey. Elevation at the site is approximately 350 feet MSL. There are no lakes or reservoirs are located near the site. The risk associated with inundation hazard due to tsunamis or seiches is low.

6.6 Flooding

The Federal Emergency Management Agency (FEMA 2012) locates the site within a Flood Zone AE area, indicating a high risk to inundation by 100-year and 500-year floods.

7. SLOPE STABILITY

A slope stability analysis was performed for the proposed permanent 3:1 (horizontal to vertical) slopes shown on the reclamation plan (Chang Consultants, 2020). We performed the analysis on the highest cut slope proposed for the project. The location of the analysis is shown on Figure 2. The analysis was performed using Geoslope (2018) distributed by Geo-Slope International. This program uses conventional slope stability equations and a two-dimensional limit-equilibrium method to calculate the factor of safety against deep-seated failure. For our analysis, Spencer's Method with a circular failure mechanism was used in the analysis. Spencer's Method satisfies both moment and force equilibrium.

Strength parameters used in the analysis were based on laboratory direct shear strength testing performed on samples taken during previous drilling (Geocon, 2017). Table 7.1 summarizes the shear strength test results. For our analysis we used the low bound curve, see Figure 3. We also utilized a groundwater elevation of 335 feet MSL based on information from the nearest borings to the slope stability section. We have also assumed fill will be replaced in the mined excavation in front of the slope toe during reclamation operations.

TABLE 7.1
SUMMARY OF LABORATORY DIRECT SHEAR TEST RESULTS
ASTM D 3080

Sample No.	Dry Density (pcf)	Moisture Content (%)		Unit Cohesion (psf)	Angle of Shear Resistance (degrees)
		Initial	Final		
B28-1	106.3	5.4	18.0	650	24
B28-4	94.1	28.7	30.4	520	24
B35-3	106.9	3.6	20.0	730	31

Graphical output of the stability analysis is shown on Figure 4. Based on our analysis, planned 3:1 cut slopes at the completion of reclamation grading have a static factor of safety greater than 1.5.

We also performed seismic slope stability analysis in accordance with *Recommended Procedures for Implementation of DMG Special Publication 117: Guidelines for Analyzing and Mitigating Landslide Hazards in California*, prepared by the Southern California Earthquake Center (SCEC), dated June 2002 and *Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California (2008)*.

The seismic slope stability analysis was performed using a ground motion of 0.25g, corresponding to a 10 percent probability of exceedance in 50 years. A modal magnitude and modal distance of 7.7 and 48 kilometers, respectively, was used in the analysis.

Using the parameters discussed above, an equivalent site acceleration, k_{EQ}, of 0.175g was calculated to perform the screening analysis. Utilizing the calculated k_{EQ} as the horizontal seismic coefficient, the stability analyses indicates factor of safeties of 1.0 or greater. A slope is considered acceptable by the screening analysis if the calculated factor of safety is greater than 1.0 using k_{EQ}; therefore, the critical slopes pass the screening analysis for seismic slope stability. Printouts of the seismic slope stability analysis are provided on Figures 5 and 6.

Based on the results of the slope stability analyses, a minimum static and pseudo-static factor of safety of 1.5 and 1.0, respectively, was achieved and the proposed permanent reclaimed slopes are considered grossly stable.

All permanent slopes should be landscaped with drought-tolerant vegetation, having variable root depths and requiring minimal landscape irrigation. In addition, all slopes should be drained and properly maintained to reduce erosion.

We also performed an analysis for temporary mined slopes. Temporary slopes are expected to be less than 40 feet in height and constructed at a 2:1 inclination. We understand that if a temporary slope is inactive for more than a 10 to 15 day period, the slope will be flattened to 3:1 or shallower. Based on our analysis, temporary slopes at an 2:1 inclination have a static factor of safety greater than 1.5. Figure 7 shows the slope stability analysis for 2:1 slopes.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Based on our review of published geologic maps, geotechnical reports for nearby developments, and our geologic reconnaissance, the study area is underlain by recent alluvium over weathered granitic rock.

8.2 No significant soil or geologic conditions were observed or are known to exist that would preclude the use of the site as a sand mining pit.

8.3 Proposed permanent 3:1 reclamation slopes have a factor of safety in excess of 1.5 for both static conditions and pseudo-static conditions.

8.4 The property is approximately 15 miles from the Rose Canyon Fault. It is our opinion active and potentially active faults do not extend across the site. Risks associated with seismic activity consist of the potential for strong seismic shaking and soil liquefaction.

8.5 The risk associated with ground rupture, tsunamis or seiches hazard is low.

8.6 Due to the loose subsurface soils and the near-surface groundwater, seismically induced soil liquefaction hazard is high; however, given the nature of the proposed project as a sand mining pit, the associated risk is low.

8.7 Shallow groundwater is present within the project boundaries.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

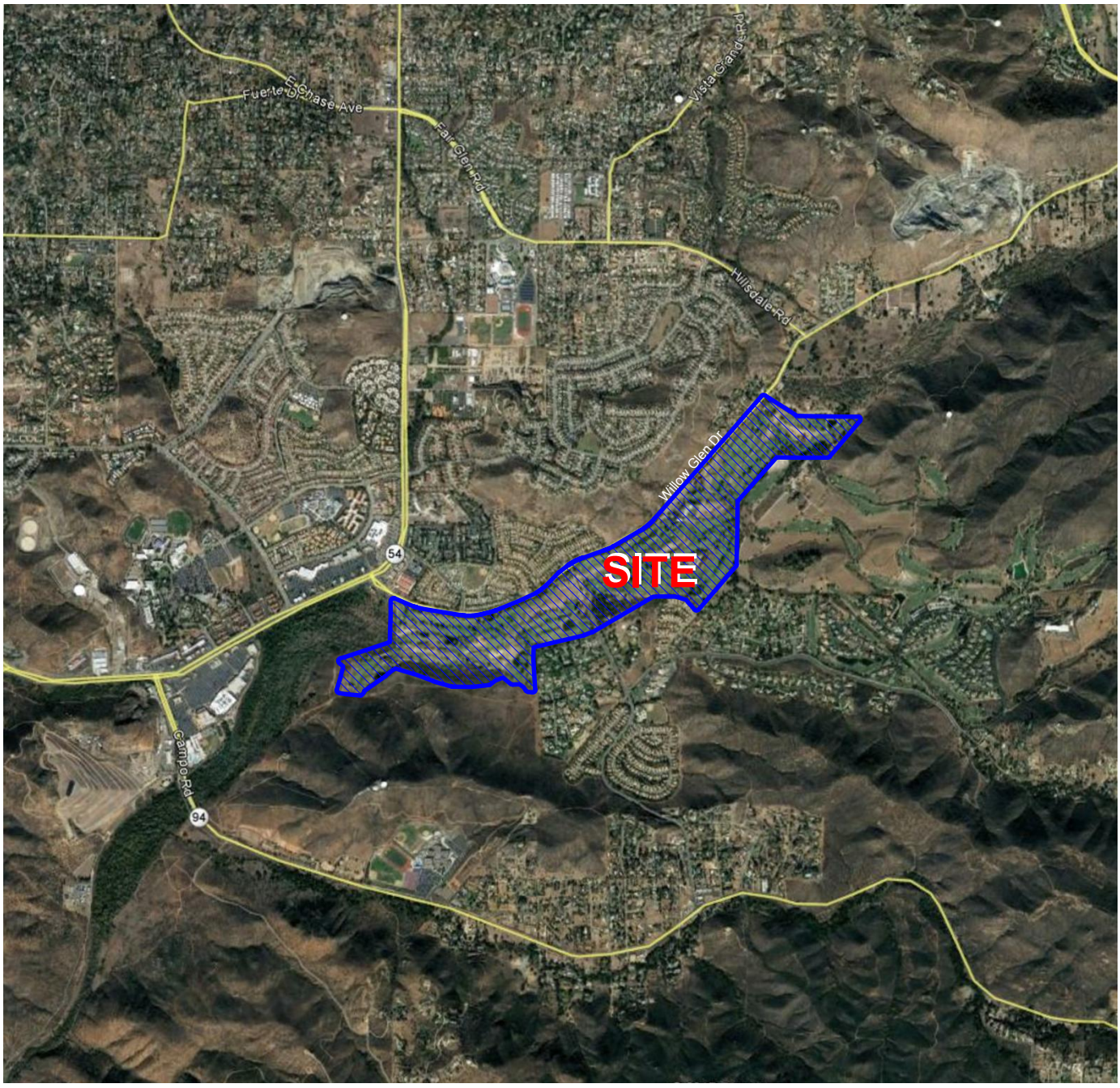
1. The conclusions and recommendations presented in this report are based on a review of available published information and performance of a site reconnaissance. In this regard, no subsurface investigation was conducted. As a consequence, the Client should recognize that this information is preliminary and our conclusions and recommendations could change significantly once a subsurface investigation is performed and the actual site conditions are identified.

2. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

3. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon Incorporated should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon Incorporated.

4. This report is issued with the understanding that it is the responsibility of the owner or his representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

5. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.



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NO SCALE

VICINITY MAP

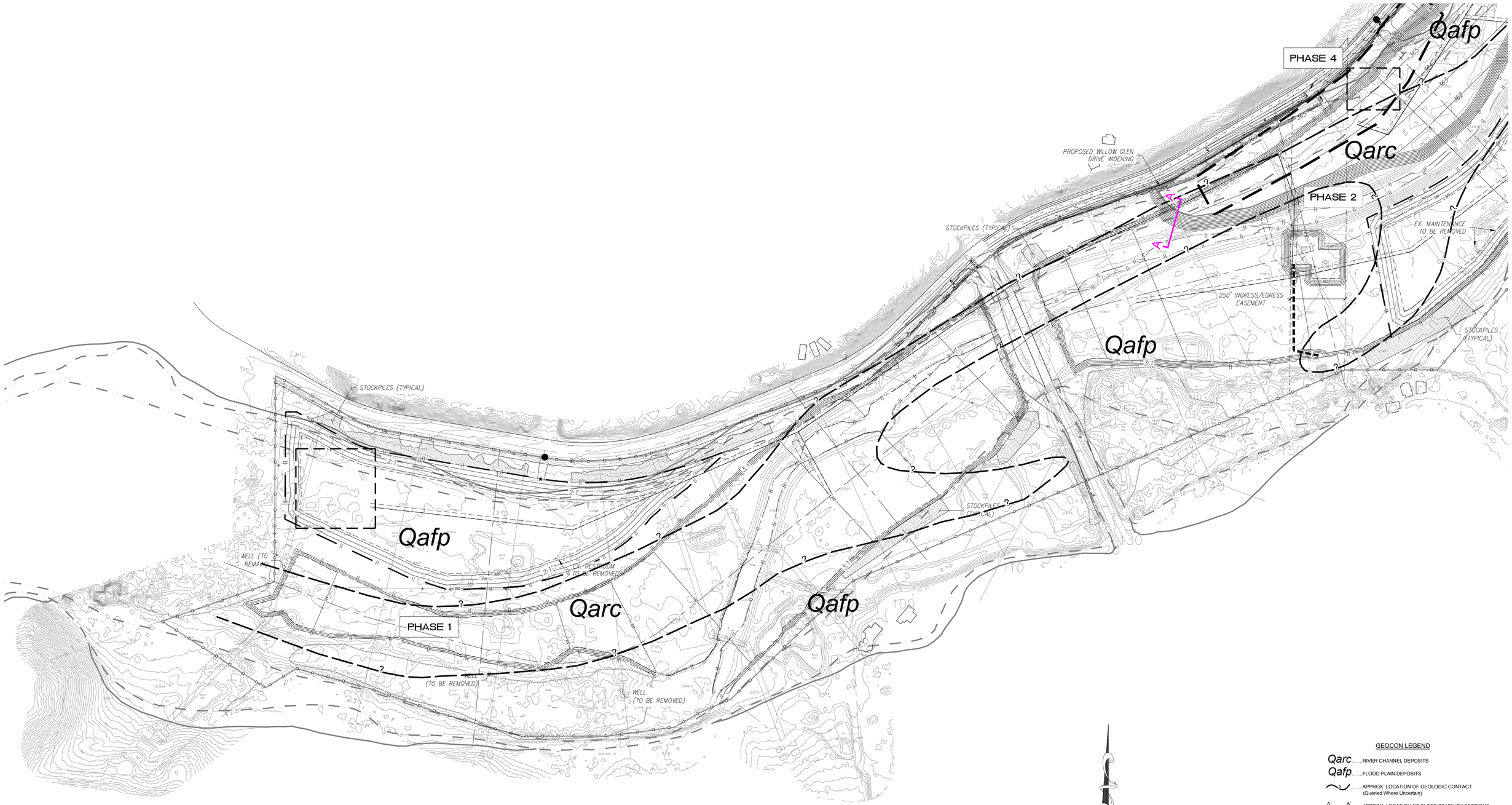
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COTTONWOOD SAND MINING
EL CAJON, CALIFORNIA

GC / CW		DSK/GTYPD

DATE 11 - 04 - 2020	PROJECT NO. G2137 - 42 - 02	FIG. 1

Plotted:11/04/2020 3:32PM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G2137-42-02 (Cottonwood Sand Mining)\DETAILS\G2137-42-02 Vic Map.dwg



GRAPHIC SCALE
0' 100' 200' 300' 40' 600' 800'
SCALE 1"=200' (on 36x24)

GEOCON LEGEND

Qarc.....RIVER CHANNEL DEPOSITS
Qafp.....FLOOD PLAIN DEPOSITS
.....APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)
A A'.....APPROX. LOCATION OF SLOPE STABILITY SECTIONS

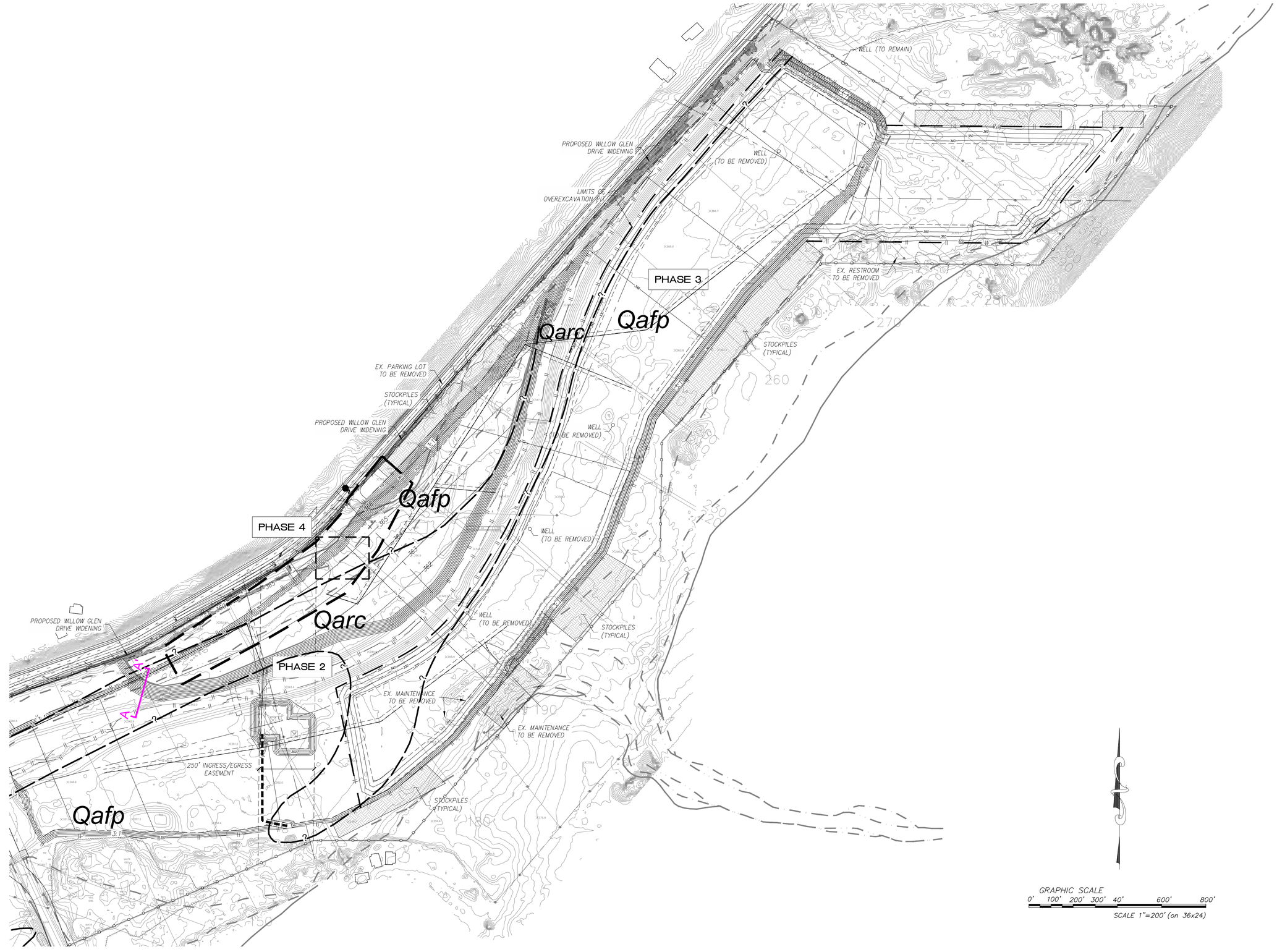
GEOLOGIC MAP

COTTONWOOD SAND MINING
EL CAJON, CALIFORNIA

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SCALE	1" = 200'	DATE	11 - 04 - 2020
PROJECT NO.	G2137 - 42 - 02	FIGURE	2A
SHEET	1 OF 2		

Plotted:11/04/2020 3:29PM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G2137-42-02 (Cottonwood Sand Mining)\SHEETS\G2137-42-02 Geo Map 20.dwg



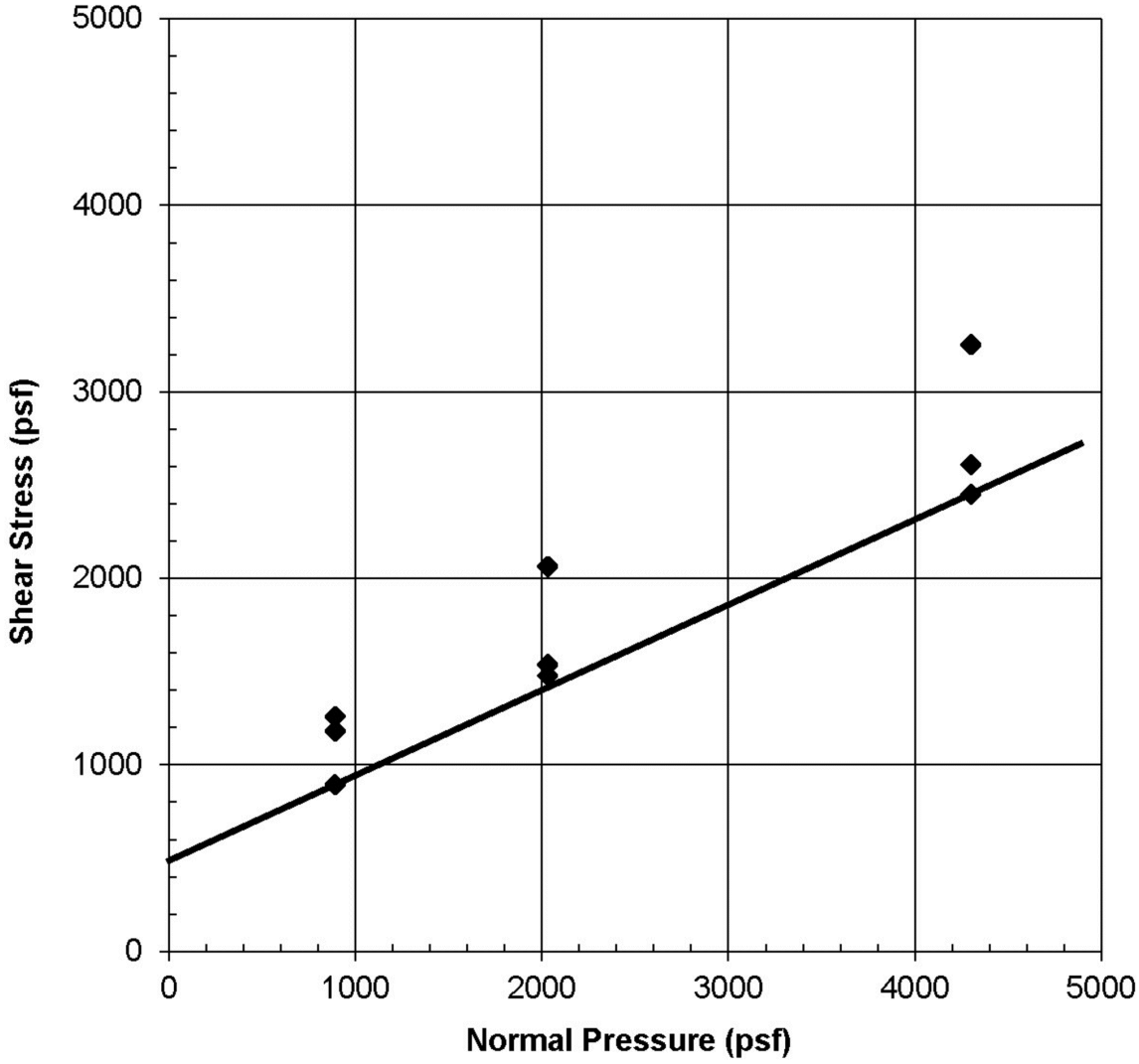
GEOLOGIC MAP

COTTONWOOD SAND MINING
EL CAJON, CALIFORNIA

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PROJECT NO.	G2137 - 42 - 02
FIGURE	2B
SHEET	2 OF 2

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DIRECT SHEAR PLOT

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COTTONWOOD SAND MINING
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GC / CW		DSK/GTYPD	DATE 11 - 04 - 2020	PROJECT NO. G2137 - 42 - 02	FIG. 3

Plotted:11/04/2020 3:30PM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G2137-42-02 (Cottonwood Sand Mining)\DETAILS\Shear Plots.dwg

MATERIAL PROPERTIES:

Reclamation Conditions

Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Qal - Alluvium	110	490	25	1
	Qudf - Undocumented Fill	100	100	20	1

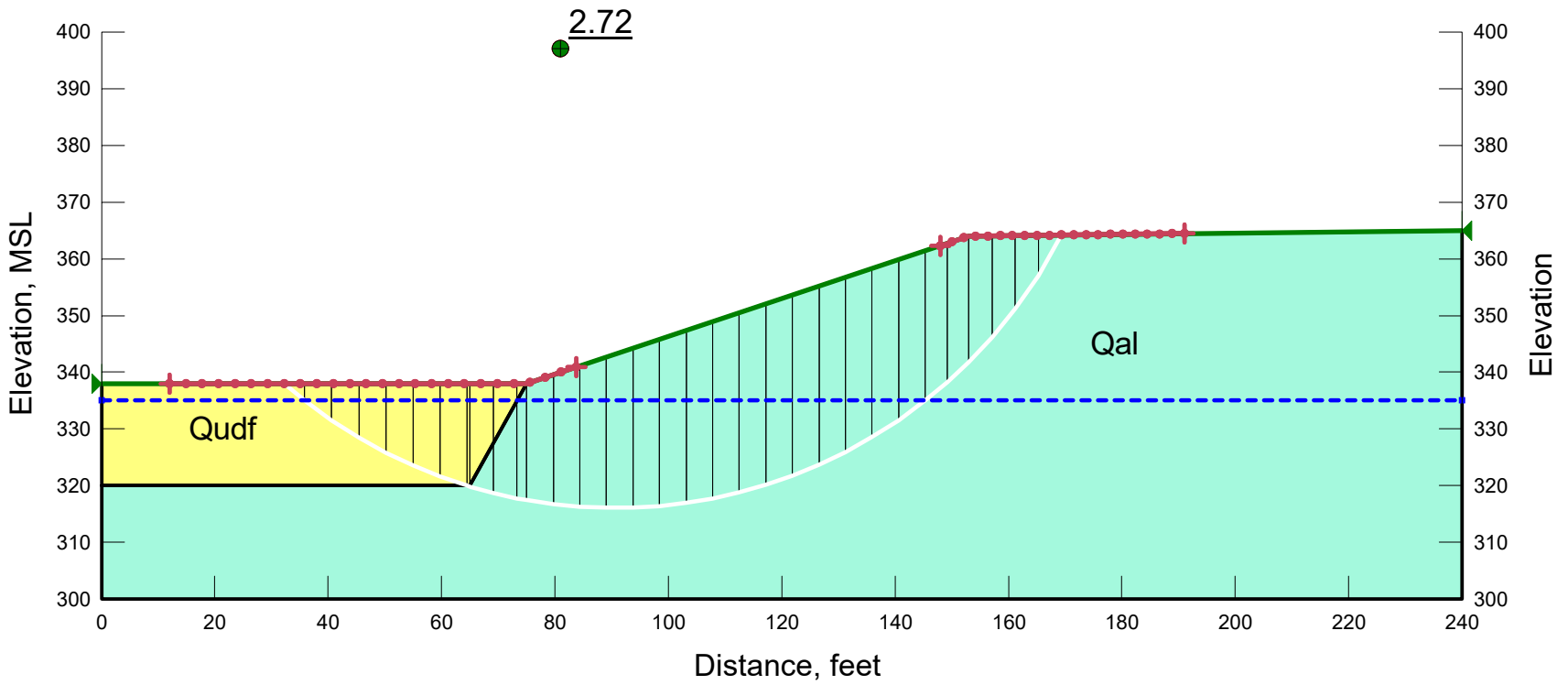


Figure 4

MATERIAL PROPERTIES:

Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Qal - Alluvium	110	490	25	1
	Qudf - Undocumented Fill	100	100	20	1

Reclamation Conditions

Seismic Analysis
keq = 0.175

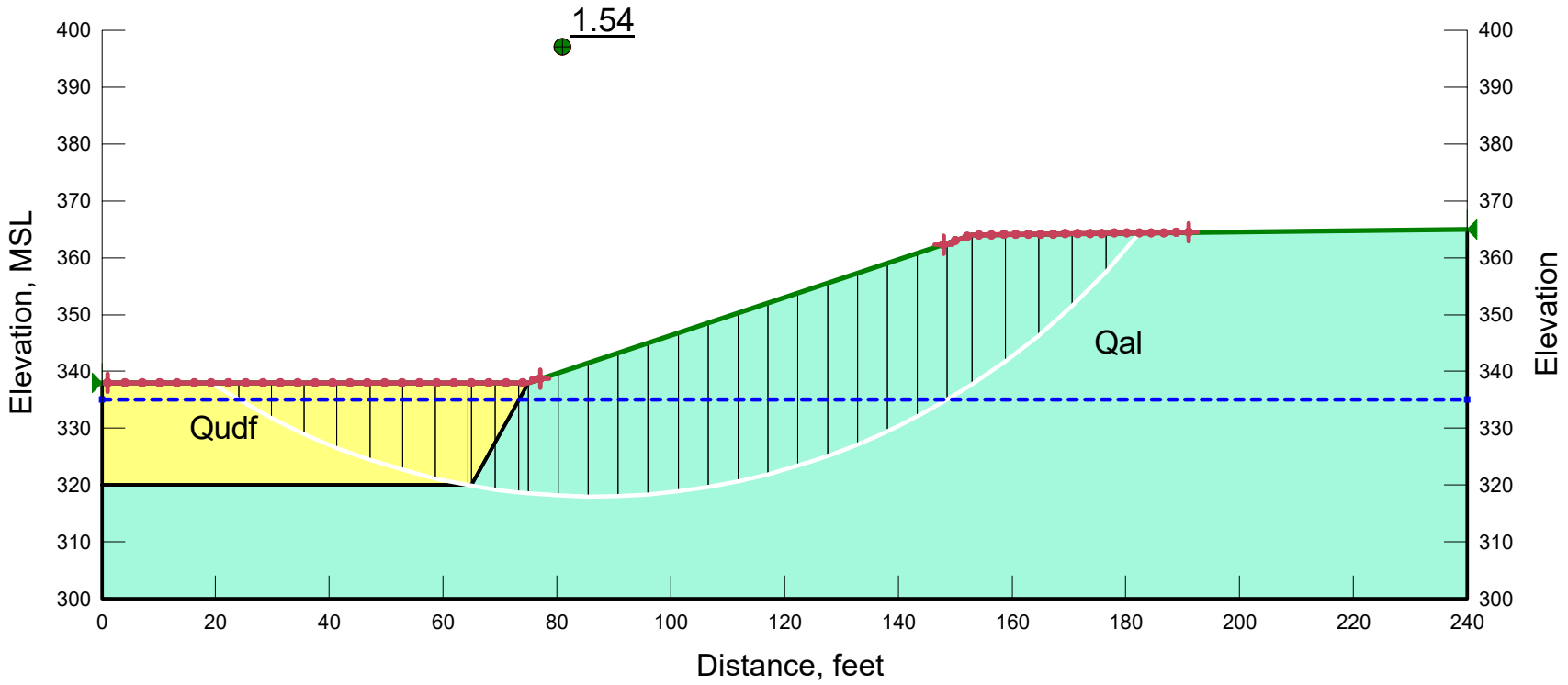


Figure 5

GEOCON

Seismic Slope Stability Evaluation

Input Data in Shaded Areas

Project	Cottonwood	Computed By	RCM
Project Number	G2137-42-02		
Date	11/04/20		
Filename			

Peak Ground Acceleration (Firm Rock), MHA_r, g	0.25	10% in 50 years
Modal Magnitude, M	7.7	
Modal Distance, r, km	48.0	
Site Condition, S (0 for rock, 1 for soil)	1	
Yield Acceleration, k_y/g	NA	<-- Enter Value or NA for Screening Analysis
Shear Wave Velocity, V_s (ft/sec)	NA	<--
Max Vertical Distance, H (Feet)	NA	<--
Is Slide X-Area > 25,000ft^2 (Y/N)	N	<-- Use "N" for Buttress Fills
Correction for horizontal incoherence	1.0	
Duration, $D_{5\text{-}95}\|_{med}$, sec	31.197	
Coefficient, C_1	0.5190	
Coefficient, C_2	0.0837	
Coefficient, C_3	0.0019	
Standard Error, ε_T	0.437	
Mean Square Period, T_m, sec	0.715	

Initial Screening with MHEA = MHA = k_{max}g

k_y/MHA	NA
$f_{EO}(u=5cm) = (NRF/3.477)*(1.87-\log(u/((MHA_r/g)*NRF*D_{5\text{-}95})))$	0.6998
$k_{EO} = feq(MHA_r)/g$	0.175
Factor of Safety in Slope Analysis Using k_{EQ}	1.54

Passes Initial Screening Analysis

Approximation of Seismic Demand

Period of Sliding Mass, $T_s = 4H/V_s$, sec	NA
T_s/T_m	NA
MHEA/(MHA*NRF)	NA
$NRF = 0.6225+0.9196EXP(-2.25*MHA_r/g)$	1.15
MHEA/g	NA
$k_y/MHEA = k_y/k_{max}$	NA
Normalized Displacement, Normu	NA
Estimated Displacement, u (cm)	NA

FIGURE 6

MATERIAL PROPERTIES:

Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Piezometric Line
	Qal - Alluvium	110	490	25	1
	Qudf - Undocumented Fill	100	100	20	1

Reclamation Conditions

Temporary Slopes

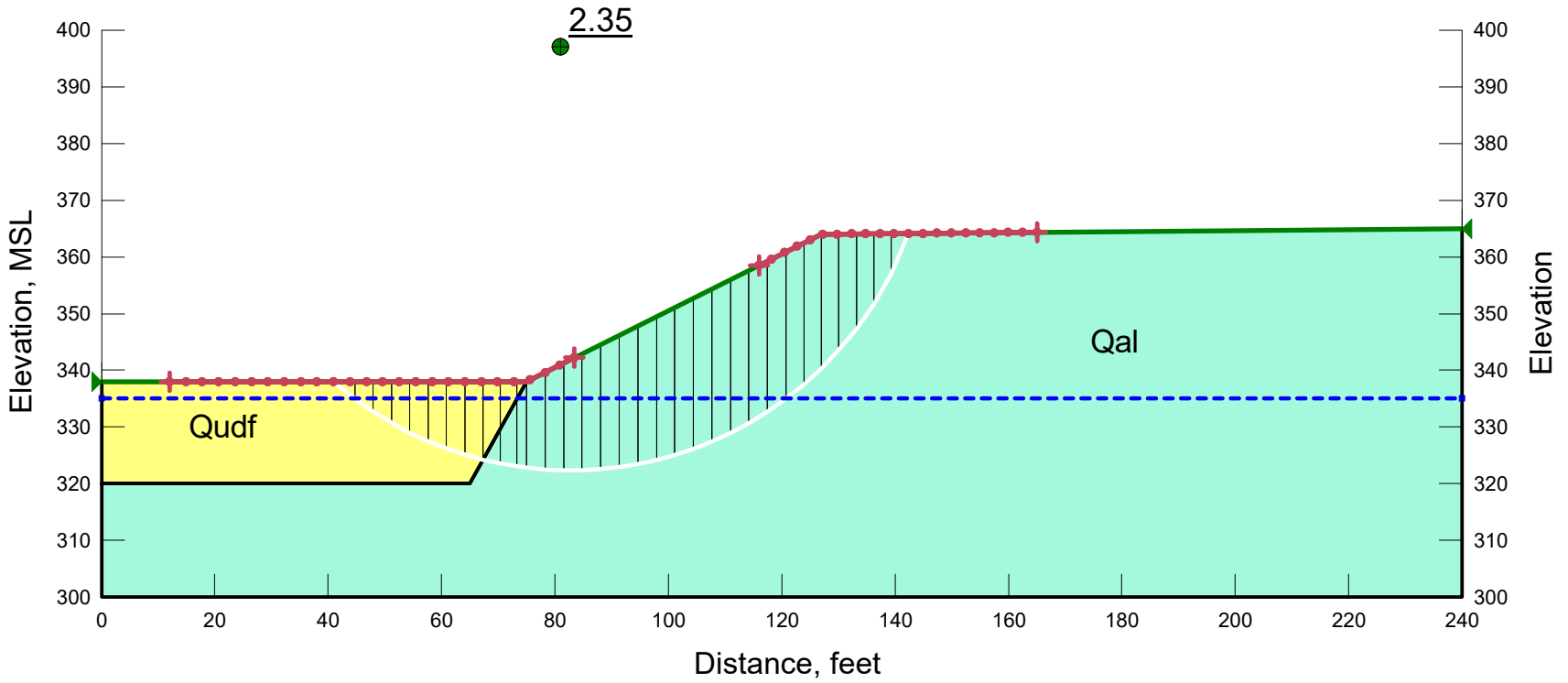


Figure 7

LIST OF REFERENCES

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Tan, S. S., (2002a), *Geology of the El Cajon* 7.5' Quadrangle, San Diego County, California, 1:24,000 Scale;

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Risk Engineering (2011), *EZ-FRISK (version 7.62)*, software package used to perform site-specific earthquake hazard analyses. Accessed January 2, 2019;

CSRL (2008), *SoilWeb*, a streaming, seamless interface to USDA-NCSS SSURGO and STATSGO Soil Survey Products, by the California Soil Resource Lab, accessed December 28, 2018;

USDA (1953), Aerial photographs AXN 5M 167 and 168;

USGS (2016), *Quaternary Fault and Fold Database of the United States:* U.S. Geological Survey website, http://earthquakes,usgs.gov/hazards/qfaults, accessed December 28, 2018.

Attachment D.

Operations Procedure
Communication with Sweetwater Authority

Cottonwood Sand Mine Operations Plan
Water Transfer Communication with Sweetwater Authority

PURPOSE

The purpose of these procedures is to ensure that Cottonwood Sand Mine (Cottonwood) is notified of any water transfer or emergency release of water, whether intentional or un-intentional, from Loveland Reservoir to allow Cottonwood to respond appropriately. These procedures cover general notification, response, and reporting. They apply to workers, supervisors, area managers, site security and emergency responders.

These procedures are meant to allow efficient water transfer by Sweetwater Authority from Loveland Reservoir to the Sweetwater Reservoir using the Sweetwater River. These will be implemented to avoid impeding water flow, downstream property damage, potential safety hazards and pollution of water being transferred.

Cottonwood has granted Sweetwater Authority permission for access to the Cottonwood property to continue monitoring of groundwater conditions from two water wells located at the southwestern (Harwood or Ivanhoe #11) and northeastern property lines (Cottonwood East or Lakes #11) of the property. These two wells will be left in place for Sweetwater Authority's use after extraction operations have ended.

Notification and Response

Sweetwater Authority

Sweetwater staff will notify Cottonwood staff by telephone of an expected date and time of water release. This notification shall be done 48 hours in advance of the expected release. It is understood that Sweetwater Authority increases the release rate in steps in accordance with observed channel conditions downstream. As this release rate is to be increased, Sweetwater will notify Cottonwood Staff one (1) hour in advance of any increase of the water release.

Sweetwater Authority will contact Cottonwood when a groundwater monitoring event is planned. This contact shall occur, at a minimum, 48 hours in advance of the event. Sweetwater Authority will be responsible for all monitoring costs and will follow all safety regulations and procedures required at the mine site.

Cottonwood

Cottonwood will prepare to move or secure staff, mobile equipment, conveyor and materials from the existing channel. Cottonwood will continue to monitor the water release elevations at the mining site and, as necessary, move the equipment to higher elevations. Cottonwood will notify Sweetwater of water flow and operational conditions at the mining site as changes occur.

Cottonwood shall provide access to the two wells as requested and shall provide a safety briefing to Sweetwater Authority staff members at the start of each monitoring session. Cottonwood will maintain electrical service and operating water pumps for both wells during extraction operations.

Contacts

Sweetwater Authority

Primary Contact

- Name: Erick Del Bosque, Sweetwater Authority
- Phone: (619) 409-6752

Secondary Contact

- Name: Israel Marquez, Sweetwater Authority
- Phone: (619) 410-1590

Cottonwood Sand Mine:

Primary Contact:

- Name: James DeCarolis, EnviroMine Inc.
- Phone: (619) 284-8515

Secondary Contact:

- Name: Brice Bossler, Bossler Group
- Phone: (619) 850-1399

Key Facts

Sweetwater Authority owns and operates the Loveland Reservoir and the Sweetwater Reservoir that are located on the Sweetwater River. Both reservoirs serve as storage facilities for raw water that will be used as drinking water. Loveland Reservoir is located near the town of Alpine, CA and approximately 11 miles upstream of the Cottonwood Sand Mine property. This reservoir is used as a water storage reservoir. From which Sweetwater Authority transfers water to the Sweetwater reservoir. This is

completed by releasing water into the river channel through a control valve at the dam.

Water releases are, typically, timed to occur during the wet, winter months of December until March and are dependent on watershed conditions observed by Sweetwater Authority. Raw water is treated at the Sweetwater Reservoir and is used as drinking water by customers in the southern part of San Diego County.

Cottonwood is a surface mining operation located along the Sweetwater River between the reservoirs and is approximately 11.0 miles downstream of Loveland and approximately 5.0 miles upstream of the Sweetwater Reservoir. This operation extracts and processes sand and gravels from the alluvial deposits within the floodplain of the Sweetwater River. This operation serves the local construction industry and could be interrupted by water releases.

Attachment E

Hydraulic Analyses

CEQA-LEVEL DRAINAGE STUDY

FOR THE

COTTONWOOD SAND MINING PROJECT

(PDS2018-MUP-18-023)

July 24, 2024

Will sign and stamp upon approval

Wayne W. Chang, MS, PE 46548

ChangConsultants

Civil Engineering ◦ Hydrology ◦ Hydraulics ◦ Sedimentation

P.O. Box 9496
Rancho Santa Fe, CA 92067
(858) 692-0760

FOR REVIEW ONLY

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APPENDICES

A. Effective, Existing Condition (Corrected Effective), and Proposed Condition HEC-RAS Analyses

B. Water Transfer Data

MAP POCKET

Proposed Condition HEC-RAS Work Map

CD containing Rick Engineering Company LOMR files, Plot Plan and Reclamation Plan for the Cottonwood Sand Mining Project, HEC-RAS analyses, and FIRMs.

INTRODUCTION

The Cottonwood Sand Mining Project is located at 3121 Willow Glen Road within the unincorporated southwestern portion of San Diego County (see Figure 1. Vicinity Map). The Assessor's Parcel Numbers are 506-021-19-00, 506-020-52-00, 518-012-13-00, 518-012-14-00, 518-030-05-00, 518-030-06-00 518-030-07-00, 518-030-08-00, 518-030-10-00, 518-030-12-00, 518-030-13-00, 518-030-15-00, 518-030-21-00, 518-030-22-00, 519-010-15-00, 519-010-17-00, 519-010-20-00, 519-010-21-00, 519-010-33-00, 519-010-34-00, 519-010-37-00, and 519-011-03-00. The site is on the east and west sides of Steele Canyon Road and historically supported two 18-hole golf courses referred to as the Lakes course and the Ivanhoe course. The Lakes course is along the westerly portion of the site and is no longer operational. The majority of the site is within the Sweetwater River 100-year floodplain and regulatory floodway. The Sweetwater River flows in a southwesterly direction through the site and is included on FEMA's May 16, 2012, *Flood Insurance Rate Map* No.'s 06073C1668G, 06073C1669G, 06073C1931G, and 06073C1932G (included on CD). FEMA's floodplain and regulatory floodway mapping has been updated by a Rick Engineering Company Letter of Map Revision, which is discussed in the next section.

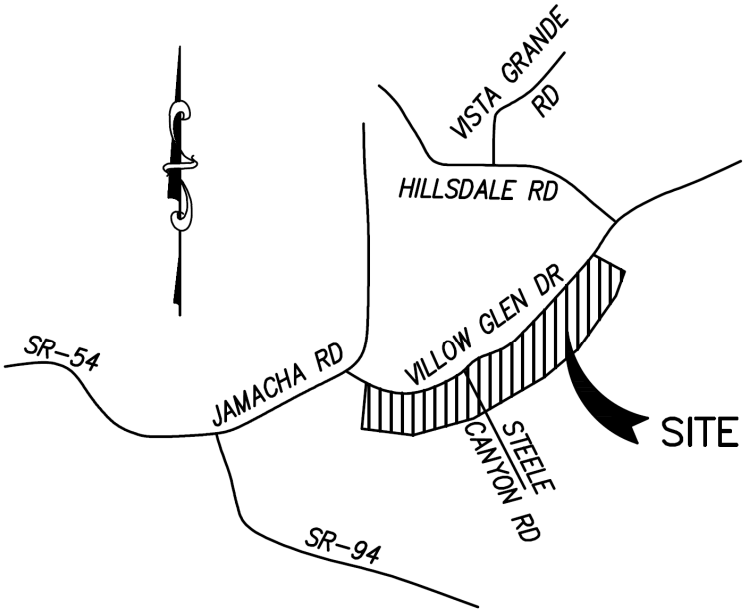


Figure 1. Vicinity Map

The project proposes mining and restoration activities within approximately 251 acres along and within the Sweetwater River floodplain. Extractive operations are expected to continue for 10 years in three mining phases with a total production of 3.8 million cubic yards (5.7 million tons). The maximum excavation depth is approximately 40 feet. Reclamation involving grading, habitat improvement, and revegetation would be an ongoing process starting in the second year as mining proceeds to the east and would continue in each subphase over approximately 10 years. Reclamation is anticipated to be concluded 2 years after mining completion. Post-mining

land use of the entire 280-acre property will include areas of sloped land and floodplain along the Sweetwater River and relatively flat areas along the property edges.

The project is primarily excavating within the FEMA floodplain and regulatory floodway, which will increase the flow conveyance area. This will be offset somewhat by the increased vegetation density resulting from replacing the existing golf course with revegetation and habitat restoration. A hydraulic goal is that the excavation will dominate over revegetation/restoration resulting in no increased 100-year water elevations on off-site areas, i.e., no-rise on off-site properties along the Sweetwater River.

The Sweetwater Authority (Authority) owns and manages Sweetwater Reservoir and Loveland Reservoir. Sweetwater Reservoir is a terminal drinking water reservoir located less than five miles downstream of the proposed project location. Loveland Reservoir is located near Alpine and approximately 10 miles upstream of the Project. Runoff from the upper Sweetwater River watershed is captured at Loveland Reservoir primarily during winter and spring months. Runoff stored at Loveland Reservoir can be transferred to Sweetwater Reservoir via the Sweetwater River channel to augment water production for the Authority's service area. The Loveland Reservoir bunger valve can release up to 358 cubic feet per second (cfs). Water transfers generally take place during the winter months of December, January, and/or February, which minimizes water loss due to evaporation or infiltration and aims to avoid negative impacts to the arroyo toad, a federally endangered species and state Species of Special Concern. However, water transfers could occur in the late winter or early spring (i.e., March and/or April) subject to environmental compliance, arroyo toad avoidance, and wildlife agency concurrence. Both Loveland Reservoir and Sweetwater Reservoir are a vital part of the San Diego region’s drinking water supply.

The Authority has senior water rights along the Sweetwater River. These water rights were acquired by the Authority through its predecessors and allow the Authority to transfer water from Loveland Reservoir to Sweetwater Reservoir along the Sweetwater River channel. Under pre-project conditions, the transferred water flows in a naturally-lined (earth, grass, and weeds) trapezoidal channel constructed within the golf course. The channel transitions to a broader riparian channel near the downstream portion of the site. The Sweetwater River floodplain will be altered within the project boundaries through implementation of mining activities; however, the bed and lower portion of the banks of the existing trapezoidal channel will be undisturbed in order to allow water transfer to continue along its current path without impacts. The maximum 358 cfs transfer flow rate along with concurrent historic precipitation will be accommodated by the project within the trapezoidal channel. This will prevent capture of the water transfer in the extraction areas. Hence, the project design will preserve the Authority’s ability to transfer water from Loveland Reservoir to Sweetwater Reservoir.

A conveyor system will be utilized during project operations to transport mined material. Portions of the conveyor system will be within the 100-year floodplain. These portions will either be anchored, as needed, to prevent displacement by flowing water or removed at least 24 hours prior to forecast of significant rain (over 0.5 inches). The conveyors shall also be anchored, as needed, during scheduled water transfers. The conveyors are primarily aligned in the direction

of flow and have a profile that causes minimal flow blockage, so will have minimal impact on water surface elevations and will not alter, divert, or impeded water transfers or natural flows.

Two adjacent SDG&E transmission towers exist on-site just upstream of Steele Canyon Road. The towers and ground supporting the towers will remain and not be disturbed by mining activities. A ramp will be provided from the extraction area to the towers for access. The ramp and slopes surrounding the towers shall be lined, as needed, for access and to prevent erosion. The project is designed so that retention of the towers meets the no-rise criteria.

This CEQA-level report contains pre- (existing condition) and post-project (proposed condition) hydraulic analyses demonstrating that no-rise in the 100-year water surface elevations will occur off-site. The extraction will occur in phases (see Figure 2. Project Phasing at the end of this report). Since the project primarily involves extraction in the floodplain, the individual phases (Phase 1 to 3) will meet the off-site no-rise criteria. The final reclamation (Phase 4) will also meet the criteria. Since the project is for mining and restoration, minimal impervious surfaces will be added. The largest proposed impervious area is associated with the proposed Willow Glen Drive improvements. Stormwater runoff from Willow Glen Drive would be directed along the southerly curb of Willow Glen Drive and conveyed into tree wells just south of the roadway The on-site project footprint will not increase the off-site flow rates since there are minimal impervious areas proposed on-site. In fact, the extraction areas will provide detention and retention benefits during mining that will reduce off-site surface flow rates.

Hydrologic and hydraulic analyses are provided to assess the Authority's water transfer based on their Loveland Reservoir releases through the bunger valve in combination with precipitation events. The analyses are used to size the existing on-site trapezoidal channel so that it can continue to convey the maximum water transfer flow rate anticipated based on data from the last 12 years.

Rational method hydrologic analyses are not applicable to the project since the majority of the site is within the Sweetwater River 100-year floodplain (see the HEC-RAS Work Map in the map pocket). According to the U.S. Geological Survey's (USGS) Streamstats software contained after this report text, the Sweetwater River watershed tributary to the site covers over 155 square miles. The project runoff and floodplain are associated with the river flow generated by the watershed. The river flow cannot be determined using the rational method. The river flow is based on FEMA data. The river flow exits the westerly (downstream) end of the site and is considered to be the same under existing and proposed conditions (see Table 1).

Condition	Watershed Area, sq. mi.	100-Year Flow, cfs
Existing	155.6	29,500
Proposed	155.6	29,500

Note: Tc, I, and C are not applicable for river flow.

Table 1. Hydrology Summary

HYDRAULIC ANALYSES

The pre-project hydraulic conditions are established by a Letter of Map Revision (LOMR) for the Cottonwood Golf Course by Rick Engineering Company (Rick). The LOMR has been approved by the County of San Diego and FEMA (LOMR Case No. 20-09-2025P dated December 1, 2020, effective April 14, 2021). Rick's latest LOMR files are included on the CD. The LOMR includes an As-Built Conditions HEC-RAS model that reflects the pre-project 100-year floodplain and regulatory floodway. The As-Built model represents the effective conditions along the site. The As-Built results are included in Appendix A and the plan has been added to the HEC-RAS model prepared for the project. It was noted that when the As-Built plan was executed in the latest version of HEC-RAS (v 6.1.0), some of the base flood elevations changed by a few hundredths. Review of the As-Built HEC-RAS model revealed that the effective flow area associated with Steele Canyon Road did not reflect an existing culvert under the southerly portion of the road crossing, so a corrected effective model was created that widens the effective flow area based on the culvert. The corrected effective model is included with Rick's HEC-RAS model on the CD as well as on the HEC-RAS model prepared for the project, and its summary output and cross-section plots are included in Appendix A.

The post-project HEC-RAS cross-sections, base topography, and proposed grading are shown on the Proposed Condition HEC-RAS Work Map in the map pocket. The mapping is on NGVD 29. The cross-sections are at the same locations as the LOMR analysis. The cross-sections were created from various sources. Downstream cross-section 5 and upstream cross-sections 394.1 to 398 were reproduced from the LOMR As-built geometry. Cross-sections 120 and 130 bounding the Steele Canyon Road crossing were also reproduced from the As-built geometry. The remaining cross-sections are along the proposed mining and reclamation footprint, so were created based on the phased mining and reclamation grading as well as the project's topographic mapping for the surrounding area.

The remaining post-project HEC-RAS input parameters are as follows. The FEMA 100-year flow rate of 29,500 cfs was used throughout the study reach. The roughness coefficients in the areas outside the project footprint are based on the roughness coefficients in the As-built model. These range from 0.025 to 0.080. The roughness coefficient within the excavation area was assigned a value of 0.11 to reflect dense, mature vegetation resulting from restoration. The *San Diego County Hydraulic Design Manual* Section 5.6.2 states the roughness can be justified using information such as existing adjacent vegetative conditions. As a result, the vegetated restoration roughness has been modeled similar to the existing vegetated areas upstream and downstream of the site. The ineffective flow areas are based on the LOMR ineffective flow areas except as noted near Steele Canyon Road. Material stockpiles will be present during the mining phases. Blocked obstructions were used to represent the stockpile locations during mining. The obstructions are removed for the post-mining phase.

The existing/effective (As-built), corrected effective, and phased proposed condition 100-year HEC-RAS results are included in Appendix A and on the CD. Separate proposed condition results have been determined for mining during Phase 1 to 3 as well as the final reclaimed Phase 4 landform. The 100-year water surface elevations are summarized in Table 2. Table 2 shows that the project is generally lowering water surface elevations compared to the effective results

(the effective results were run on the latest version of HEC-RAS, v 6.1.0) due to the excavation. There is a small rise in the 100-year water surface elevation at cross-sections 20 and 60, but the rise occurs on-site. There is also a small rise at cross-section 140, but this can be adjusted by revising the roughness. Table 3 contains a comparison of the Phase 1 through 4 water surface elevations with the corrected effective results. This table shows that the small rise only occurs at cross-sections 20 and 60, so are contained on-site.

Velocities over 6 feet per second are typically considered to be erosive. The proposed velocities within the site at the completion of mining are less than 6 feet per second (fps) except at cross-sections 120 and 130. Grouted light class riprap will be installed here to prevent erosion associated with upstream headcutting. Similar grouted riprap will be placed at the upstream end of the quarry to prevent upstream headcutting. The operator shall routinely inspect the areas during ongoing mining and provide erosion protection measures and maintenance, as needed, and documented in the Industrial SWPPP.

Ultimately, a Conditional Letter of Map Revision and Letter of Map Revision will be performed to define the proposed condition floodplain and regulatory floodway.

SWEETWATER AUTHORITY WATER TRANSFER ANALYSES

The Sweetwater Authority occasionally transfers water from Loveland Reservoir to the Sweetwater Reservoir to augment the local water supply available to consumers. The water transfers primarily occur during the winter to spring months and are controlled by operating the bunger valve at Loveland Reservoir. Since the releases typically occur during the rainy season (i.e., during atmospheric river flows), the flow rate during transfers can include a rainfall contribution. Transfers are primarily performed during the rainy season since infiltration and evaporative losses are reduced due to greater soil saturation and the cooler climate. The maximum release rate from the bunger valve is 358 cfs. The transfer rate downstream of the reservoir can exceed this due to the additional rainfall contribution.

The project intends to maintain the current water transfer conveyance provided within the site. This will be accomplished by preserving the portion of the on-site trapezoidal channel that is needed to convey the maximum water transfer flow rate. Hydrologic analyses were performed to determine the maximum flow rate. The analyses were based on historic transfer data from release dates given by the Authority. Hydraulic analyses were performed to assess the size of channel needed to convey the maximum transfer rate.

The Authority provided release data since 2010 to assist in assessing the maximum transfer rate within the project. The data is summarized in Table 4 and shows that six transfers occurred over the past 12 years. The end date is when water was last captured at Sweetwater Reservoir, not when the valve was closed. The transfers ranged over a period of 18 to 29 days. Loveland Reservoir also experienced overtopping spills in 2011 to 2012. The overtopping flows were not assessed since they were not planned water transfers.

Year	Begin Transfer	End Transfer
2010	1/28/2010	2/18/2010
2012	1/24/2012	2/11/2012
2013	1/18/2013	2/05/2013
2017	2/28/2017	3/19/2017
2019	2/15/2019	3/10/2019
2021	1/11/2021	2/09/2021

Table 4. Water Transfer Periods

The Sweetwater River flow rate was determined for each transfer period. The USGS operates a stream gage (Station No. USGS 11016200, Sweetwater R A Dehesa CA) where the river crosses Sloane Canyon Road (see Figure 3. USGS Sweetwater River Rain Gage), which is approximately midway between the site and Loveland Reservoir. The measured flow rates are provided at 15 minute intervals and were obtained for each period in Table 4 (see Appendix B). The maximum flow rate over each period is summarized in Table 5 along with the date. The greatest flow rate occurred in 2017 and was 591 cfs. This was measured at 3:30 AM on the initial release date in 2017. Therefore, this is likely associated with antecedent rainfall rather than the release. The flow rate lowered over 200 cfs to 388 cfs on the subsequent day, March 1st.

Year	Date	Maximum Flow Rate, cfs
2010	January 31	353
2012	February 6	400
2013	January 25	344
2017	February 28	591
2019	February 21	421
2021	January 21	338

Table 5. USGS Sweetwater River Stream Gage Measurements

Since water transfers can occur during the rainy season, precipitation records were obtained for each period. In order to account for rainfall immediately prior to a transfer period the records were obtained beginning a week before the initial transfer date. Some of the flow rates measured in Table 5 are higher than the valve release rate of 358 cfs, which indicates that the transfer rate includes rainfall contribution in some instances. The County of San Diego operates the Roads Division 1 rain gage at their Roads Department at 11970 Singer Lane in Spring Valley (see Figure 4. County of San Diego Roads Division 1 Rain Gage). This location is approximately 1 mile west of the site, so is representative of rainfall at the site. The precipitation data from 2010 is provided as daily totals, while the precipitation data from 2012 to 2021 is graphed as accumulated rainfall (see Appendix B). For the accumulated rainfall, a horizontal curve indicates zero to minor rainfall, while a steeper curve indicates greater rainfall. Table 6 summarizes the rainfall events for each year. The rainfall date is listed followed by the associated rainfall in parentheses. Minor events with minimal rainfall are not included.

Year	Date (Rainfall, inches)
2010	1/21-1/22 (1.72"), 2/6 (0.64"), 2/9 (0.52")
2012	1/21 (0.10"), 1/23 (0.27"), 2/7 (0.10")
2013	1/25-1/26 (1.35")
2017	2/27 (2.04")
2019	2/13-2/14 (1.67"), 2/17-2/18 (0.35"), 2/20-2/21 (0.46"), 3/02 (0.15"), 3/06 (0.09")
2021	1/23 (0.31"), 1/25 (0.26"), 1/26 (0.19"), 1/29 (0.69", 0.07", 0.13")

Table 6. Rainfall from Roads Division 1 Gage Measurements

The following assesses the rainfall contribution during each water transfer year. In 2010, heavy rainfall occurred a week before the initial transfer date. This did not impact the water transfer rate, since the flow rate on the initial transfer date starts at 0 cfs and has a maximum of 66 cfs. On February 6th and 9th moderate rainfall occurred. The flow rate decreased the day after both of these dates, but did increase from February 8th to 9th. Therefore, the February 6th event did not appear to have much impact on flow rate, but the February 9th event did cause an increase. In both cases the flow rate was less than the maximum bunger valve release rate of 358 cfs.

In 2012, the rainfall was relatively minor. Two rain events occurred one to three days before the initial transfer date. The associated flow rate on the initial transfer date was small at 11 cfs. The rainfall during the water transfer period merely measured 0.10 inches, so the rainfall had minor contribution to the water transfer.

In 2013, a heavy rainfall occurred a week into the water transfer from January 25th to 26th. The water transfer rate was relatively high on January 25th at 344 cfs, but lowered below 200 cfs on the 26th and 27th. It's possible that the bunger valve release was reduced due to rainfall causing the lowering. The water transfer in 2013 did not exceed the maximum bunger valve release rate of 358 cfs despite the rainfall.

In 2017, heavy rainfall occurred a day before the initial release date. The flow rate on the release date was 591 cfs, which is the greatest water transfer rate over the period of record. This is primarily due to the preceding rainfall that exceeded 2 inches.

In 2019, heavy rainfall occurred in the two days prior to the initial release date. As a result, the water transfer rate on the release date started at 128 cfs, but reached 358 cfs, which coincidentally corresponds to the maximum bunger valve release rate. Mild to moderate rainfall occurred at various times during the release period. The water transfer rate generally remained above 300 cfs and reached as high as 421 cfs. The 421 cfs occurred during a period with 0.46 inches of rain.

In 2021, mild to moderately heavy rainfall occurred during the water transfer period. During the milder events from January 23rd to 26th, the water transfer was around 300 cfs. During the heavier rainfall on January 29th, the transfer lowered towards 100 cfs. This may be due to reduction of the bunger valve release.

The rainfall and stream gage records show that the maximum water transfer associated with rainfall during the water transfer periods primarily remained at or below 400 cfs. In 2021, rainfall caused the water transfer to reach 421 cfs on one day. In 2017, the water transfer on the initial release date reached 591 cfs due to heavy rainfall exceeding 2 inches on the preceding day. As mentioned above, the flow rates are measured at Sloane Canyon Road, which is several miles upstream of the project. There will be additional flow added below Sloane Canyon Road during rainfall events, but the data shows that this will generally be minor. This will be offset a small amount by infiltration and evaporative losses (minor during storm events) and a larger amount by storage losses. The large pond immediately downstream of Sloane Canyon Road as well as the natural drainage channel and overbank areas provide significant storage. Based on this, the on-site channel has been designed to convey the maximum historic water transfer measured at 591 cfs. This occurred once over the 128 days of total historic water transfer or 0.8 percent of the time.

Normal depth analyses were used to size the on-site trapezoidal channel. The existing channel will remain. The mining activities will lower the channel banks, but the banks will remain at 3.7 feet high in order to convey the water transfer. For mined areas behind the banks, the ground will be sloped at no steeper than 4:1 (horizontal:vertical) to meet the ground surface. Separate normal depth analyses were performed for the upper and lower portions using FlowMaster. The upper portion of the channel is narrower and steeper than the lower portion. The average channel dimensions, side slopes, and longitudinal slopes were determined from 2-foot contour interval topographic mapping. The channel bed will remain undisturbed. The upper channel will maintain the current bed width of approximately 25 feet and the lower channel will maintain the current bed width of approximately 50 feet. The existing side slopes will be generally unchanged. The FlowMaster results are included in Appendix B. They show that the capacity of the upper and lower channels is 618 and 756 cfs, respectively. Therefore, the maximum historic water transfer of 591 cfs will be conveyed in the on-site channel with a factor of safety. The results also show flow velocities of 5.2 and 3.6 fps, which indicate low erosion potential.

Based on these analyses, the trapezoidal channel that will remain during and after mining will convey water transfer flow rates similar to pre-project conditions. This will avoid water transfer flow and capture beyond the channel limits. The channel has been conservatively sized to convey the maximum water transfer flow rate. The typical water transfer flow rates are much lower than the maximum.

CONCLUSION AND CERTIFICATION

CEQA-level hydraulic analyses have been performed for the proposed Cottonwood Sand Mining Project along the Sweetwater River in the county of San Diego, California. This report includes existing and proposed condition 100-year HEC-RAS hydraulic analyses. The existing condition analyses are from a corrected Rick Engineering Company As-built model included in the Cottonwood Golf Course LOMR approved by FEMA. The proposed condition analyses show that the 100-year flow velocities within the project are generally low and considered non-erosive. Grouted riprap will be installed on some of the pit slopes to protect against upstream headcutting.

The riprap will not prevent nor impede water transfer along the low flow channel. An Industrial SWPPP will address BMPs required for operations.

Since the project proposes mining and restoration in the floodplain, the floodplain is being altered somewhat. In most areas, the 100-year water surface elevations are lowered due to the instream excavation. The river course and on-site drainage patterns are generally being maintained as evidenced by comparison of the effective and proposed condition floodplains on the HEC-RAS Work Map. The flow velocities are generally being reduced since the mining increases conveyance, so the project will not cause substantial erosion. The mining pits will have the ability to capture sediment and reduce downstream sedimentation. The project is creating minimal impervious surfaces, so the river's 100-year flow rate is not altered.

The following summarizes the CEQA-level requirements:

- The project will not substantially alter the existing drainage pattern of the site or area. In addition, there are no significant impervious areas such that an increase in the rate or amount of surface runoff will occur. The site and area runoff will continue to be conveyed to the Sweetwater River that flows through the site – flows would not be impeded or redirected. The Sweetwater River will continue to flow in the same direction through the site. Riprap will be installed at the upstream end of the mining pit to prevent headcutting erosion. The mining pit will reduce downstream siltation since it spreads the river flow and reduces flow velocities.

- The project proposes minor impervious surfaces, so will essentially maintain existing storm runoff flow rates. The project meets no-rise criteria, so will not cause on- or off-site flood inundation impacts.

- The project is primarily within the Sweetwater River floodplain. There are no existing or planned storm water drainage systems in the floodplain that will be impacted by the project since the flow rate is not being altered and the no-rise criteria is met.

- The project does not propose housing.

This is to certify that I am a duly qualified registered professional engineer licensed to practice in the State of California.

Name of Report: *CEQA-Level Drainage Study for the Cottonwood Sand Mining Project*
Date of Report: July 24, 2024

Will sign and stamp upon approval

Date: July 24, 2024
Name: Wayne W. Chang

Mining Phase	Phase Area (acres)	Sub-phase Area (acres)	Mining Duration (years)	Mining Initiation Date (est.)	Mining Completion Date (est.)	Reclamation Completion Date (est.)
1	78.98		3	2025	2028	2030
Sub-phase 1a		22.10	1			
Sub-phase 1b		26.46	1			
Sub-phase 1c		30.42	1			
2	48.18		3	2028	2031	2033
Sub-phase 2a		15.26	1			
Sub-phase 2b		19.08	1			
Sub-phase 2c		13.74	1			
3	78.57		4	2031	2035	2037
Sub-phase 3a		29.42	1			
Sub-phase 3b		16.15	1			
Sub-phase 3c		14.13	1			
Sub-phase 3d		18.87	1			
Phase 4	8.65		1	2035	2035	2037
Total	214.4		10	-	-	

Figure 2. Project Phasing

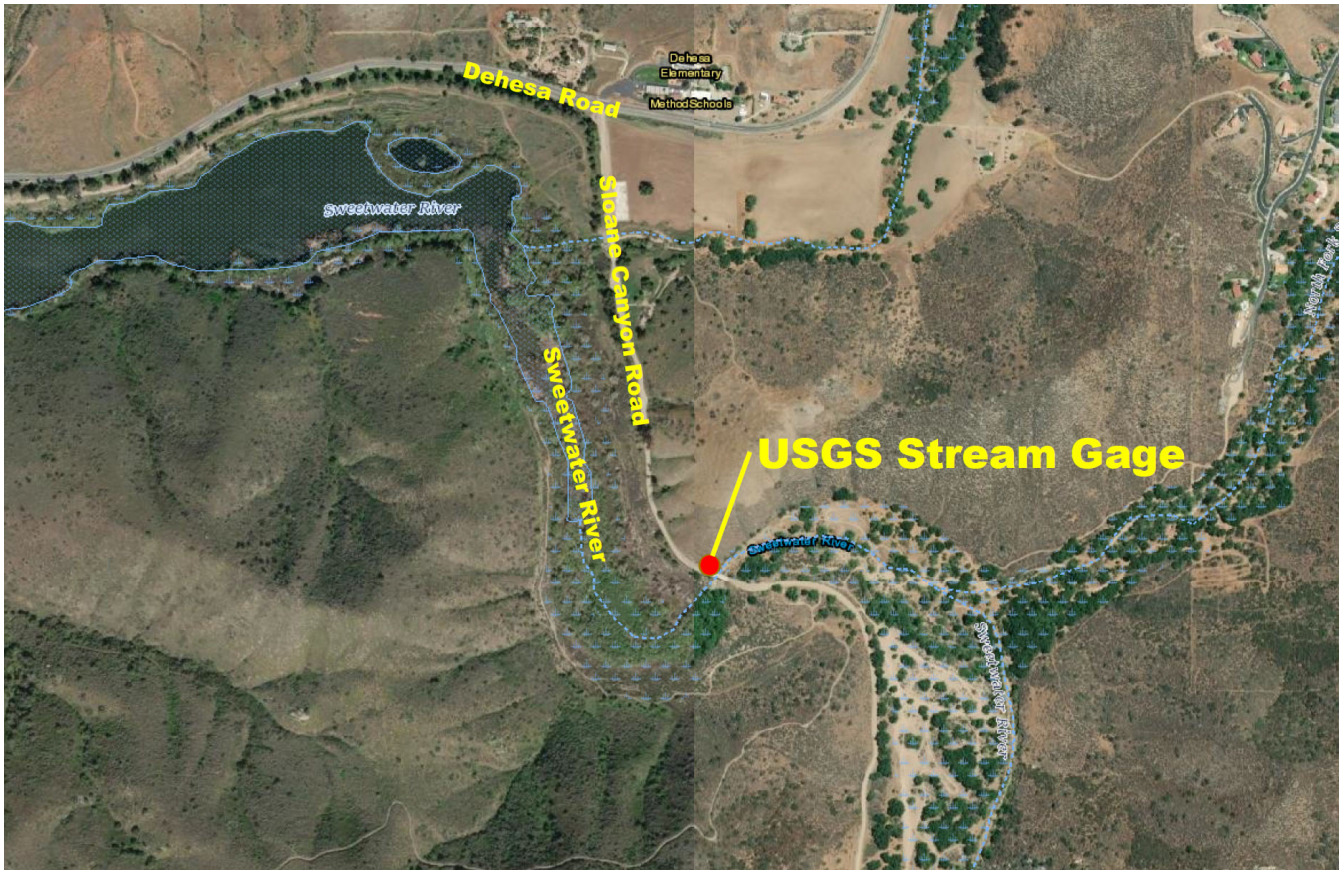


Figure 3. USGS Sweetwater River Rain Gage

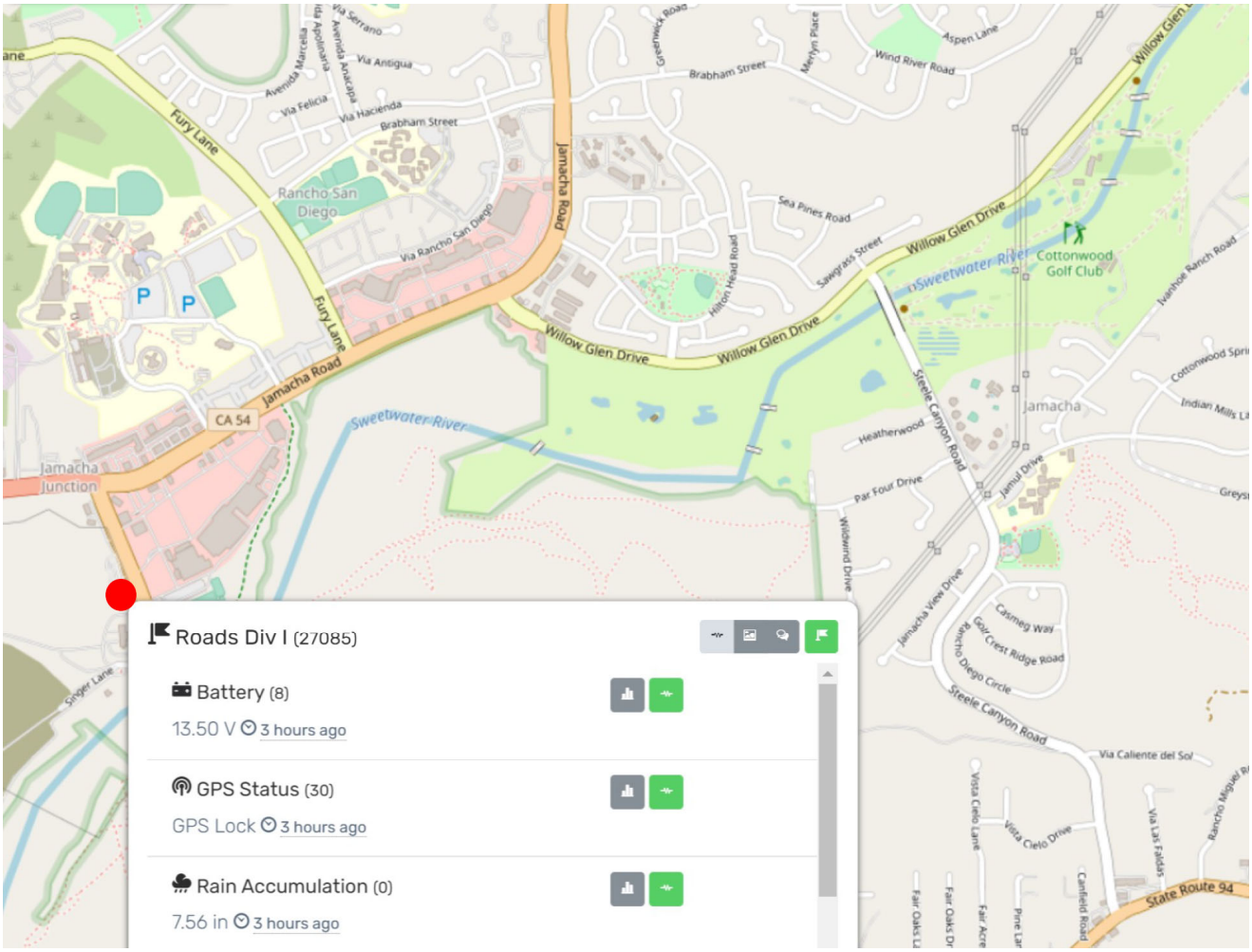


Figure 4. County of San Diego Roads Division 1 Rain Gage

Station	Effective[1], ft	Prop. Cond. Phase 1, ft	Phase 1 – Corr. Eff., ft	Prop. Cond. Phase 2, ft	Phase 2 – Corr. Eff., ft	Prop. Cond. Phase 3, ft	Phase 3 – Corr. Eff., ft	Prop. Cond. Phase 4, ft	Phase 4 – Corr. Eff., ft
398	383.17	383.17	0.00	383.17	0.00	383.17	0.00	383.17	0.00
396	378.38	378.38	0.00	378.38	0.00	377.94	-0.44	377.93	-0.45
394.1	377.81	377.81	0.00	377.81	0.00	376.97	-0.84	376.94	-0.87
320	376.30	376.30	0.00	376.30	0.00	375.09	-1.21	375.12	-1.18
310	376.28	376.28	0.00	376.28	0.00	374.86	-1.42	374.88	-1.40
300	375.73	375.73	0.00	375.73	0.00	374.07	-1.66	374.07	-1.66
290	375.52	375.52	0.00	375.52	0.00	373.18	-2.34	373.18	-2.34
280	372.00	372.00	0.00	372.00	0.00	362.75	-9.25	363.63	-8.37
270	370.66	370.66	0.00	370.66	0.00	361.11	-9.55	362.54	-8.12
260	367.90	367.90	0.00	367.90	0.00	359.20	-8.70	361.46	-6.44
250	365.55	365.55	0.00	365.45	-0.10	357.17	-8.38	360.26	-5.29
240	365.31	365.31	0.00	365.17	-0.14	357.14	-8.17	360.24	-5.07
230	364.67	364.67	0.00	364.37	-0.30	356.19	-8.48	359.39	-5.28
220	363.65	363.65	0.00	363.65	0.00	356.15	-7.50	359.35	-4.30
210	362.54	362.54	0.00	356.97	-5.57	354.94	-7.60	357.79	-4.75
200	361.42	361.42	0.00	356.90	-4.52	354.90	-6.52	357.72	-3.70
190	359.56	359.56	0.00	355.37	-4.19	353.92	-5.64	355.74	-3.82
180	356.18	356.18	0.00	354.12	-2.06	353.11	-3.07	354.46	-1.72
170	354.53	354.53	0.00	351.69	-2.84	351.66	-2.87	352.37	-2.16
160	353.77	353.77	0.00	351.56	-2.21	351.58	-2.19	352.24	-1.53
150	351.69	351.69	0.00	349.73	-1.96	349.73	-1.96	349.71	-1.98
140	349.31	349.51	0.20	349.44	0.13	349.44	0.13	349.44	0.13
130	348.47	348.46	-0.01	348.46	-0.01	348.46	-0.01	348.47	0.00
120	346.46	346.46	0.00	346.46	0.00	346.46	0.00	346.46	0.00
110	343.57	342.69	-0.88	342.69	-0.88	342.69	-0.88	342.62	-0.95
100	343.29	341.94	-1.35	341.94	-1.35	341.94	-1.35	341.9	-1.39
90	342.31	340.53	-1.78	340.53	-1.78	340.53	-1.78	340.53	-1.78
80	341.24	340.45	-0.79	340.45	-0.79	340.45	-0.79	340.45	-0.79
70	339.40	339.28	-0.12	339.28	-0.12	339.28	-0.12	339.28	-0.12
60	339.14	339.21	0.07	339.21	0.07	339.21	0.07	339.21	0.07
50	337.58	337.28	-0.30	337.28	-0.30	337.28	-0.30	337.28	-0.30
40	336.13	335.63	-0.50	335.63	-0.50	335.63	-0.50	335.63	-0.50
30	335.13	334.80	-0.33	334.80	-0.33	334.80	-0.33	334.8	-0.33
20	333.90	333.91	0.01	333.91	0.01	333.91	0.01	333.91	0.01
10	333.85	333.75	-0.10	333.75	-0.10	333.75	-0.10	333.75	-0.10
5	330.28	330.28	0.00	330.28	0.00	330.28	0.00	330.28	0.00

[1]The effective analysis was run on HEC-RAS v 6.1.0

Table 2. Comparison of 100-Year Water Surface Elevations for Proposed vs. Effective Conditions (a negative number indicates that the project is lowering the 100-year water surface elevation)

Station	Corrected Effective, ft	Prop. Cond. Phase 1, ft	Phase 1 – Corr. Eff., ft	Prop. Cond. Phase 2, ft	Phase 2 – Corr. Eff., ft	Prop. Cond. Phase 3, ft	Phase 3 – Corr. Eff., ft	Prop. Cond. Phase 4, ft	Phase 4 – Corr. Eff., ft
398	383.17	383.17	0.00	383.17	0.00	383.17	0.00	383.17	0.00
396	378.38	378.38	0.00	378.38	0.00	377.94	-0.44	377.93	-0.45
394.1	377.81	377.81	0.00	377.81	0.00	376.97	-0.84	376.94	-0.87
320	376.30	376.30	0.00	376.30	0.00	375.09	-1.21	375.12	-1.18
310	376.28	376.28	0.00	376.28	0.00	374.86	-1.42	374.88	-1.40
300	375.73	375.73	0.00	375.73	0.00	374.07	-1.66	374.07	-1.66
290	375.52	375.52	0.00	375.52	0.00	373.18	-2.34	373.18	-2.34
280	372.00	372.00	0.00	372.00	0.00	362.75	-9.25	363.63	-8.37
270	370.66	370.66	0.00	370.66	0.00	361.11	-9.55	362.54	-8.12
260	367.90	367.90	0.00	367.90	0.00	359.20	-8.70	361.46	-6.44
250	365.55	365.55	0.00	365.45	-0.10	357.17	-8.38	360.26	-5.29
240	365.31	365.31	0.00	365.17	-0.14	357.14	-8.17	360.24	-5.07
230	364.67	364.67	0.00	364.37	-0.30	356.19	-8.48	359.39	-5.28
220	363.65	363.65	0.00	363.65	0.00	356.15	-7.50	359.35	-4.30
210	362.54	362.54	0.00	356.97	-5.57	354.94	-7.60	357.79	-4.75
200	361.42	361.42	0.00	356.90	-4.52	354.90	-6.52	357.72	-3.70
190	359.56	359.56	0.00	355.37	-4.19	353.92	-5.64	355.74	-3.82
180	356.18	356.18	0.00	354.12	-2.06	353.11	-3.07	354.46	-1.72
170	354.53	354.53	0.00	351.69	-2.84	351.66	-2.87	352.37	-2.16
160	353.77	353.77	0.00	351.56	-2.21	351.58	-2.19	352.24	-1.53
150	351.69	351.69	0.00	349.73	-1.96	349.73	-1.96	349.71	-1.98
140	349.55	349.51	-0.04	349.44	-0.11	349.44	-0.11	349.44	-0.11
130	348.47	348.46	-0.01	348.46	-0.01	348.46	-0.01	348.47	0.00
120	346.46	346.46	0.00	346.46	0.00	346.46	0.00	346.46	0.00
110	343.81	342.69	-1.12	342.69	-1.12	342.69	-1.12	342.62	-1.19
100	343.29	341.94	-1.35	341.94	-1.35	341.94	-1.35	341.9	-1.39
90	342.31	340.53	-1.78	340.53	-1.78	340.53	-1.78	340.53	-1.78
80	341.24	340.45	-0.79	340.45	-0.79	340.45	-0.79	340.45	-0.79
70	339.40	339.28	-0.12	339.28	-0.12	339.28	-0.12	339.28	-0.12
60	339.14	339.21	0.07	339.21	0.07	339.21	0.07	339.21	0.07
50	337.58	337.28	-0.30	337.28	-0.30	337.28	-0.30	337.28	-0.30
40	336.13	335.63	-0.50	335.63	-0.50	335.63	-0.50	335.63	-0.50
30	335.13	334.80	-0.33	334.80	-0.33	334.80	-0.33	334.8	-0.33
20	333.90	333.91	0.01	333.91	0.01	333.91	0.01	333.91	0.01
10	333.85	333.75	-0.10	333.75	-0.10	333.75	-0.10	333.75	-0.10
5	330.28	330.28	0.00	330.28	0.00	330.28	0.00	330.28	0.00

[1]The corrected effective analysis was run on HEC-RAS v 6.1.0

Table 3. Comparison of 100-Year Water Surface Elevations for Proposed vs. Corrected Effective Conditions (a negative number indicates that the project is lowering the 100-year water surface elevation)

StreamStats Report

Region ID: CA
Workspace ID: CA20201105164552757000
Clicked Point (Latitude, Longitude): 32.74180, -116.92806
Time: 2020-11-05 08:46:11 -0800



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLDEM30M	Mean basin slope computed from 30 m DEM	23.1	percent

3 - 230

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	155.6	square miles
ELEV	Mean Basin Elevation	2659	feet
ELEVMAX	Maximum basin elevation	6465	feet
LFPLENGTH	Length of longest flow path	44	miles
MINBELEV	Minimum basin elevation	330	feet
OUTLETELEV	Elevation of the stream outlet in feet above NAVD88	330	feet
PRECIP	Mean Annual Precipitation	22.3	inches
RELIEF	Maximum - minimum elevation	6135	feet

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Application Version: 4.4.0

APPENDIX A

EFFECTIVE,
EXISTING CONDITION
(CORRECTED EFFECTIVE),
AND
PROPOSED CONDITION
HEC-RAS ANALYSES

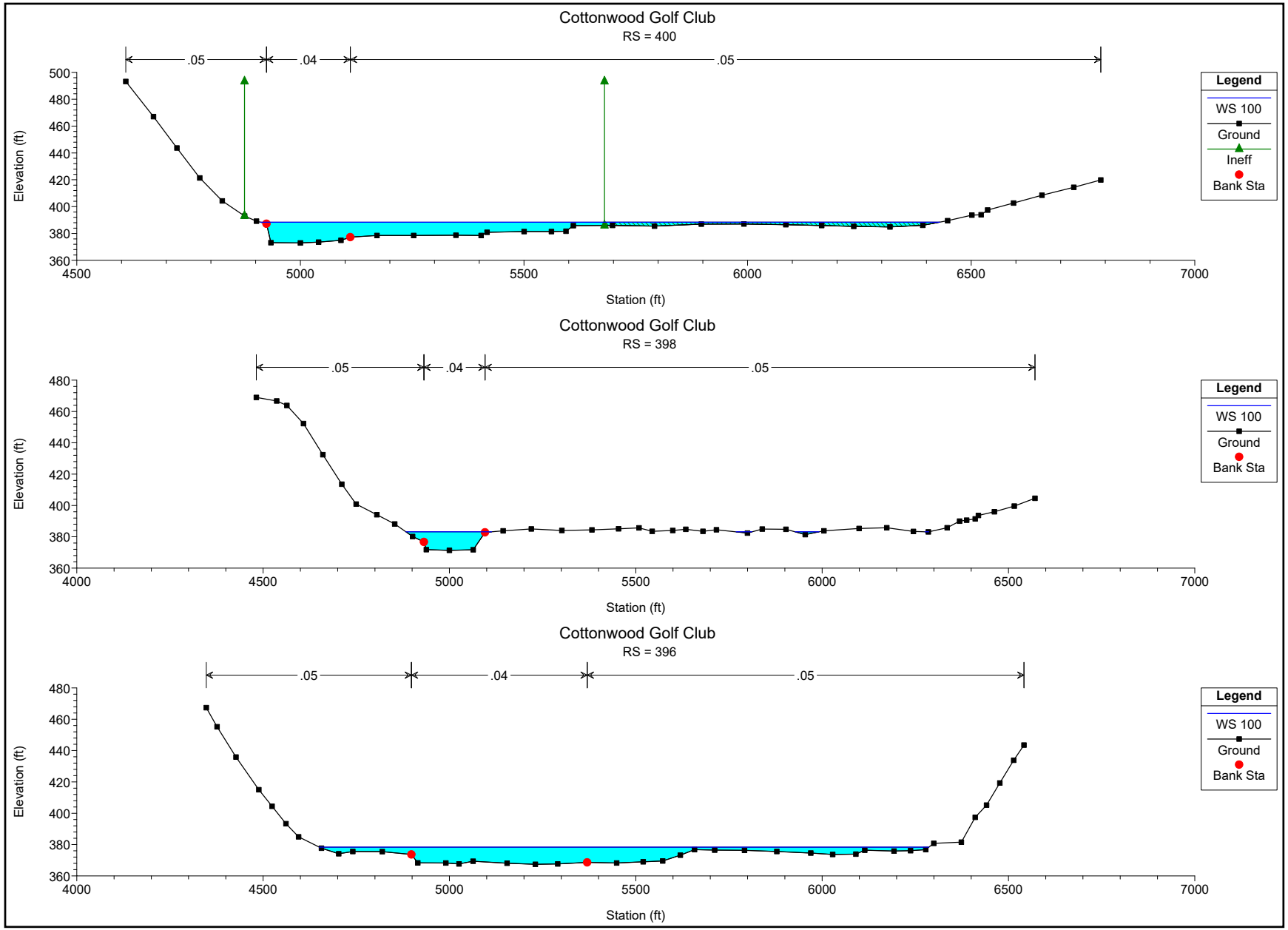
Rick Engineering As-Built Condition (Effective)

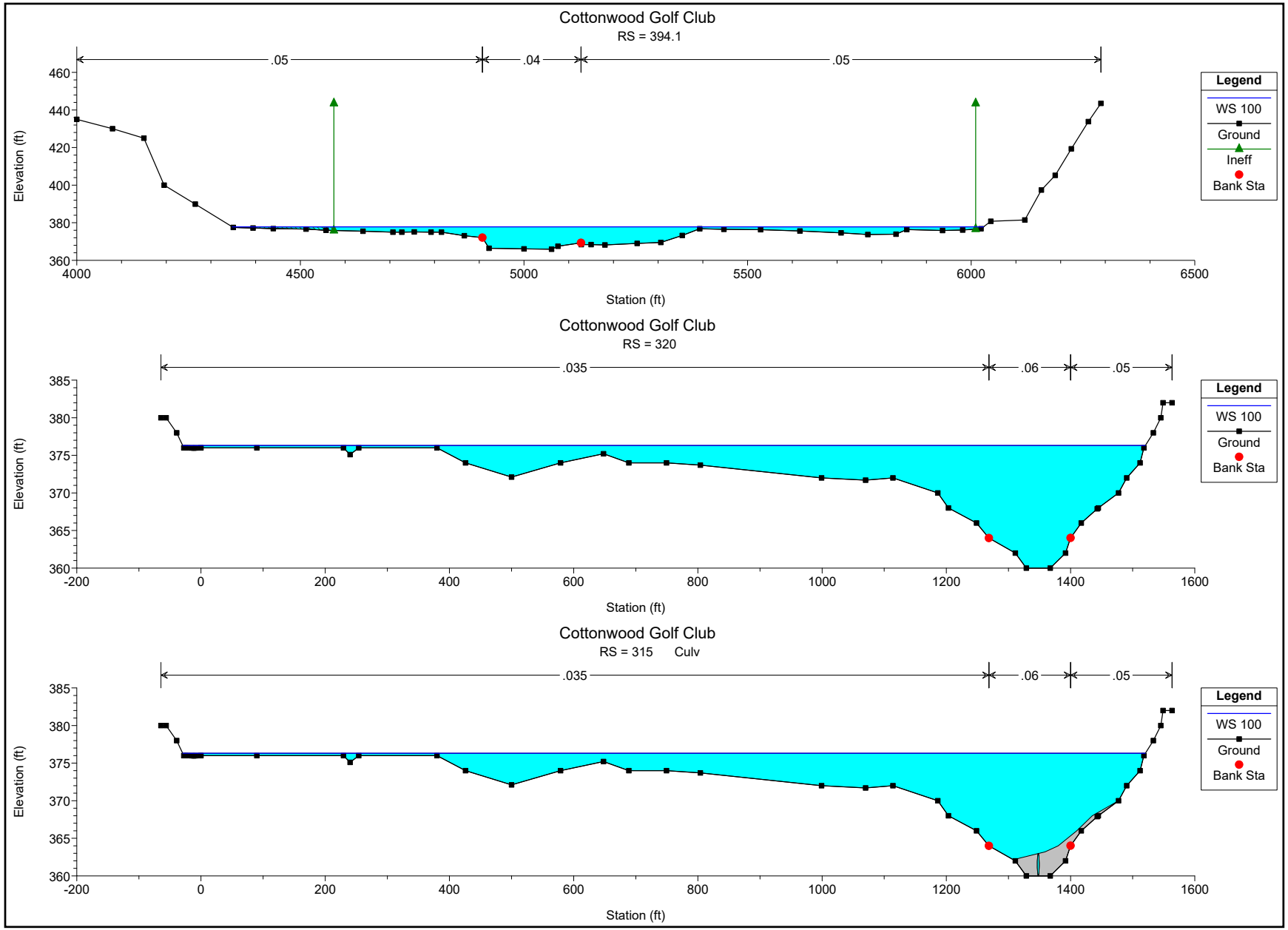
HEC-RAS Plan: Effective River: RIVER-1 Reach: Reach-1 Profile: 100

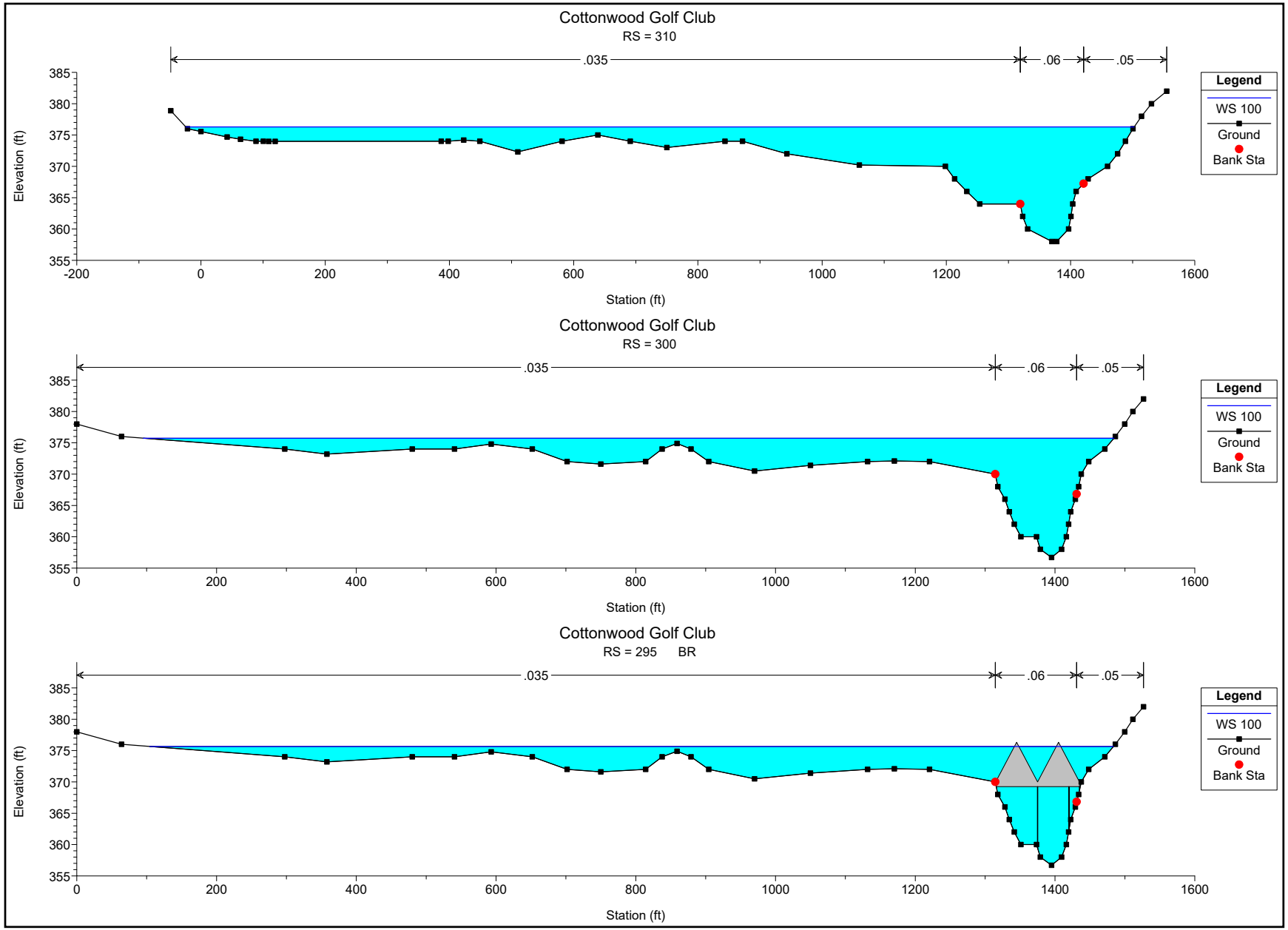
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	400	100	29500.00	373.00	388.40		388.73	0.000710	5.67	7217.89	1518.65	0.26
Reach-1	398	100	29500.00	371.30	383.17	383.17	387.25	0.008936	16.52	1955.33	346.72	0.90
Reach-1	396	100	29500.00	367.40	378.38		378.59	0.000584	4.20	9721.64	1635.84	0.23
Reach-1	394.1	100	29500.00	365.90	377.81		378.32	0.001542	7.14	6838.40	1679.65	0.38
Reach-1	320	100	29500.00	360.00	376.30	371.89	376.73	0.001952	6.59	6279.85	1549.75	0.30
Reach-1	315		Culvert									
Reach-1	310	100	29500.00	358.00	376.28		376.58	0.001332	5.57	7122.92	1526.89	0.25
Reach-1	300	100	29500.00	356.70	375.73	374.22	376.36	0.003004	7.94	5237.34	1389.14	0.37
Reach-1	295		Bridge									
Reach-1	290	100	29500.00	357.00	375.52		376.15	0.003116	8.26	5088.74	1311.24	0.37
Reach-1	280	100	29500.00	354.60	372.00	372.00	374.39	0.006896	15.00	2918.15	813.73	0.79
Reach-1	270	100	29500.00	351.30	370.66	370.66	372.55	0.002422	13.13	3851.40	1241.65	0.64
Reach-1	260	100	29500.00	349.90	367.90	367.90	369.70	0.002600	12.88	3797.93	1077.01	0.66
Reach-1	250	100	29500.00	347.70	365.55	364.94	366.98	0.001893	10.89	4095.02	981.89	0.56
Reach-1	245		Bridge									
Reach-1	240	100	29500.00	347.70	365.31	364.86	366.87	0.002054	11.27	3932.89	950.11	0.58
Reach-1	230	100	29500.00	346.00	364.67	363.81	366.22	0.001776	11.32	3984.29	1061.74	0.55
Reach-1	225		Bridge									
Reach-1	220	100	29500.00	346.00	363.65	363.65	365.86	0.002594	13.12	3294.18	896.67	0.66
Reach-1	210	100	29500.00	345.30	362.54	361.40	363.56	0.001345	9.77	5066.40	1143.45	0.48
Reach-1	205		Bridge									
Reach-1	200	100	29500.00	345.30	361.42	361.42	363.30	0.002438	12.49	3775.20	1032.94	0.64
Reach-1	190	100	29500.00	343.70	359.56	359.56	361.51	0.002915	12.91	3651.46	1022.27	0.69
Reach-1	180	100	29500.00	342.80	356.18	356.18	357.72	0.003876	12.86	3862.30	1116.68	0.77
Reach-1	170	100	29500.00	342.10	354.53	354.06	355.68	0.003014	11.51	4697.07	1191.20	0.68
Reach-1	165		Bridge									
Reach-1	160	100	29500.00	342.10	353.77	353.77	355.38	0.004551	13.38	3963.11	1107.15	0.83
Reach-1	150	100	29500.00	340.70	351.69	351.69	353.25	0.004000	12.70	4463.50	1266.04	0.78
Reach-1	140	100	29500.00	340.00	349.31		349.71	0.000298	2.82	6252.03	999.31	0.20
Reach-1	130	100	29500.00	337.30	348.47	345.10	349.33	0.001370	7.64	4041.50	1122.41	0.46
Reach-1	125		Mult Open									
Reach-1	120	100	29500.00	338.10	346.46	346.46	348.93	0.007769	12.80	2359.45	982.82	1.01
Reach-1	110	100	29500.00	334.20	343.57		344.47	0.001252	6.06	4083.34	1011.17	0.42
Reach-1	100	100	29500.00	332.00	343.29		343.81	0.001243	7.38	5524.65	969.52	0.44
Reach-1	90	100	29500.00	329.50	342.31	340.97	343.05	0.001776	8.93	5077.04	1105.35	0.53
Reach-1	85		Bridge									
Reach-1	80	100	29500.00	329.40	341.24	341.24	342.84	0.003678	12.74	3817.31	1103.62	0.75
Reach-1	70	100	29500.00	327.60	339.40	339.27	340.78	0.003511	12.12	4076.96	1150.47	0.73

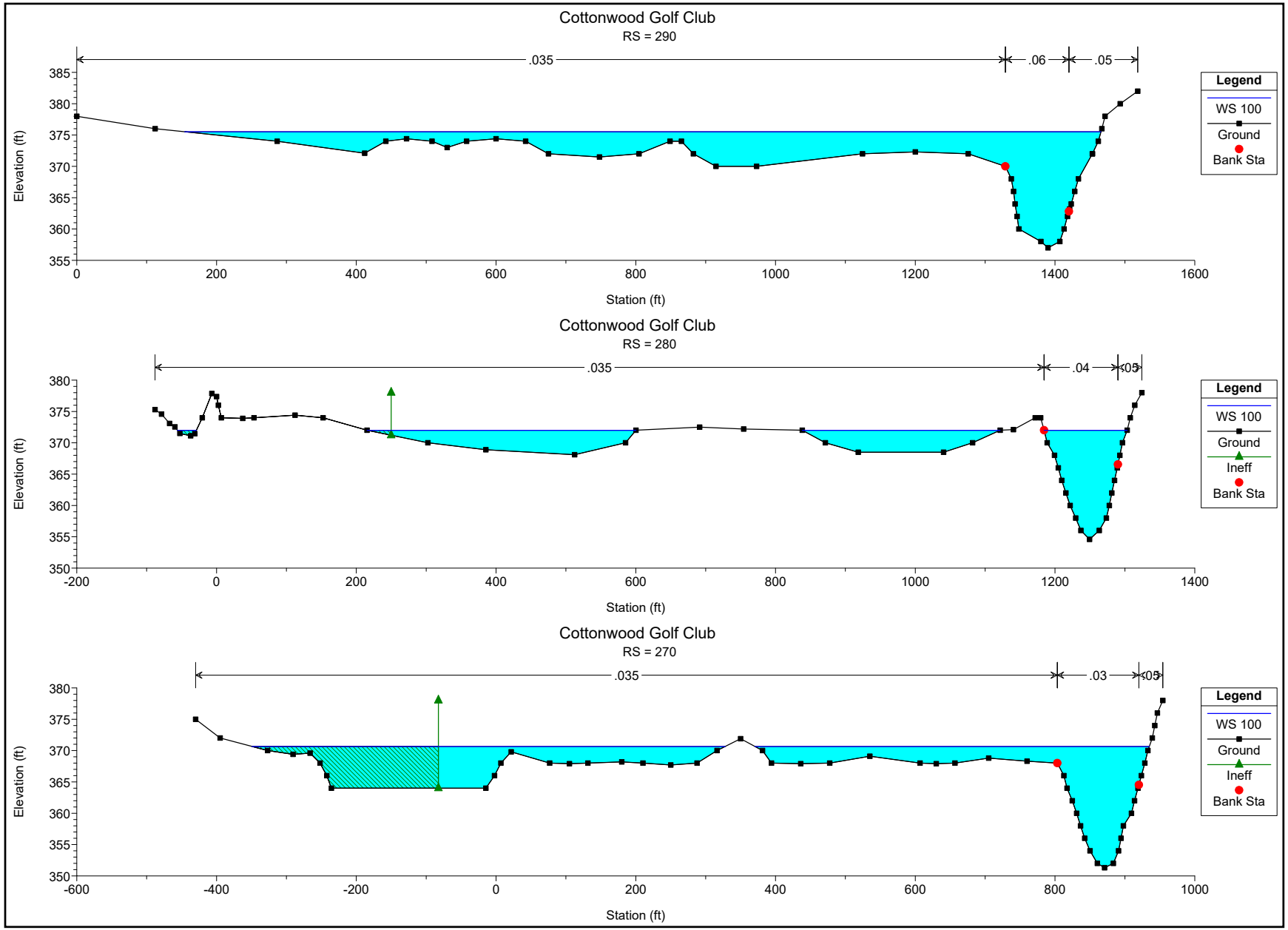
HEC-RAS Plan: Effective River: RIVER-1 Reach: Reach-1 Profile: 100 (Continued)

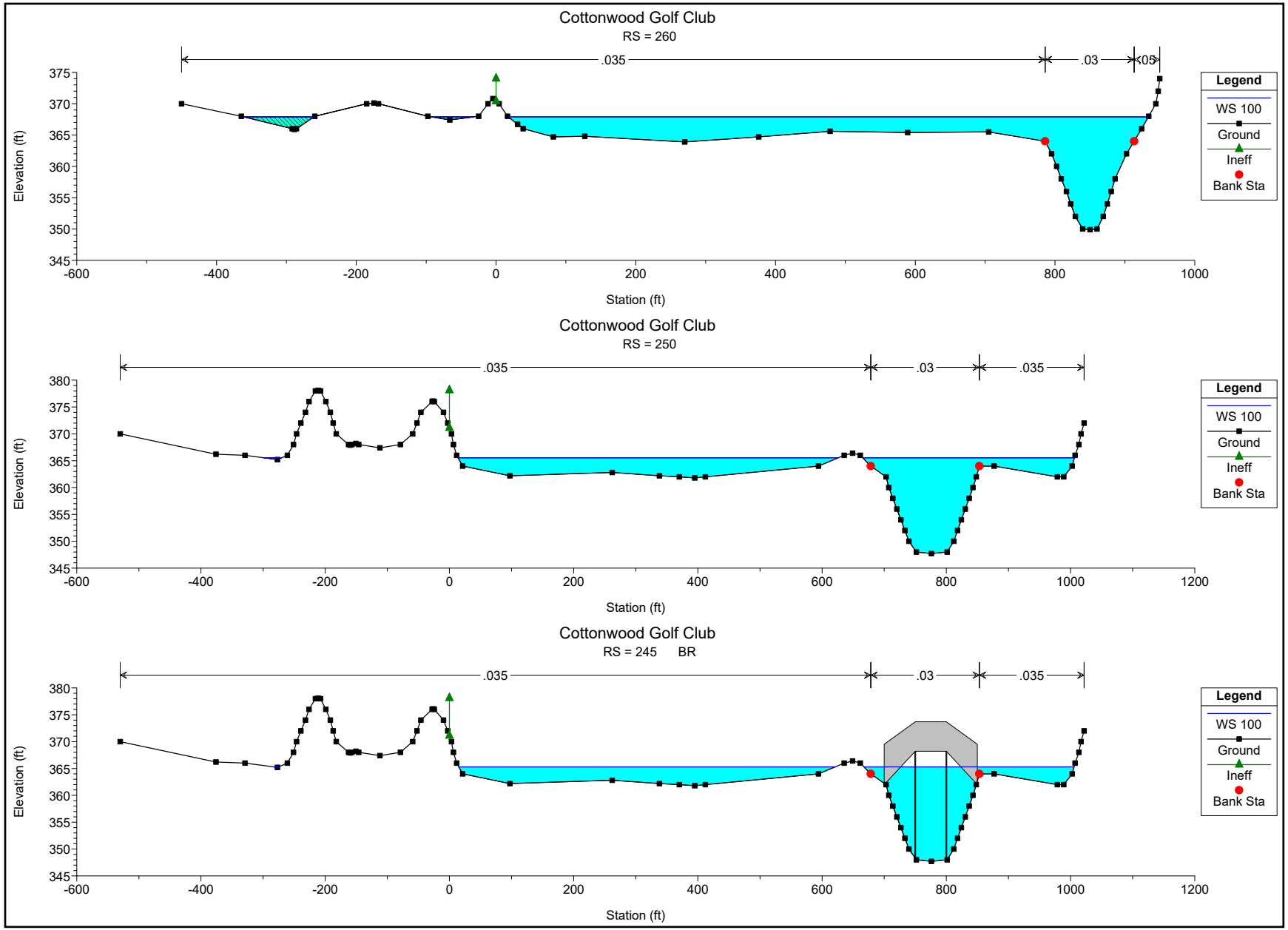
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	65		Bridge									
Reach-1	60	100	29500.00	327.10	339.14	339.14	340.64	0.003940	12.57	3873.52	1131.38	0.77
Reach-1	50	100	29500.00	325.40	337.58		337.98	0.002917	4.98	5819.82	1115.15	0.26
Reach-1	40	100	29500.00	324.50	336.13		336.59	0.002341	4.28	5713.12	1014.69	0.23
Reach-1	30	100	29500.00	323.60	335.13		335.48	0.001631	3.54	6621.18	1161.91	0.19
Reach-1	20	100	29500.00	323.00	333.90	331.66	334.44	0.002912	4.37	5163.59	1336.52	0.25
Reach-1	15		Bridge									
Reach-1	10	100	29500.00	322.00	333.85	331.57	334.35	0.002739	4.22	5402.62	1248.54	0.25
Reach-1	5	100	29500.00	321.10	330.28	328.76	330.93	0.004294	10.82	5598.21	1123.72	0.68

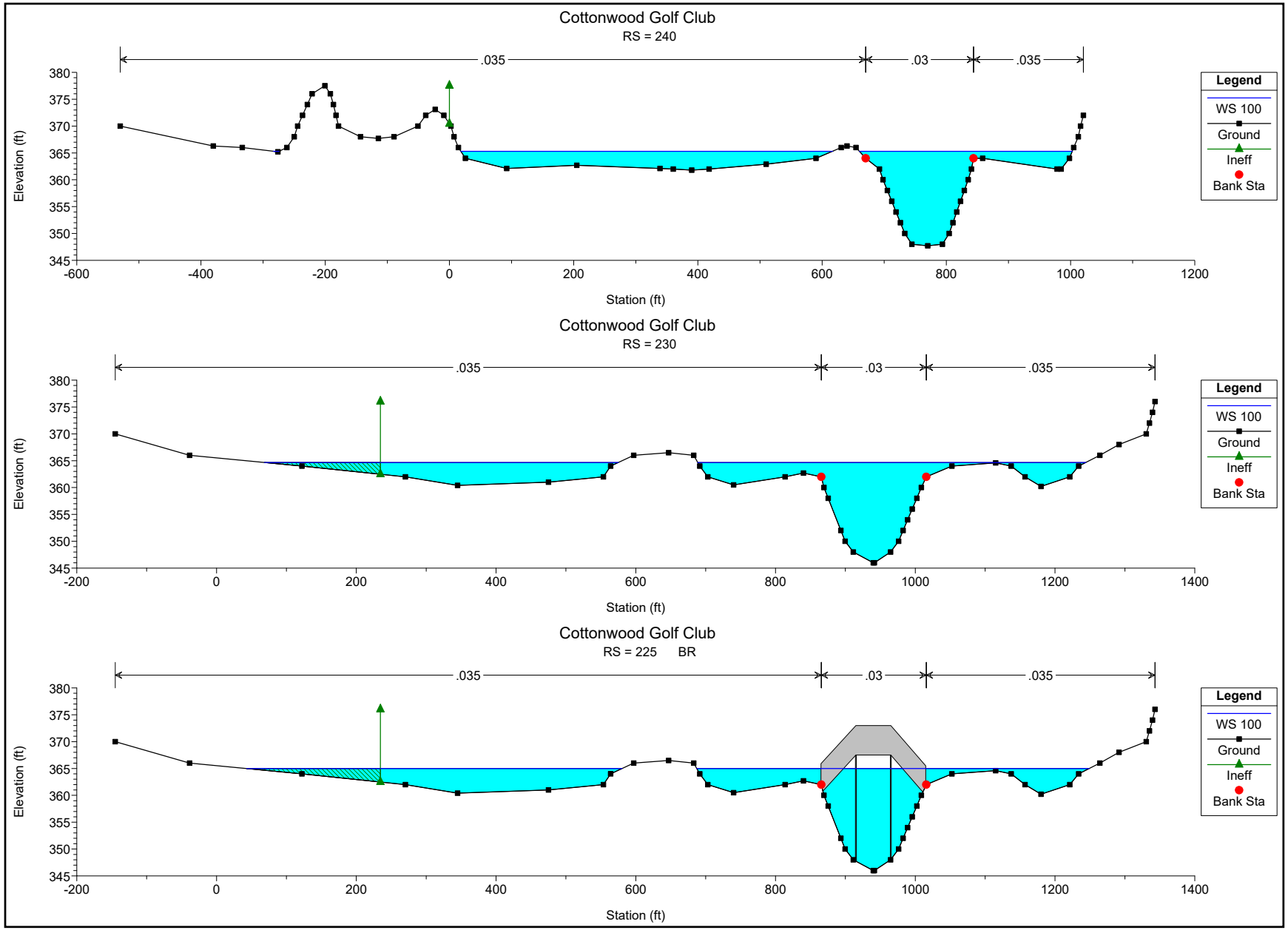

Cottonwood Golf Club
RS = 400
.05
.04
.05
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 398
.05
.04
.05
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 396
.05
.04
.05
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta


Cottonwood Golf Club
RS = 394.1
.05
.04
.05
Elevation (ft)
460
440
420
400
380
360
4000
4500
5000
5500
6000
6500
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 320
.035
.06
.05
Elevation (ft)
385
380
375
370
365
360
-200
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 315 Culv
.035
.06
.05
Elevation (ft)
385
380
375
370
365
360
-200
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS 100
Ground
Bank Sta

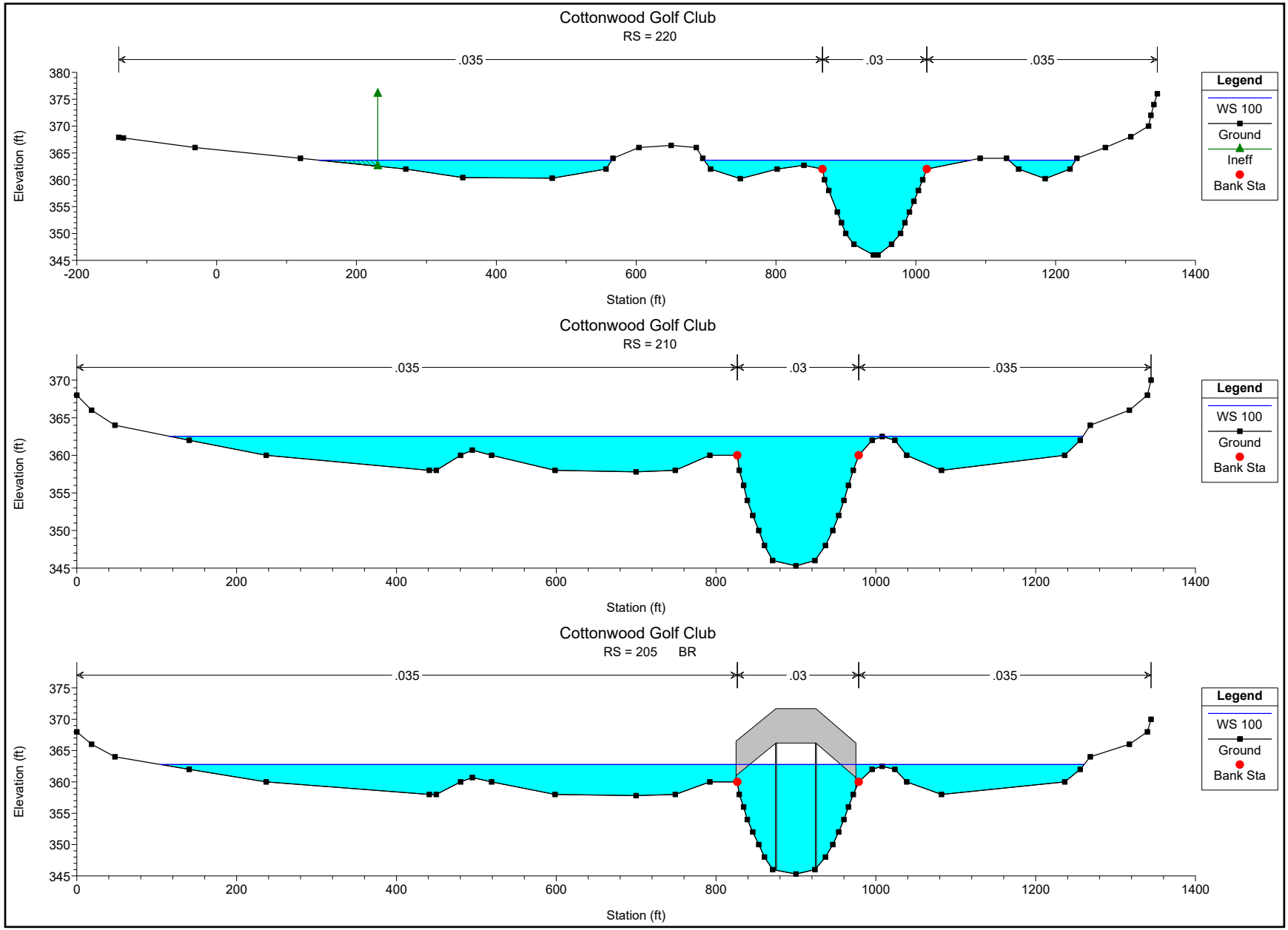

Cottonwood Golf Club
RS = 310
.035
.06
.05
Elevation (ft)
385
380
375
370
365
360
355
-200
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 300
.035
.06
.05
Elevation (ft)
385
380
375
370
365
360
355
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 295 BR
.035
.06
.05
Elevation (ft)
385
380
375
370
365
360
355
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS 100
Ground
Bank Sta

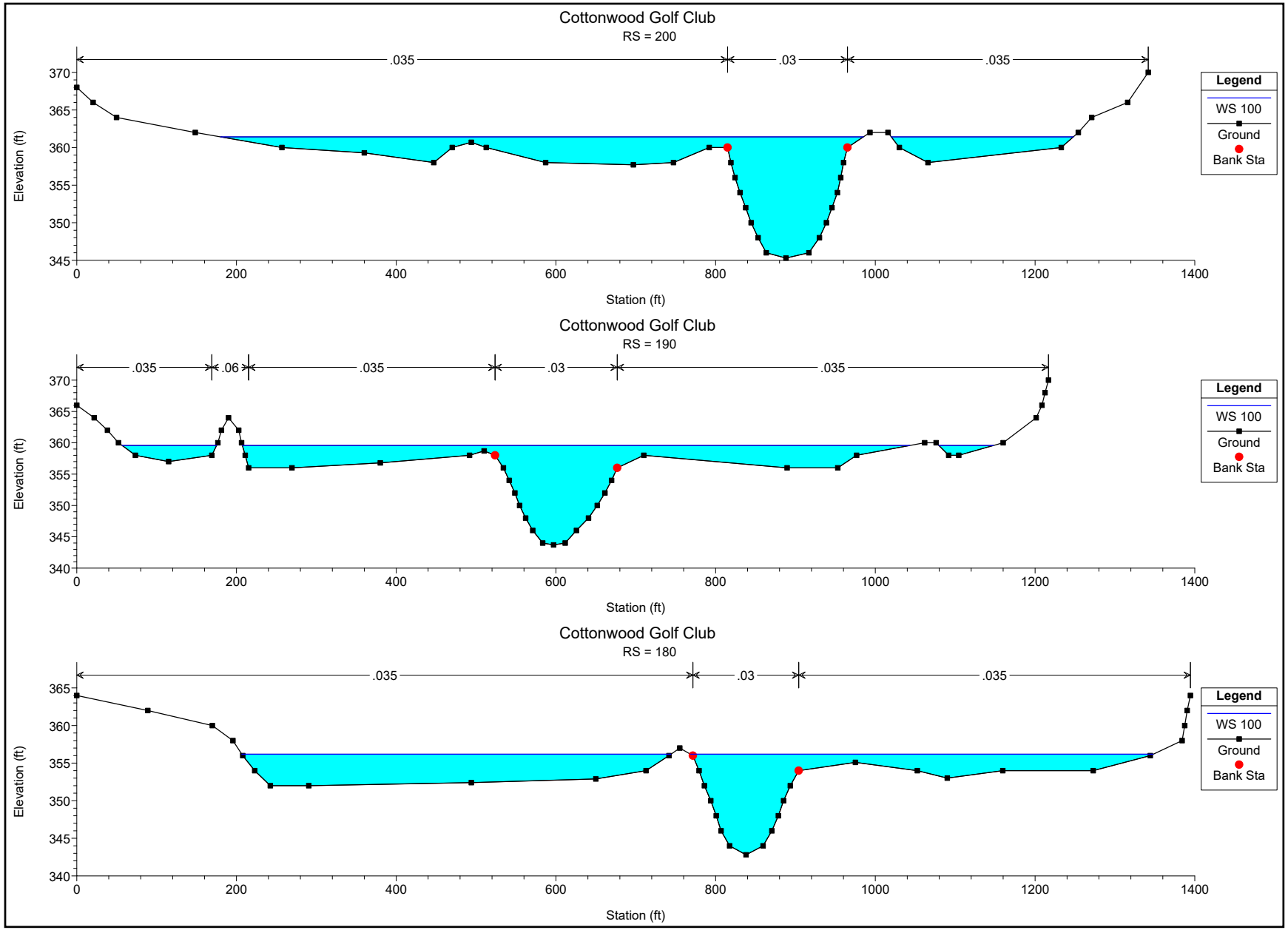

Cottonwood Golf Club
RS = 290
.035
.06
.05
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 280
.035
.04
.05
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 270
.035
.03
.05
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta

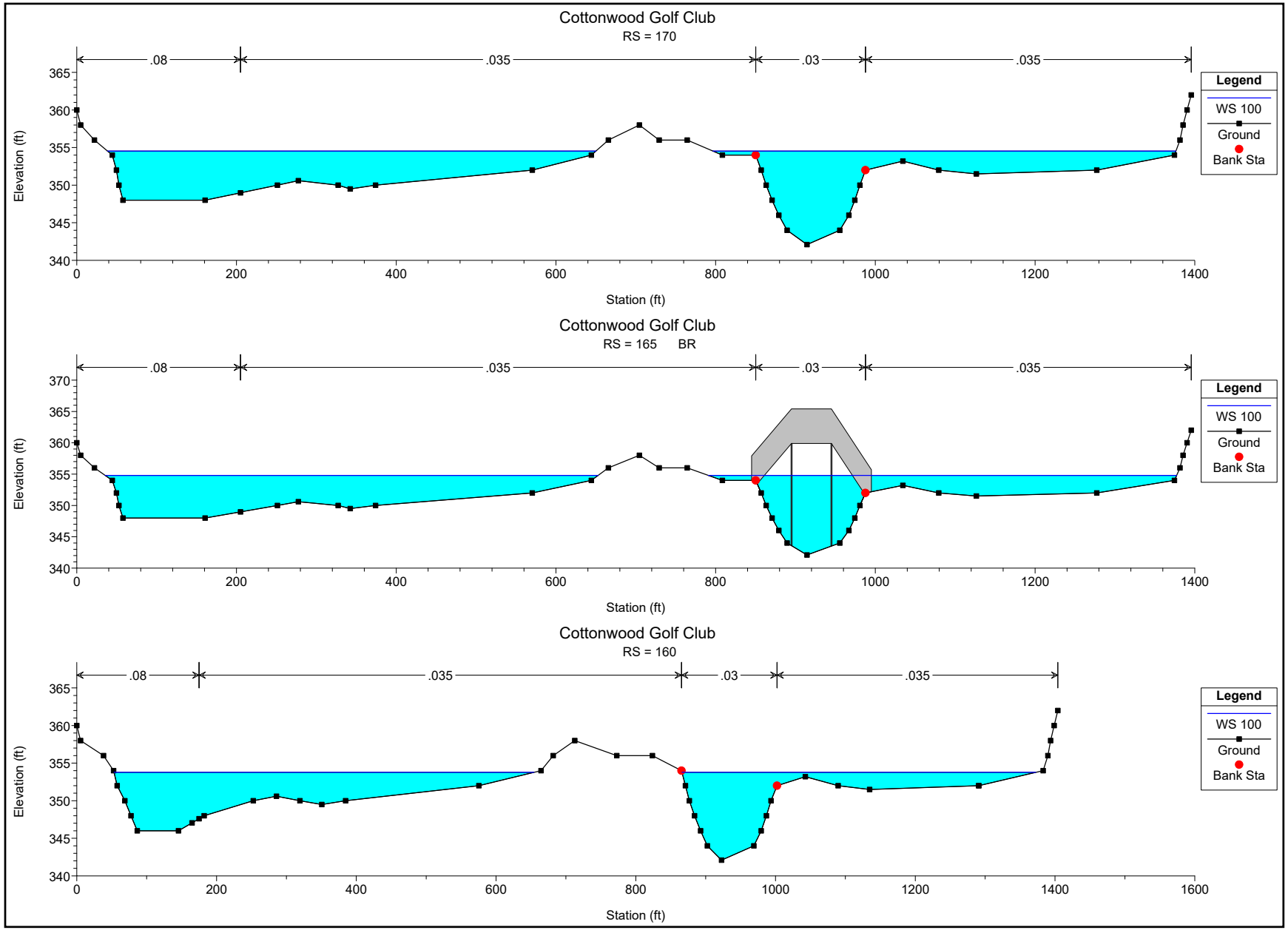

Cottonwood Golf Club
RS = 260
.035
.03
.05
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 250
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 245 BR
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta

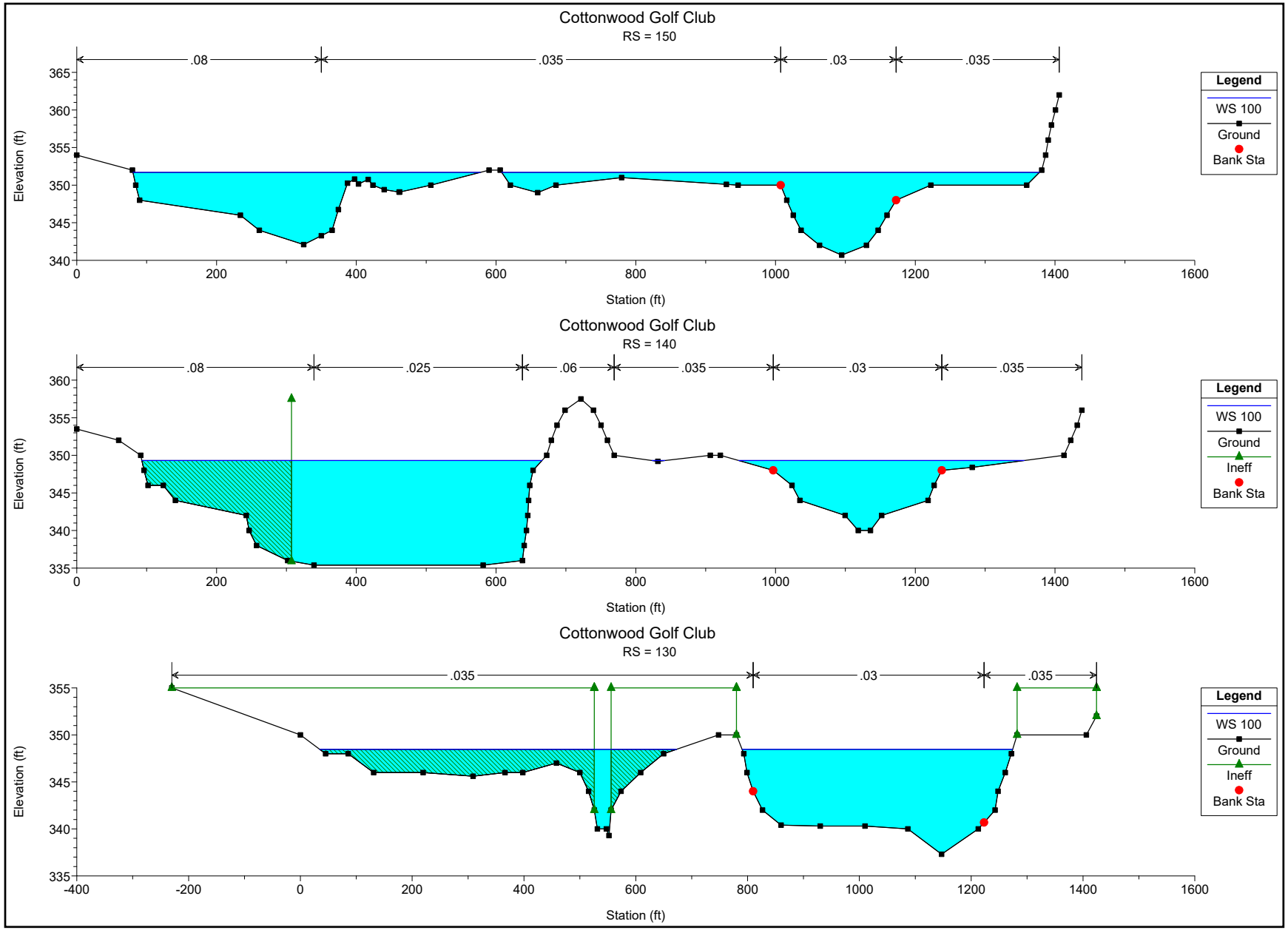

Cottonwood Golf Club
RS = 240
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 230
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 225 BR
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta

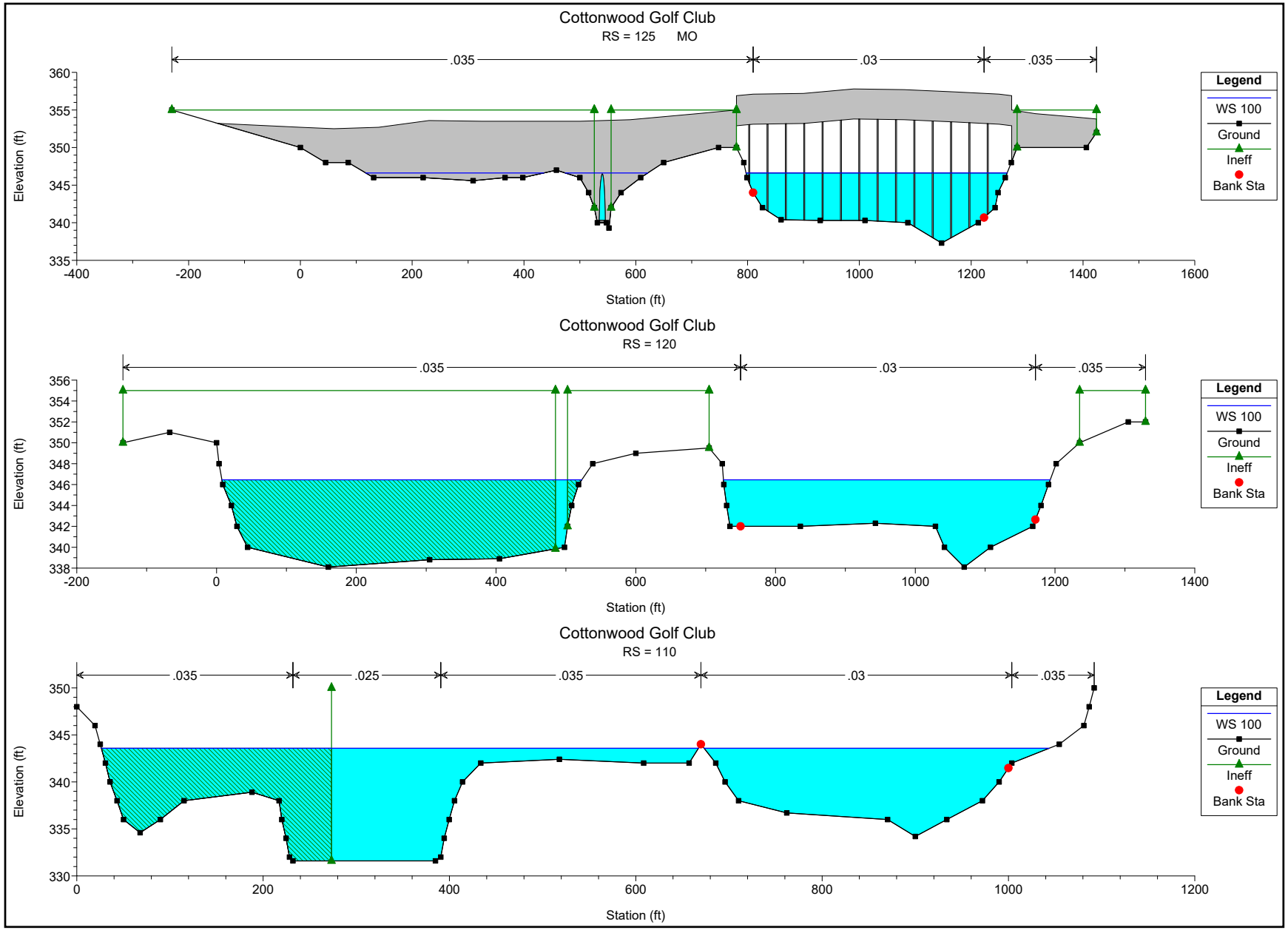
3 - 240

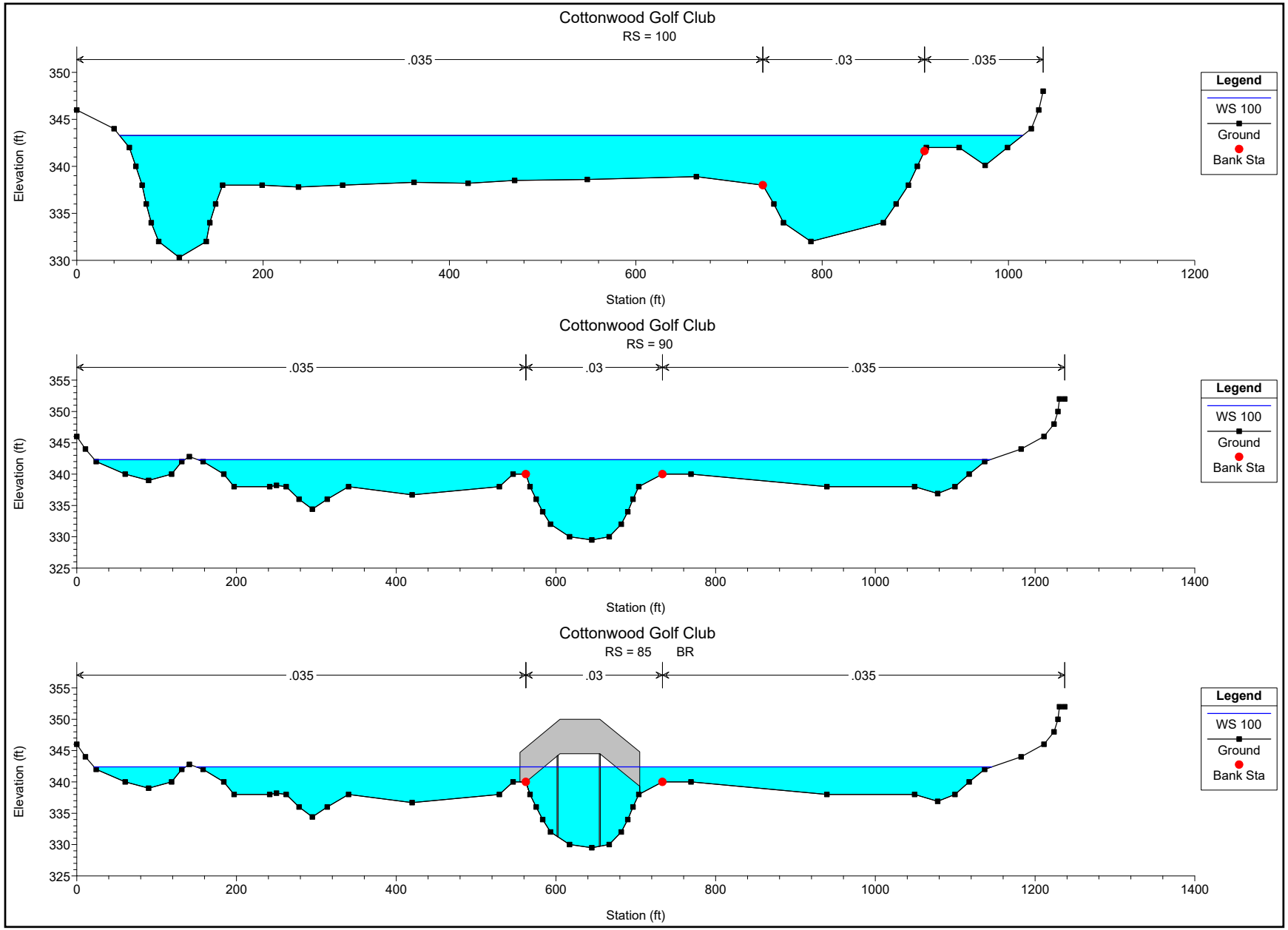

Cottonwood Golf Club
RS = 220
.035
.03
.035
Elevation (ft)
380
375
370
365
360
355
350
345
-200
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 210
.035
.03
.035
Elevation (ft)
370
365
360
355
350
345
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 205 BR
.035
.03
.035
Elevation (ft)
375
370
365
360
355
350
345
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS 100
Ground
Bank Sta

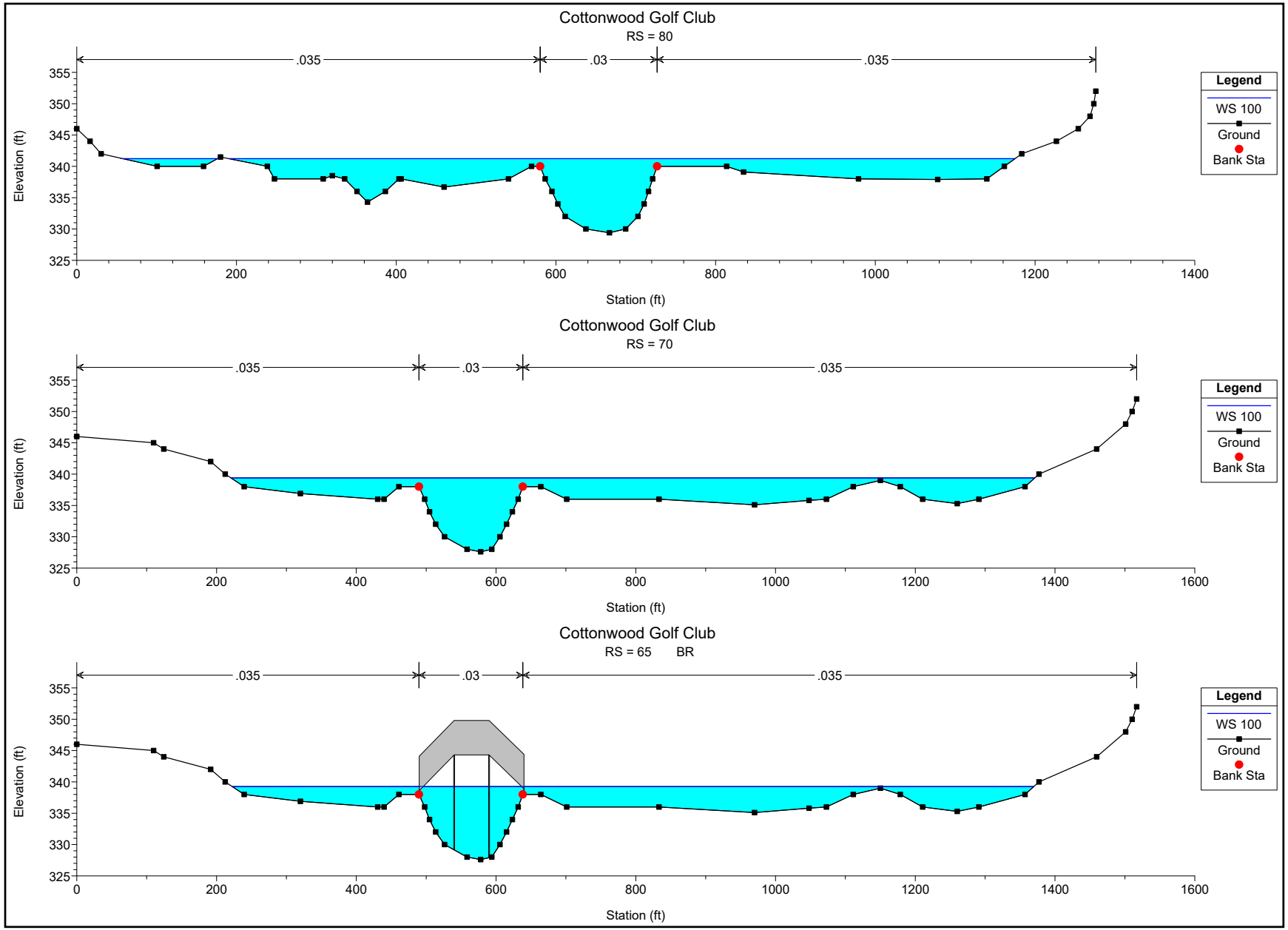

Cottonwood Golf Club
RS = 200
.035
.03
.035
Elevation (ft)
370
365
360
355
350
345
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 190
.035
.06
.035
.03
.035
Elevation (ft)
370
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 180
.035
.03
.035
Elevation (ft)
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS 100
Ground
Bank Sta

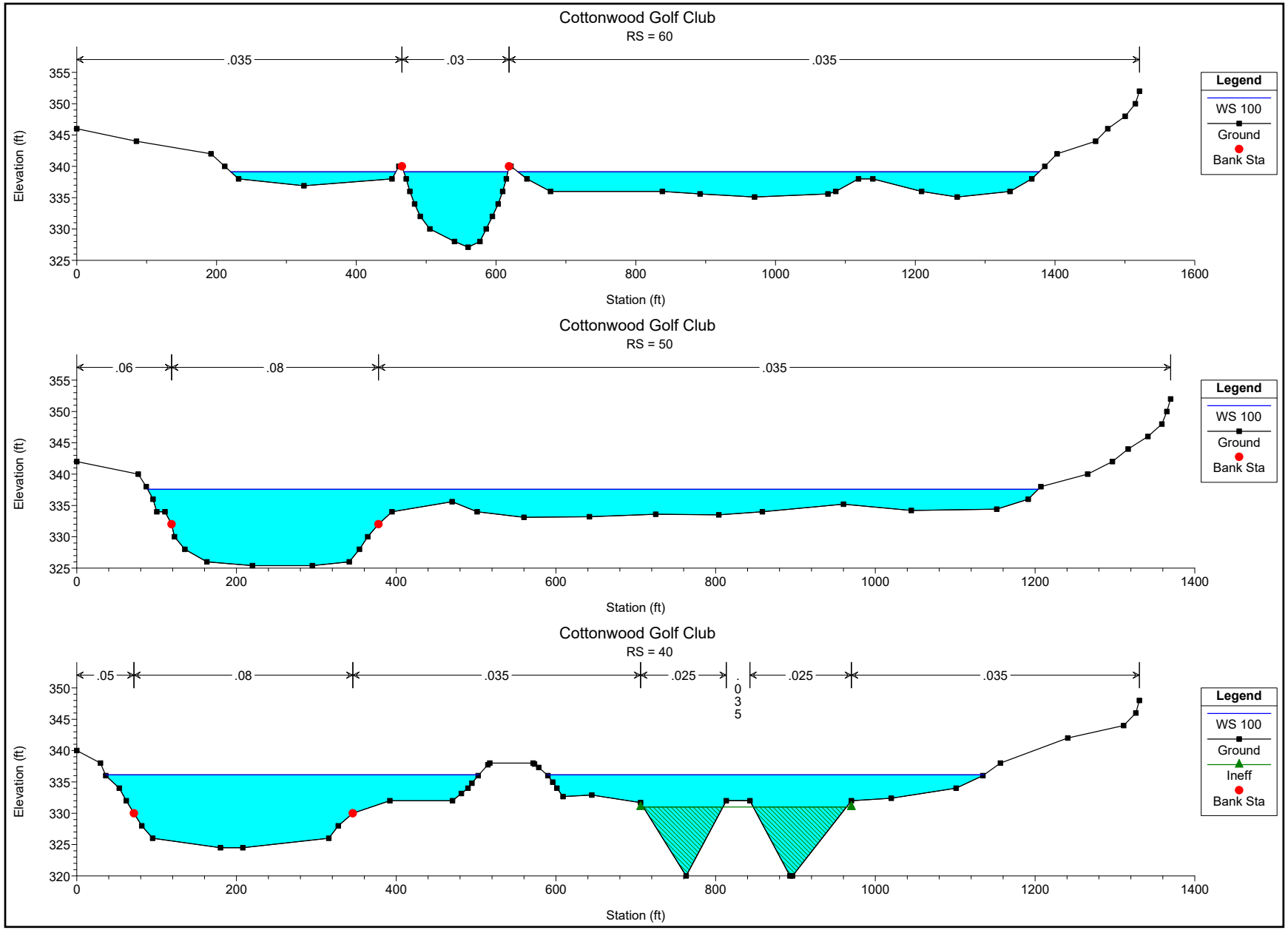

Cottonwood Golf Club
RS = 170
.08
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 165 BR
.08
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 160
.08
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta

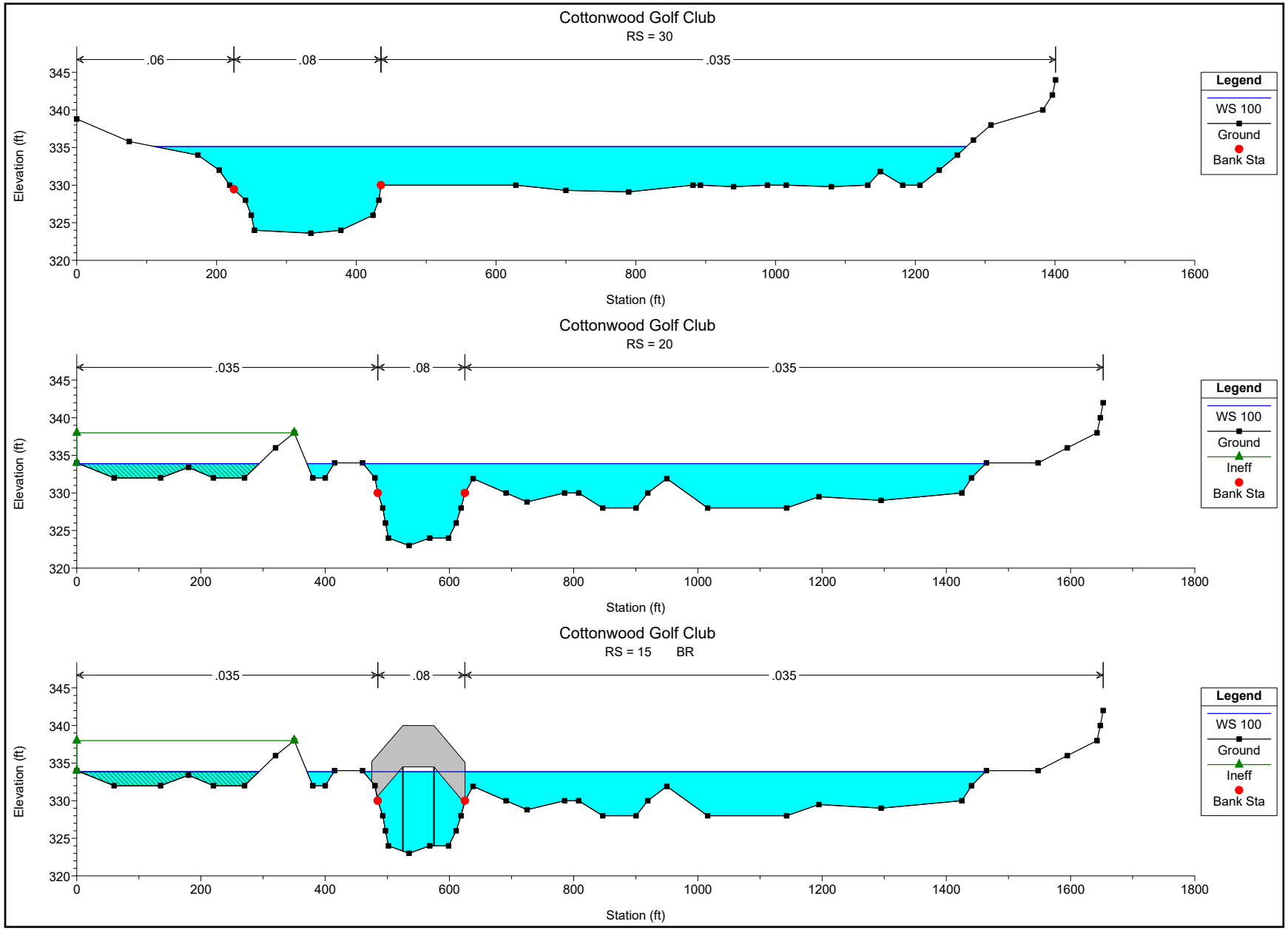

Cottonwood Golf Club
RS = 150
.08
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 140
.08
.025
.06
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 130
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta

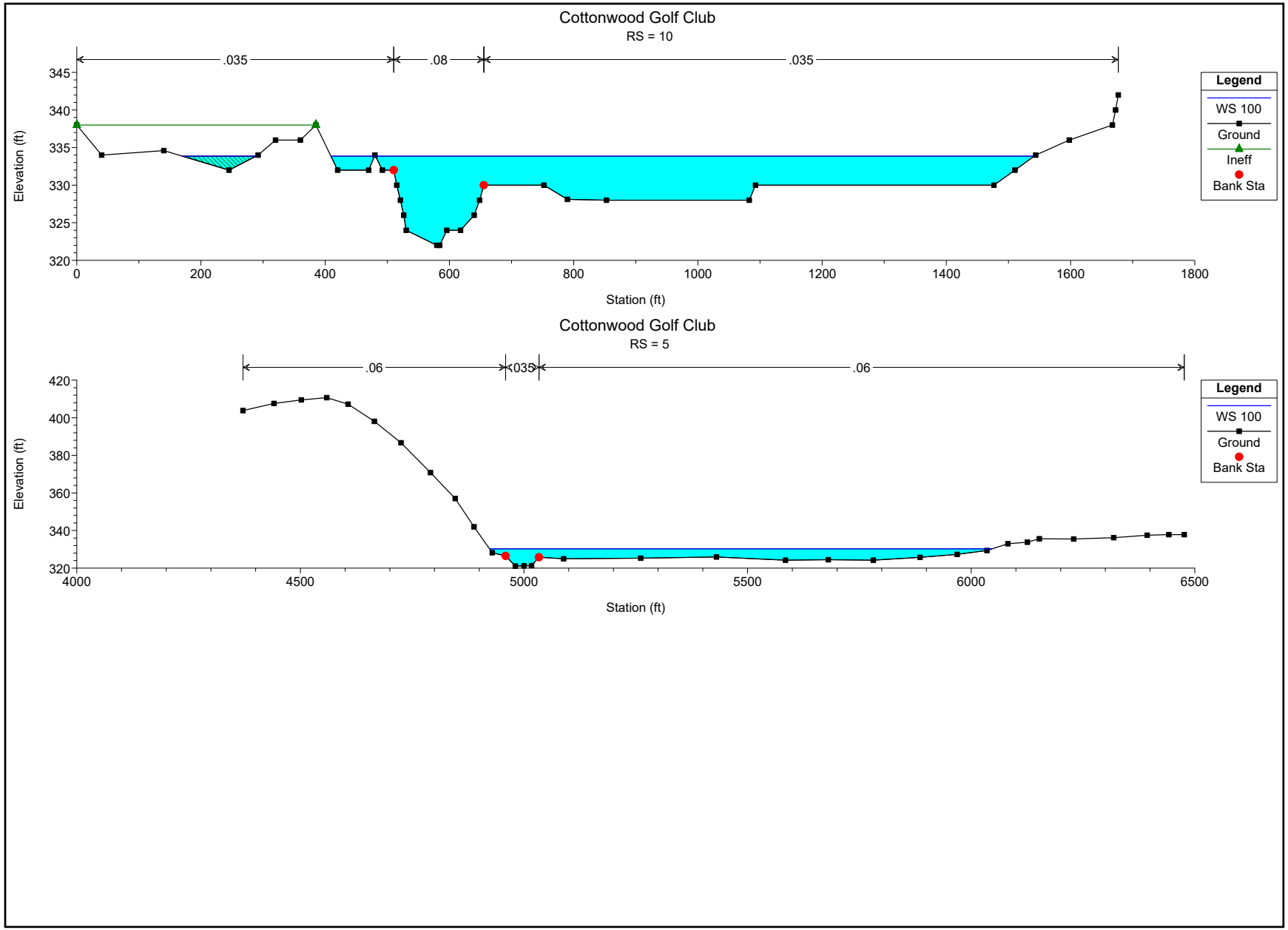

Cottonwood Golf Club
RS = 125 MO
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 120
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 110
.035
.025
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta


Cottonwood Golf Club
RS = 100
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 90
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 85 BR
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta


Cottonwood Golf Club
RS = 80
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 70
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 65 BR
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta


Cottonwood Golf Club
RS = 60
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 50
.06
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 40
.05
.08
.035
.025
.035
.025
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta


Cottonwood Golf Club
RS = 30
.06
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
Cottonwood Golf Club
RS = 20
.035
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 15 BR
.035
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta


Cottonwood Golf Club
RS = 10
.035
.08
.035
Elevation (ft)
345
340
335
330
325
320
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 5
.06
.035
.06
Elevation (ft)
420
400
380
360
340
320
4000
4500
5000
5500
6000
6500
Station (ft)
Legend
WS 100
Ground
Bank Sta

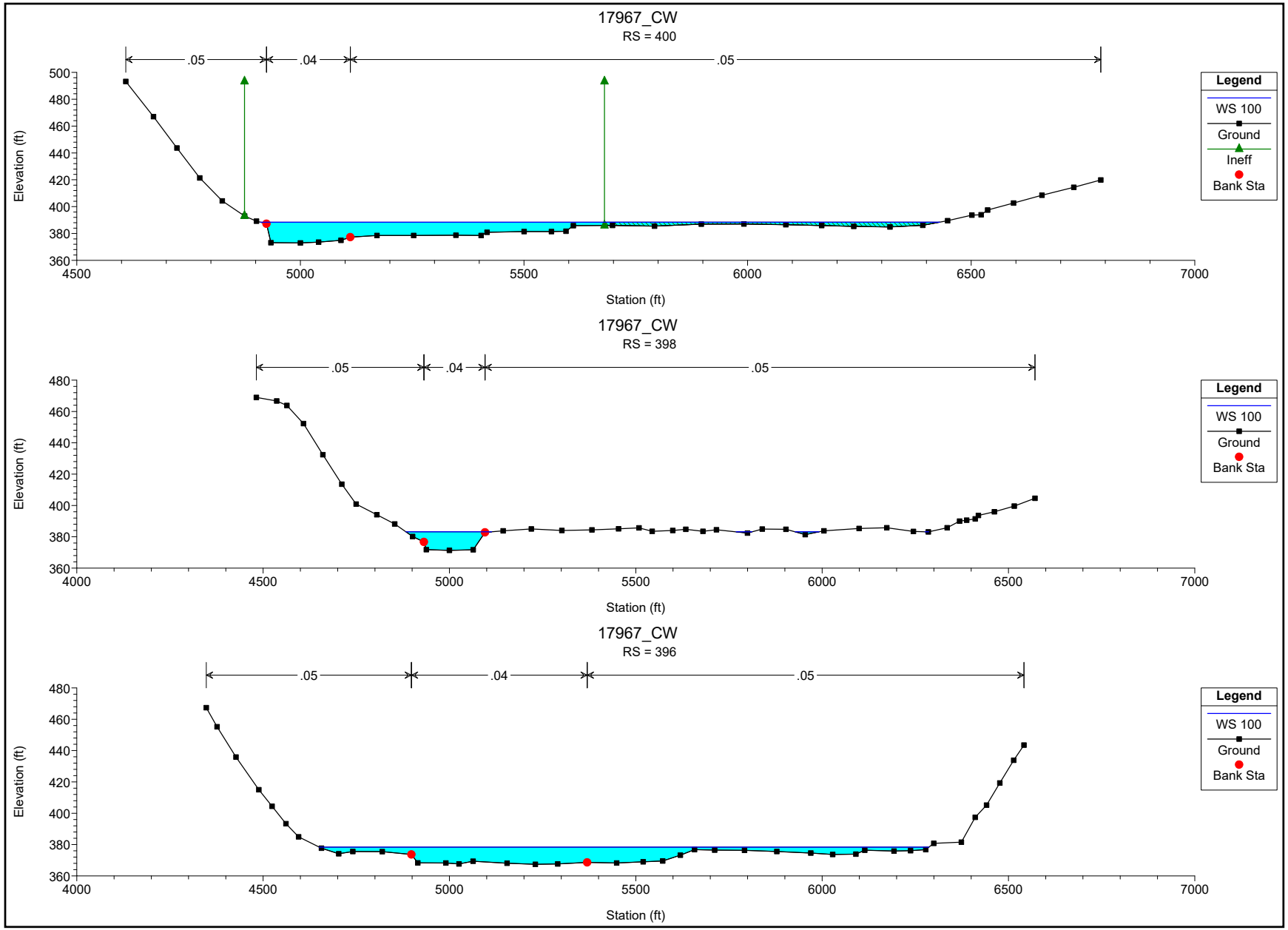
Existing Condition (Corrected Effective)

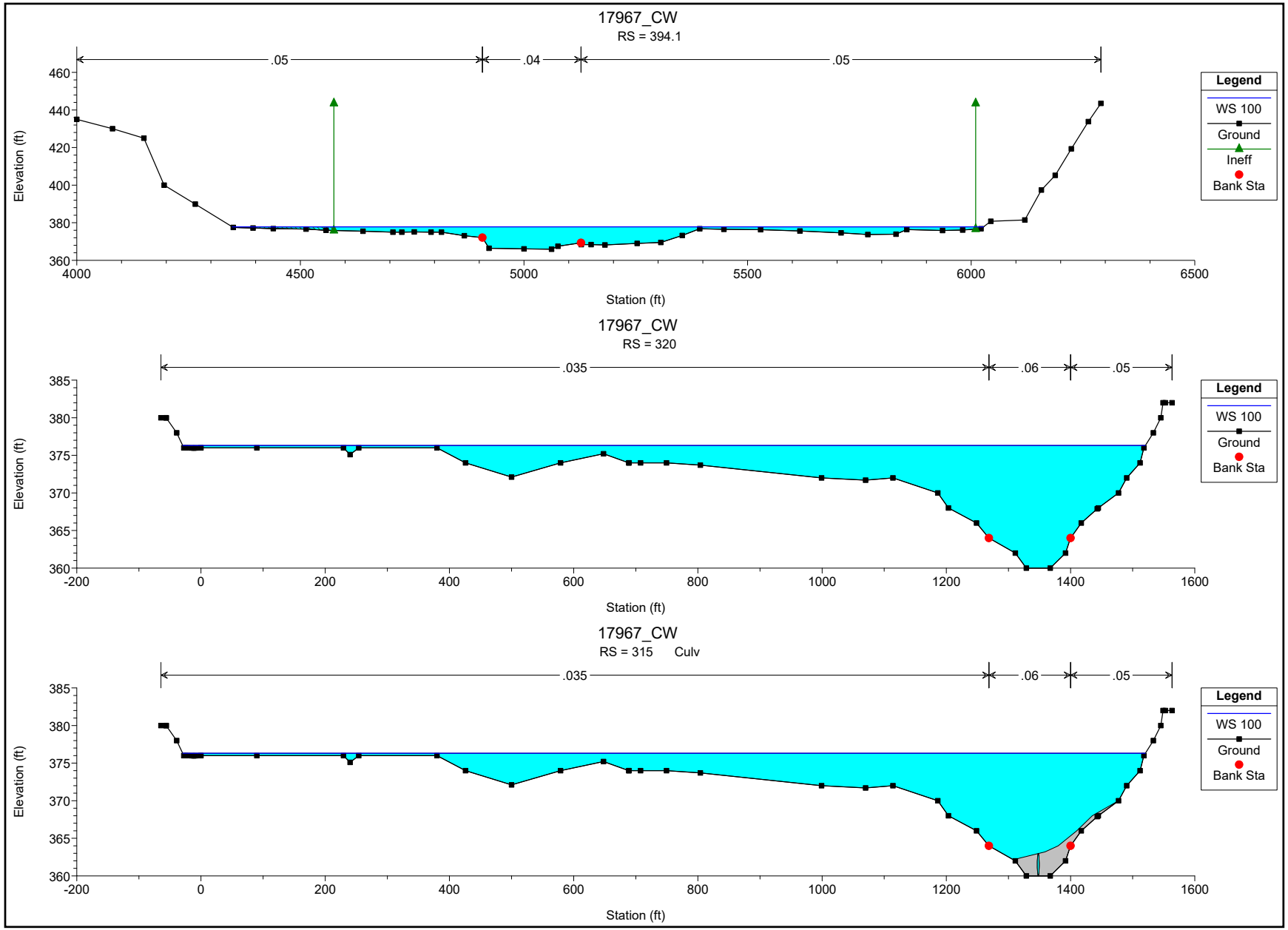
HEC-RAS Plan: As-Built Corr Eff River: RIVER-1 Reach: Reach-1 Profile: 100

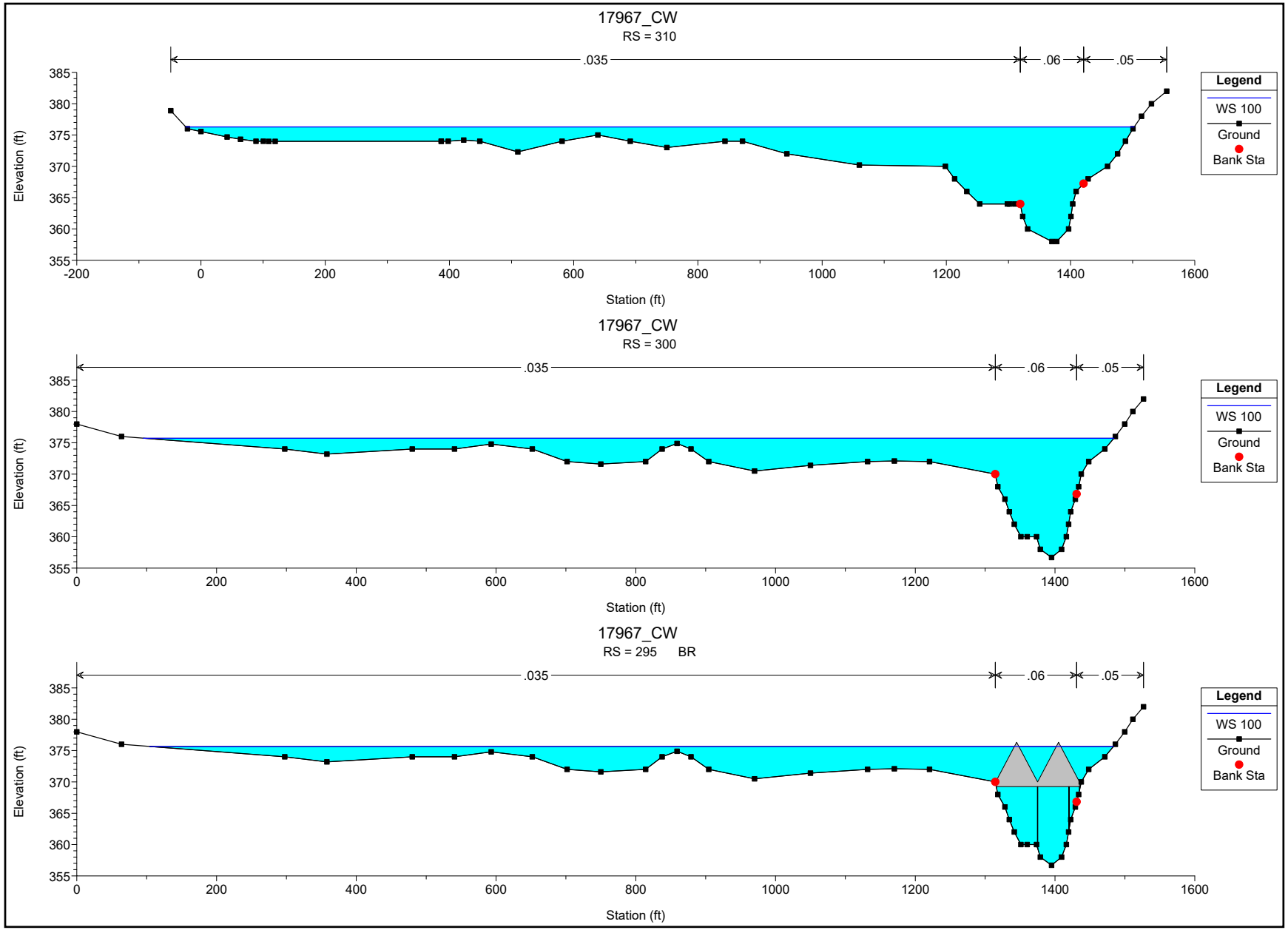
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	400	100	29500.00	373.00	388.40		388.73	0.000710	5.67	7217.89	1518.65	0.26
Reach-1	398	100	29500.00	371.30	383.17	383.17	387.25	0.008936	16.52	1955.33	346.72	0.90
Reach-1	396	100	29500.00	367.40	378.38		378.59	0.000584	4.20	9721.67	1635.85	0.23
Reach-1	394.1	100	29500.00	365.90	377.81		378.32	0.001542	7.14	6838.40	1679.65	0.38
Reach-1	320	100	29500.00	360.00	376.30	371.89	376.73	0.001952	6.59	6279.88	1549.75	0.30
Reach-1	315		Culvert									
Reach-1	310	100	29500.00	358.00	376.28		376.58	0.001332	5.57	7123.00	1526.89	0.25
Reach-1	300	100	29500.00	356.70	375.73	374.22	376.36	0.003003	7.94	5237.41	1389.15	0.37
Reach-1	295		Bridge									
Reach-1	290	100	29500.00	357.00	375.52		376.15	0.003116	8.26	5088.77	1311.24	0.37
Reach-1	280	100	29500.00	354.60	372.00	372.00	374.39	0.006896	15.00	2918.15	813.73	0.79
Reach-1	270	100	29500.00	351.30	370.66	370.66	372.55	0.002422	13.13	3851.40	1241.65	0.64
Reach-1	260	100	29500.00	349.90	367.90	367.90	369.70	0.002600	12.88	3797.93	1077.01	0.66
Reach-1	250	100	29500.00	347.70	365.55	364.94	366.98	0.001893	10.89	4095.02	981.89	0.56
Reach-1	245		Bridge									
Reach-1	240	100	29500.00	347.70	365.31	364.86	366.87	0.002054	11.27	3932.89	950.11	0.58
Reach-1	230	100	29500.00	346.00	364.67	363.81	366.22	0.001776	11.32	3984.29	1061.74	0.55
Reach-1	225		Bridge									
Reach-1	220	100	29500.00	346.00	363.65	363.65	365.86	0.002594	13.12	3294.18	896.67	0.66
Reach-1	210	100	29500.00	345.30	362.54	361.40	363.56	0.001345	9.77	5066.40	1143.45	0.48
Reach-1	205		Bridge									
Reach-1	200	100	29500.00	345.30	361.42	361.42	363.30	0.002438	12.49	3775.20	1032.94	0.64
Reach-1	190	100	29500.00	343.70	359.56	359.56	361.51	0.002915	12.91	3651.46	1022.27	0.69
Reach-1	180	100	29500.00	342.80	356.18	356.18	357.72	0.003876	12.86	3862.30	1116.68	0.77
Reach-1	170	100	29500.00	342.10	354.53	354.06	355.68	0.003014	11.51	4697.07	1191.20	0.68
Reach-1	165		Bridge									
Reach-1	160	100	29500.00	342.10	353.77	353.77	355.38	0.004551	13.38	3963.11	1107.15	0.83
Reach-1	150	100	29500.00	340.70	351.69	351.69	353.25	0.004000	12.70	4463.50	1266.04	0.78
Reach-1	140	100	29500.00	340.00	349.55		349.76	0.000298	2.90	8066.88	1072.12	0.20
Reach-1	130	100	29500.00	337.30	348.47	345.10	349.33	0.001370	7.64	4041.50	1122.41	0.46
Reach-1	125		Mult Open									
Reach-1	120	100	29500.00	338.10	346.46	346.46	348.93	0.007768	12.80	2359.51	982.82	1.01
Reach-1	110	100	29500.00	334.20	343.81		344.19	0.000582	4.22	6070.13	1021.10	0.29
Reach-1	100	100	29500.00	332.00	343.29		343.81	0.001243	7.38	5524.66	969.52	0.44
Reach-1	90	100	29500.00	329.50	342.31	340.97	343.05	0.001776	8.93	5077.04	1105.35	0.53
Reach-1	85		Bridge									
Reach-1	80	100	29500.00	329.40	341.24	341.24	342.84	0.003678	12.74	3817.31	1103.62	0.75
Reach-1	70	100	29500.00	327.60	339.40	339.27	340.78	0.003511	12.12	4076.96	1150.47	0.73

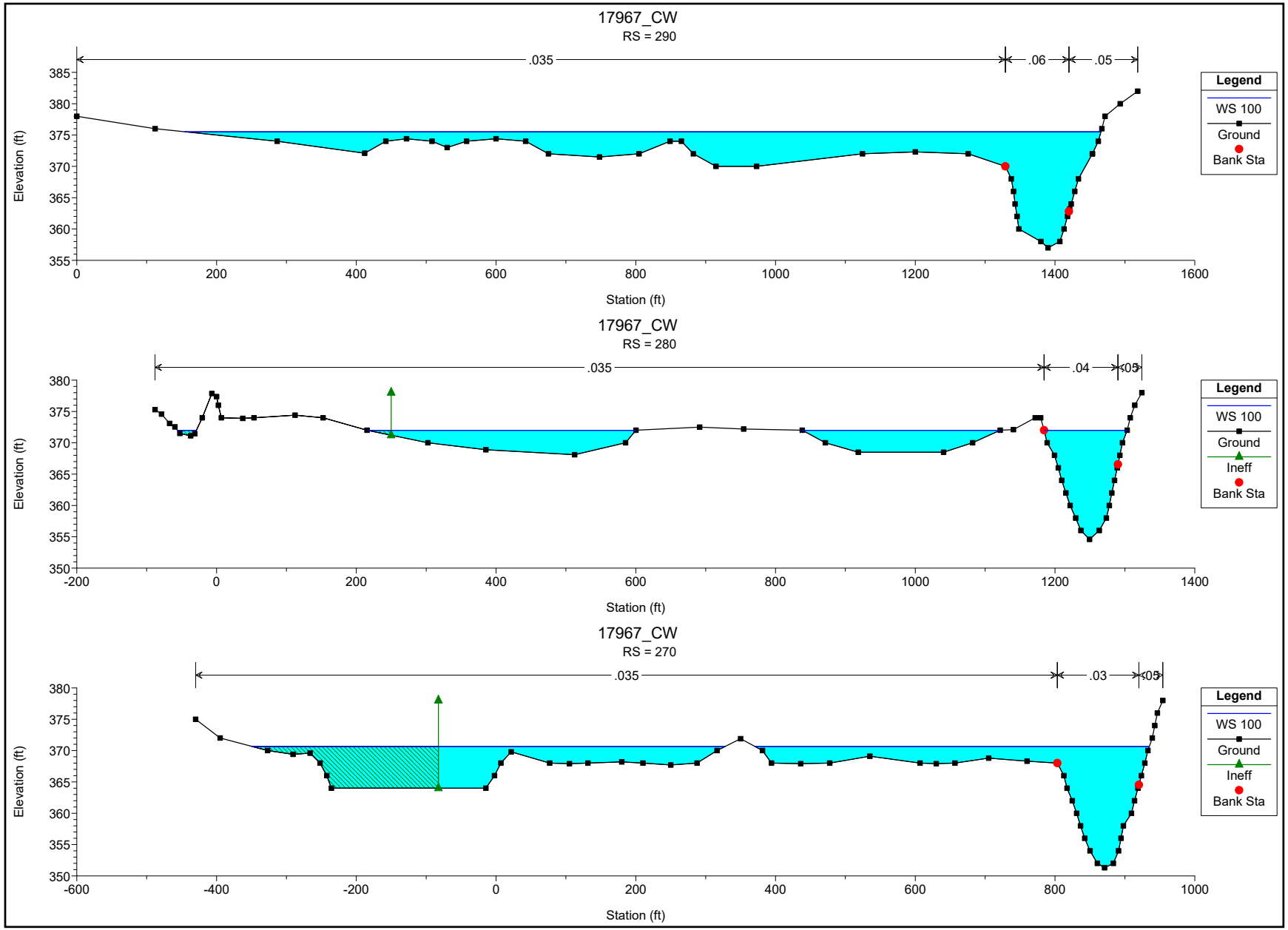
HEC-RAS Plan: As-Built Corr Eff River: RIVER-1 Reach: Reach-1 Profile: 100 (Continued)

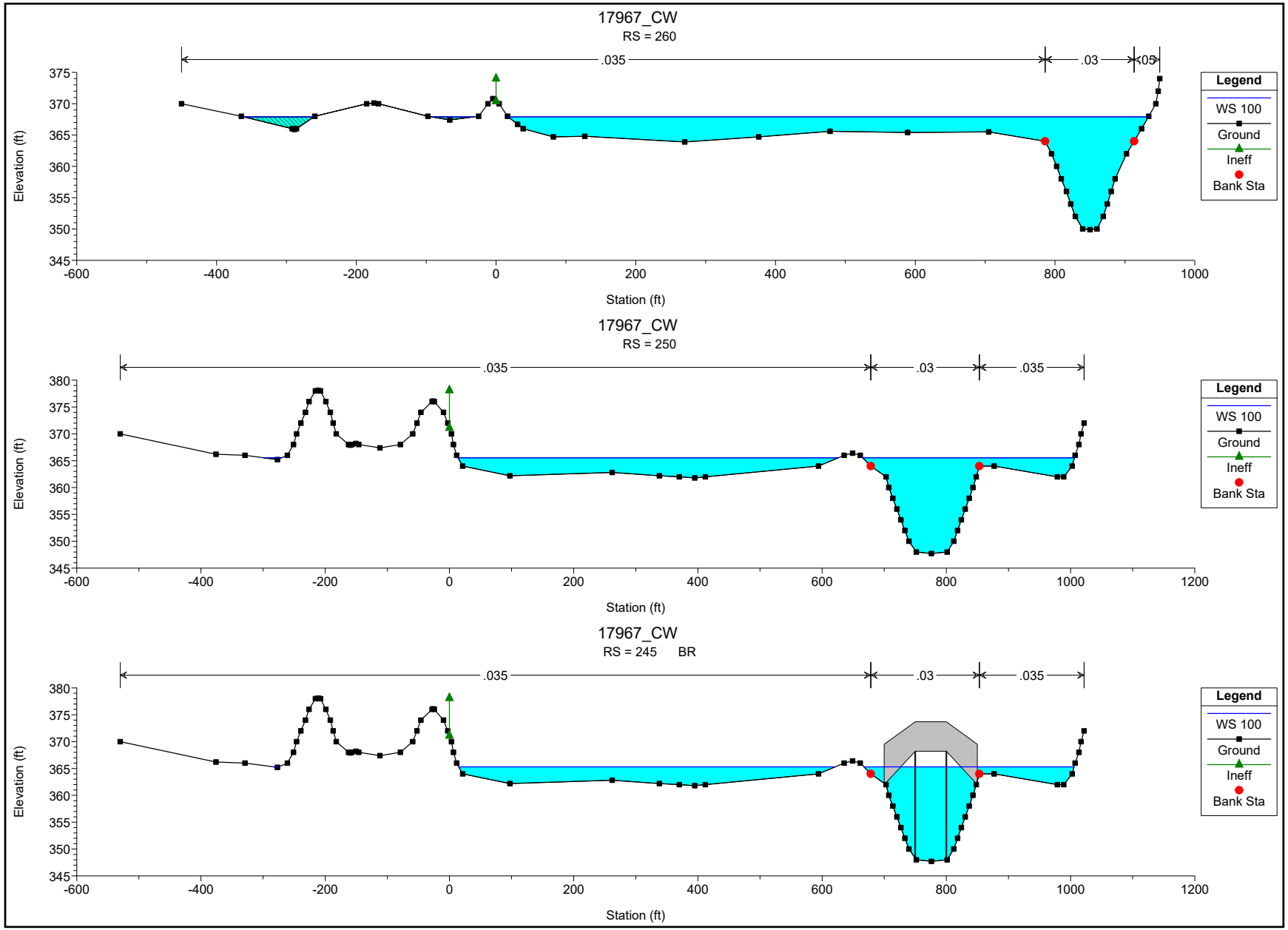
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	65		Bridge									
Reach-1	60	100	29500.00	327.10	339.14	339.14	340.64	0.003940	12.57	3873.52	1131.38	0.77
Reach-1	50	100	29500.00	325.40	337.58		337.98	0.002917	4.98	5819.82	1115.15	0.26
Reach-1	40	100	29500.00	324.50	336.13		336.59	0.002341	4.28	5713.12	1014.69	0.23
Reach-1	30	100	29500.00	323.60	335.13		335.48	0.001631	3.54	6621.18	1161.92	0.19
Reach-1	20	100	29500.00	323.00	333.90	331.66	334.44	0.002912	4.37	5163.59	1336.52	0.25
Reach-1	15		Bridge									
Reach-1	10	100	29500.00	322.00	333.85	331.57	334.35	0.002739	4.22	5402.62	1248.54	0.25
Reach-1	5	100	29500.00	321.10	330.28	328.76	330.93	0.004294	10.82	5598.21	1123.72	0.68

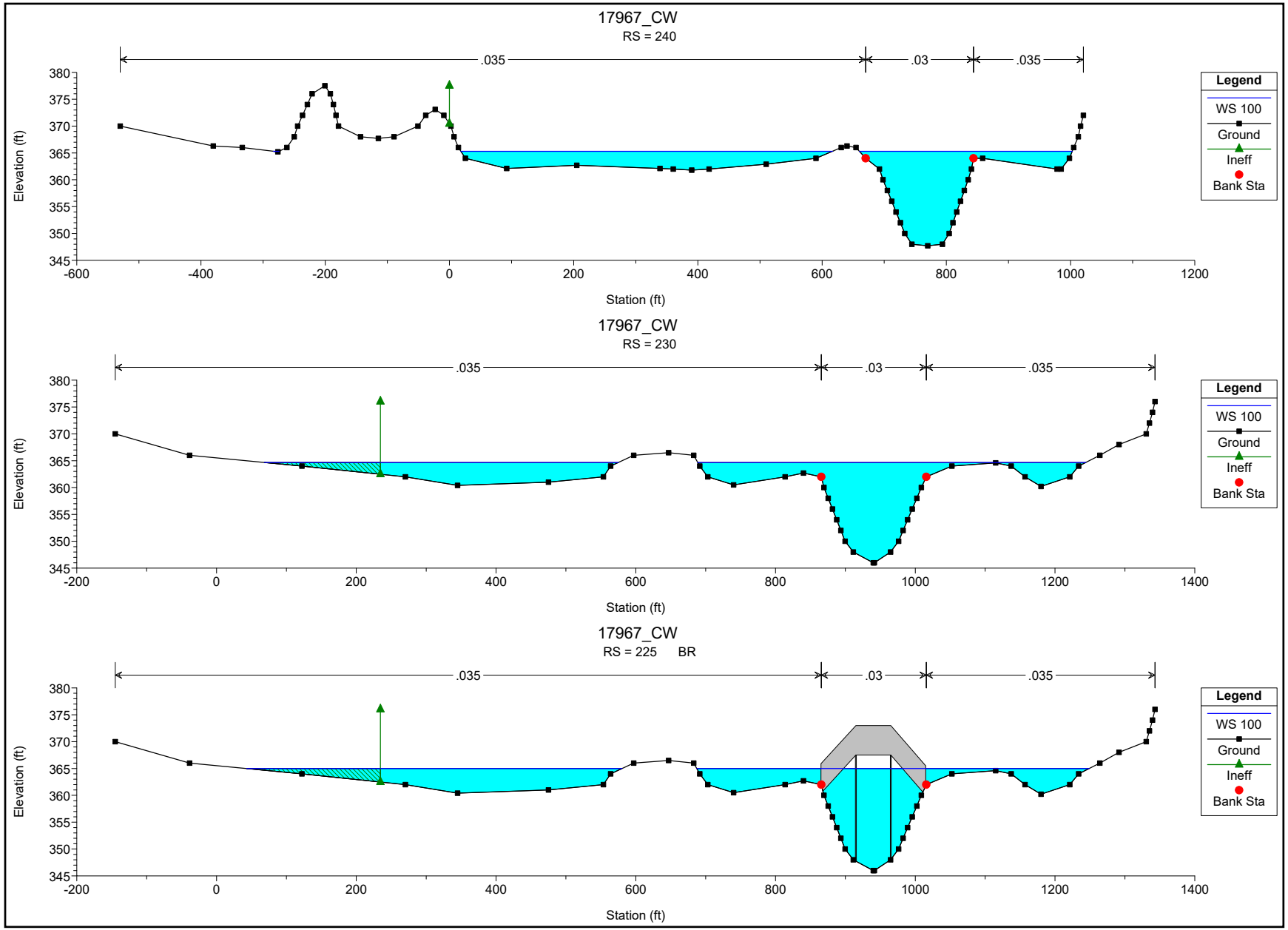

17967_CW
RS = 400
.05
.04
.05
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
17967_CW
RS = 398
.05
.04
.05
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
17967_CW
RS = 396
.05
.04
.05
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta

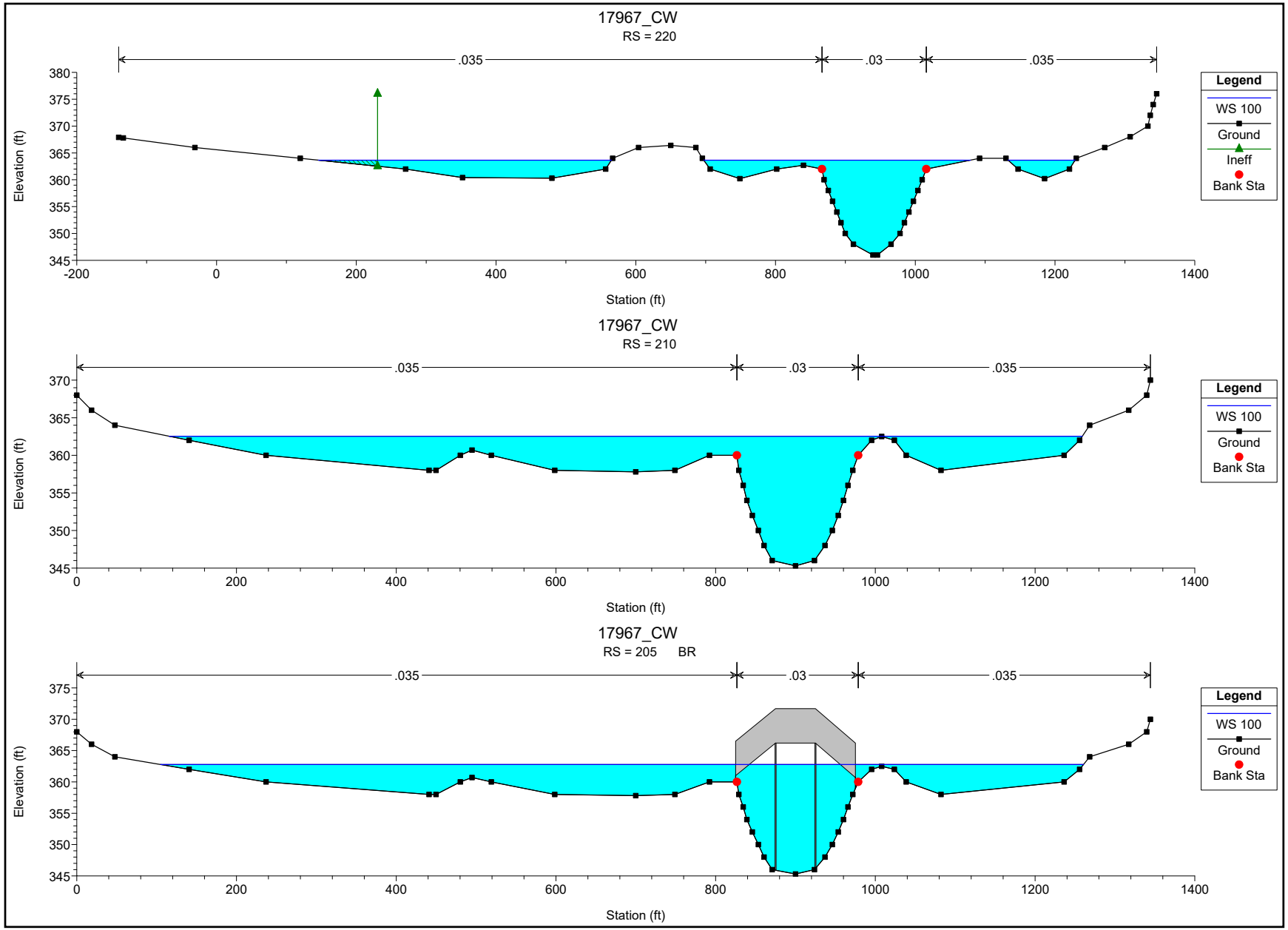

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Elevation (ft)
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420
400
380
360
4000
4500
5000
5500
6000
6500
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
17967_CW
RS = 320
.035
.06
.05
Elevation (ft)
385
380
375
370
365
360
-200
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS 100
Ground
Bank Sta
17967_CW
RS = 315 Culv
.035
.06
.05
Elevation (ft)
385
380
375
370
365
360
-200
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS 100
Ground
Bank Sta

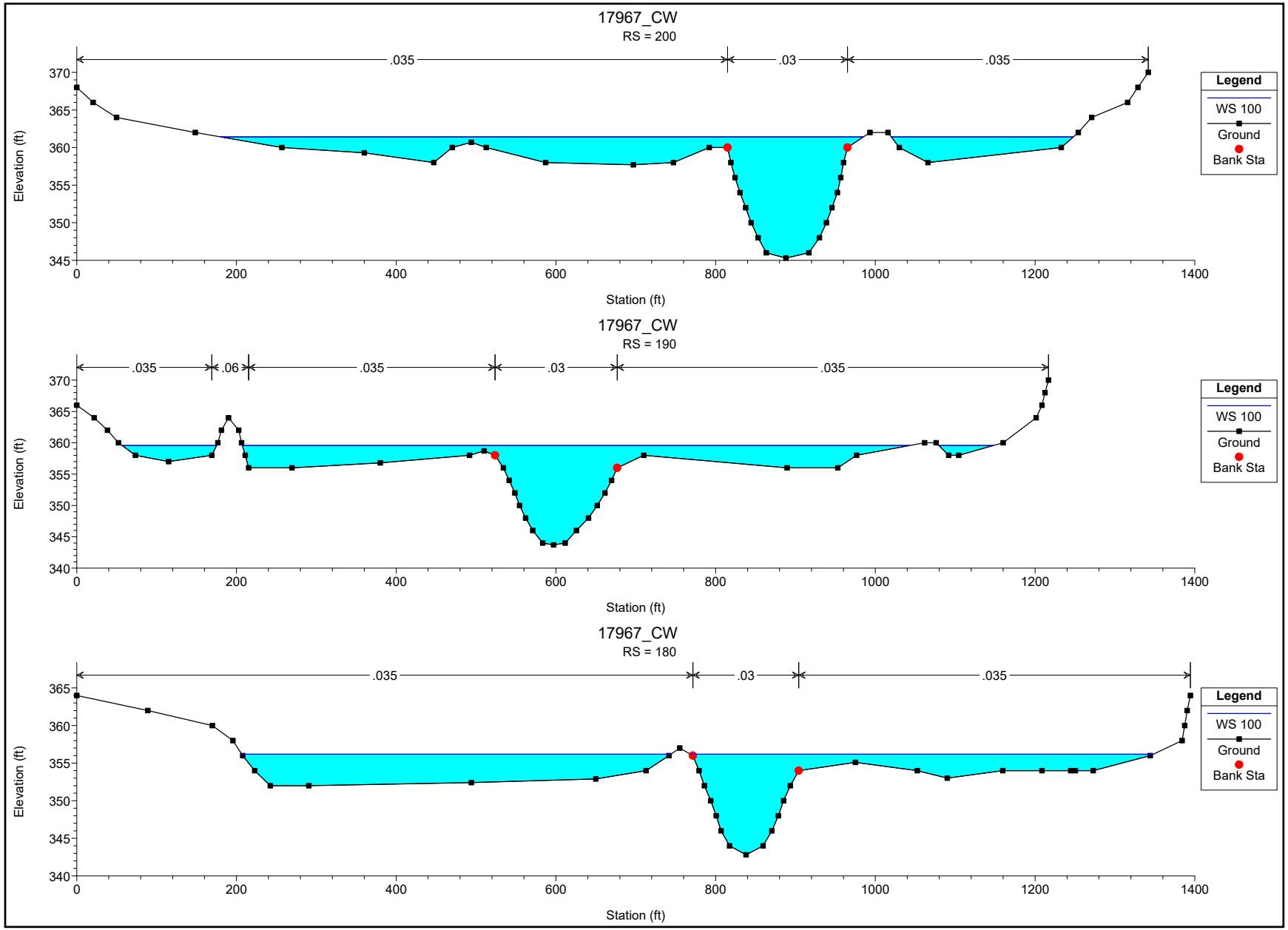

17967_CW
RS = 310
.035
.06
.05
Legend
WS 100
Ground
Bank Sta
Elevation (ft)
Station (ft)
17967_CW
RS = 300
.035
.06
.05
Legend
WS 100
Ground
Bank Sta
Elevation (ft)
Station (ft)
17967_CW
RS = 295 BR
.035
.06
.05
Legend
WS 100
Ground
Bank Sta
Elevation (ft)
Station (ft)


17967_CW
RS = 290
.035
.06
.05
Legend
WS 100
Ground
Bank Sta
Elevation (ft)
Station (ft)
17967_CW
RS = 280
.035
.04
.05
Legend
WS 100
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17967_CW
RS = 270
.035
.03
.05
Legend
WS 100
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

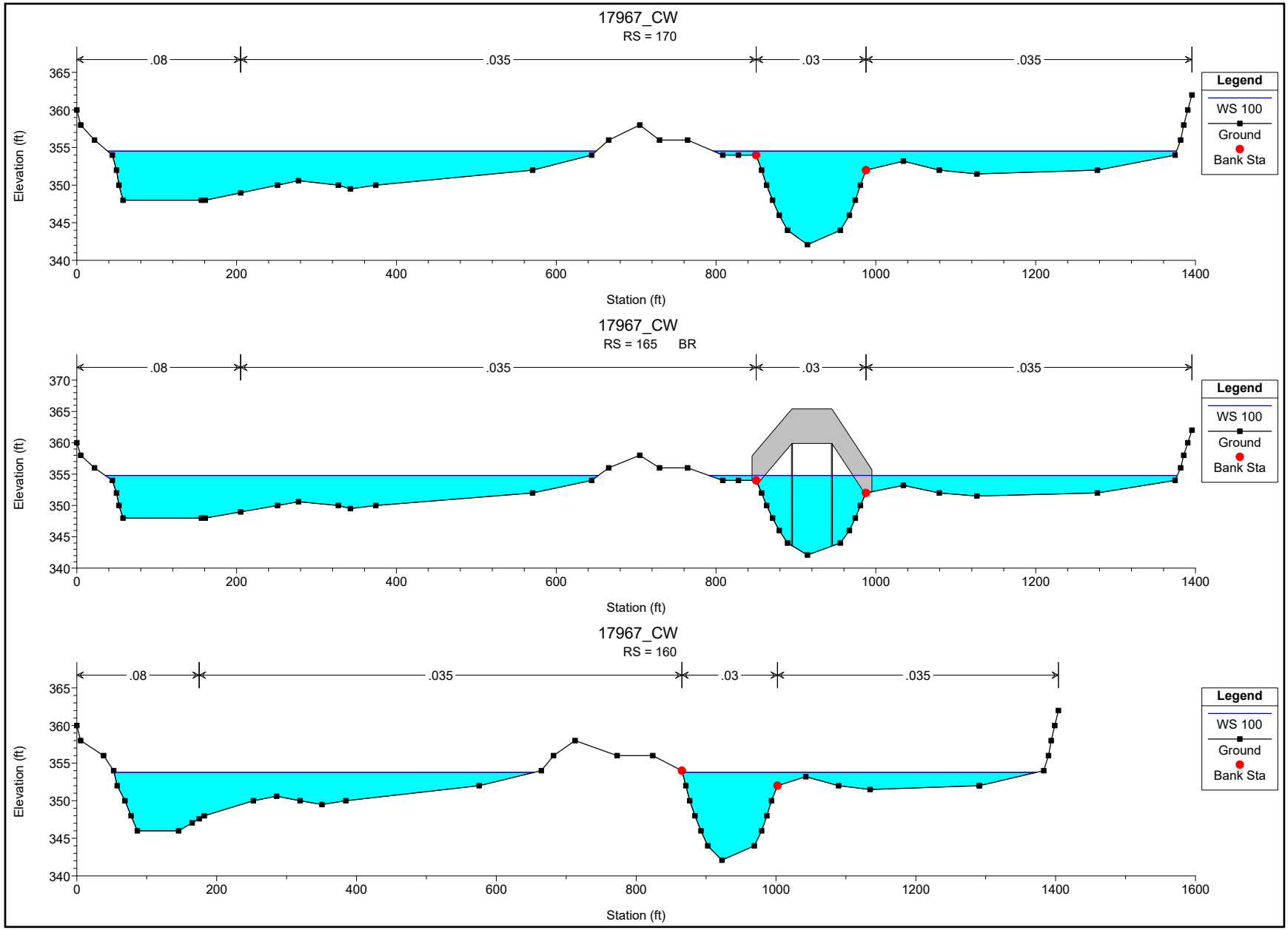

17967_CW
RS = 260
.035
.03
.05
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
17967_CW
RS = 250
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
17967_CW
RS = 245 BR
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta

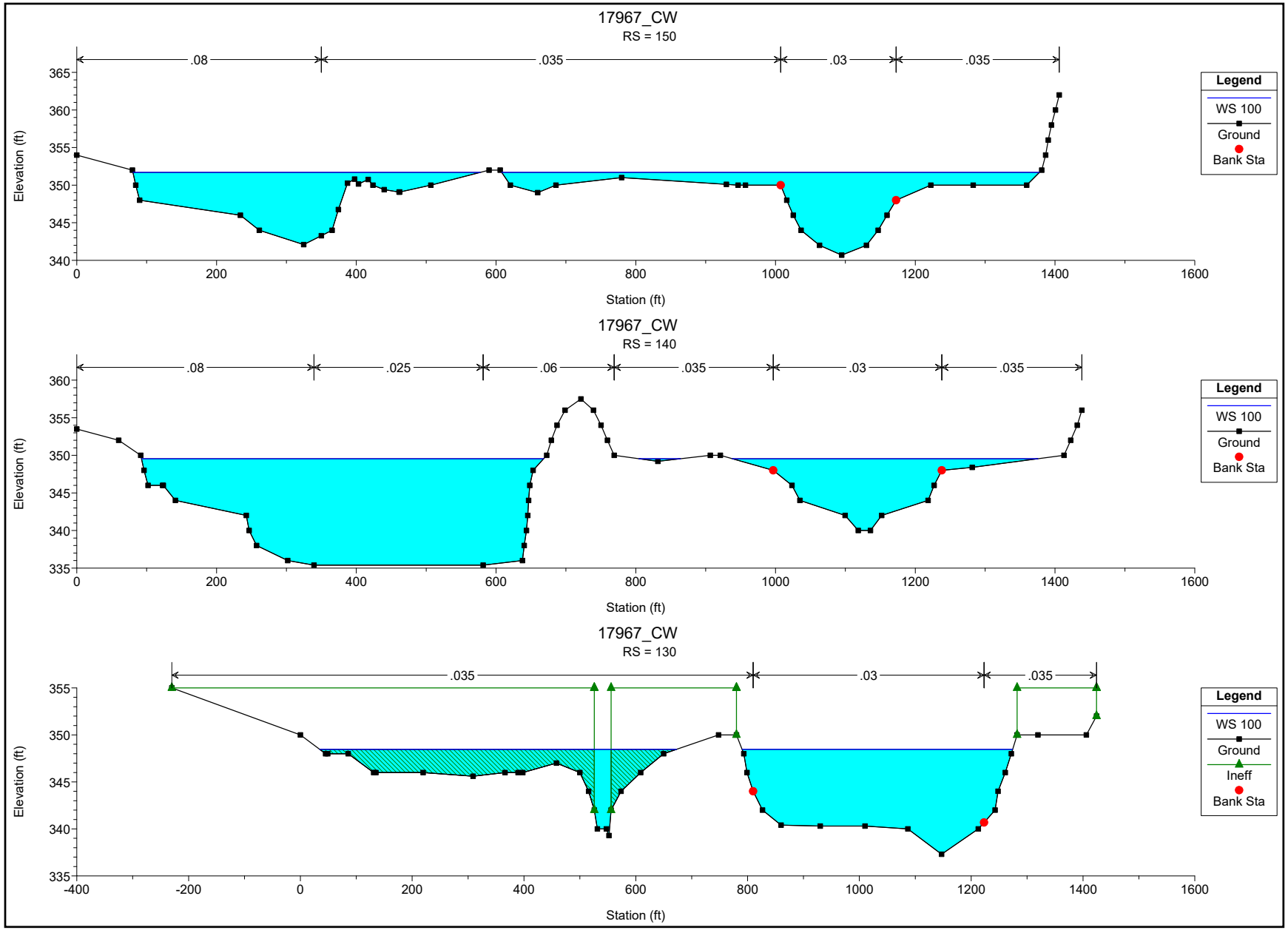

17967_CW
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.03
.035
Elevation (ft)
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370
365
360
355
350
345
-600
-400
-200
0
200
400
600
800
1000
1200
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
17967_CW
RS = 230
.035
.03
.035
Elevation (ft)
380
375
370
365
360
355
350
345
-200
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
17967_CW
RS = 225 BR
.035
.03
.035
Elevation (ft)
380
375
370
365
360
355
350
345
-200
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta

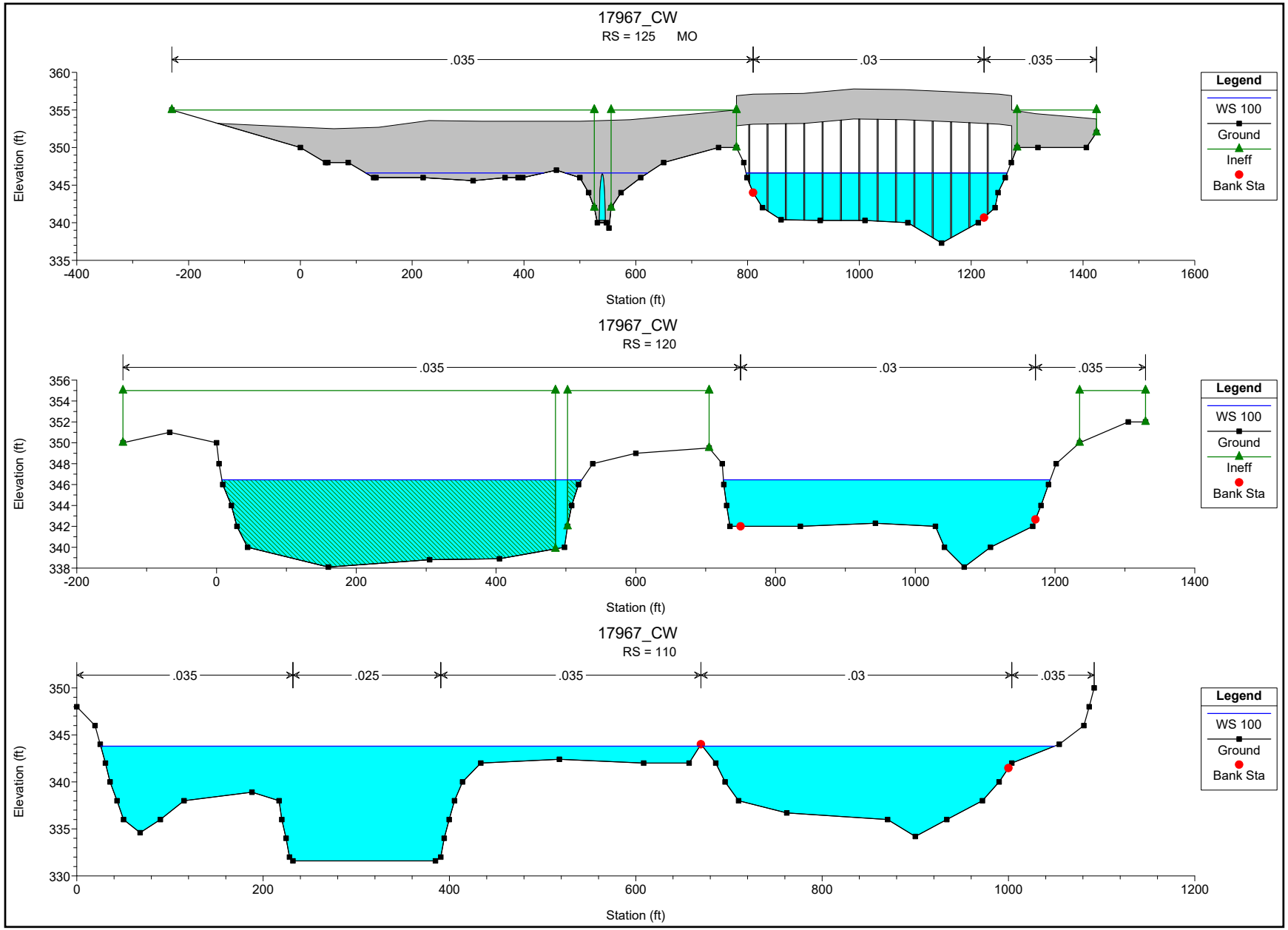

17967_CW
RS = 220
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.03
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Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
17967_CW
RS = 210
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
17967_CW
RS = 205 BR
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta

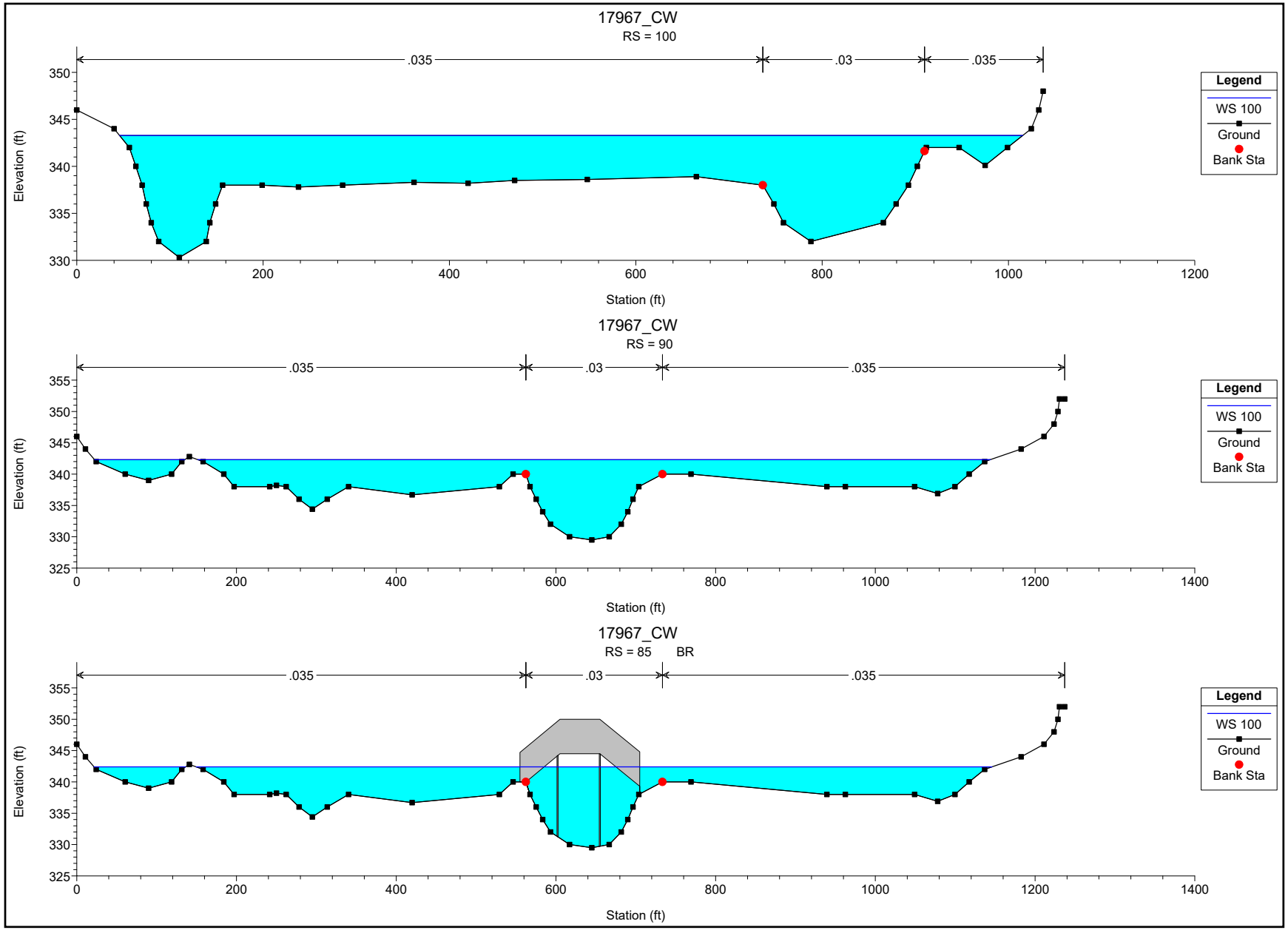

17967_CW
RS = 200
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.03
.035
Elevation (ft)
370
365
360
355
350
345
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS 100
Ground
Bank Sta
17967_CW
RS = 190
.035
.06
.035
.03
.035
Elevation (ft)
370
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS 100
Ground
Bank Sta
17967_CW
RS = 180
.035
.03
.035
Elevation (ft)
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS 100
Ground
Bank Sta

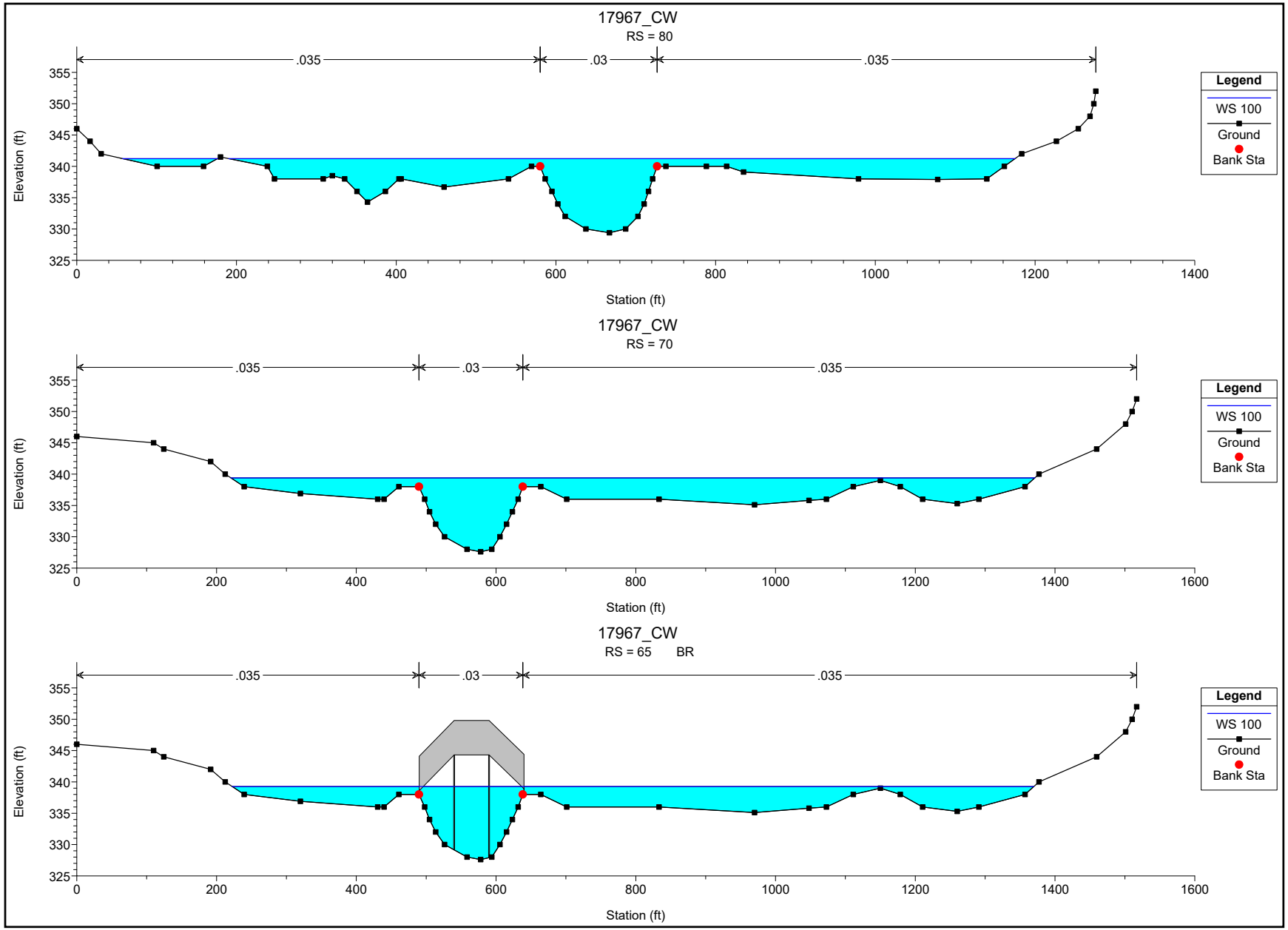
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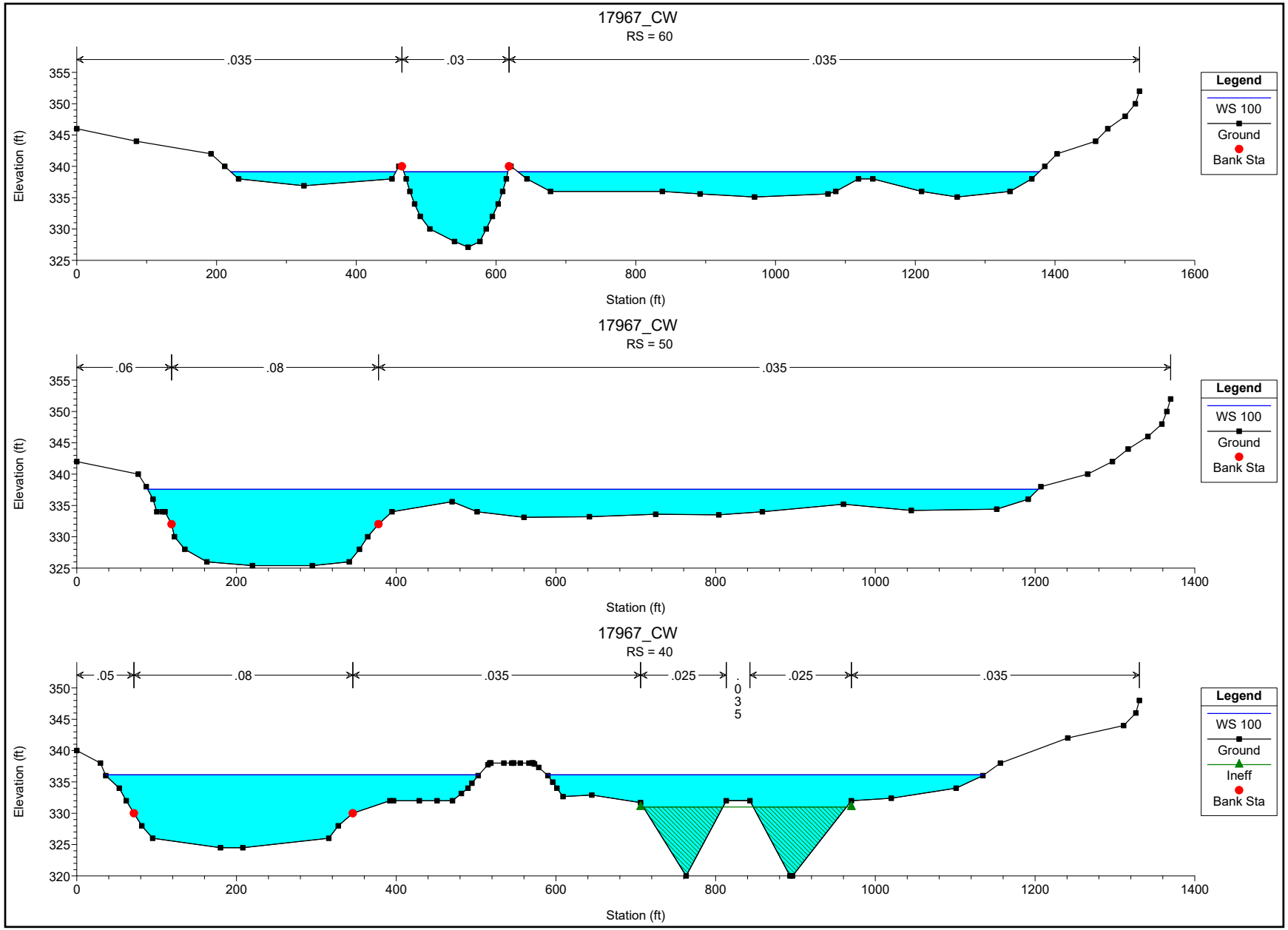

17967_CW
RS = 170
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.03
.035
Legend
WS 100
Ground
Bank Sta
Elevation (ft)
Station (ft)
17967_CW
RS = 165 BR
.08
.035
.03
.035
Legend
WS 100
Ground
Bank Sta
Elevation (ft)
Station (ft)
17967_CW
RS = 160
.08
.035
.03
.035
Legend
WS 100
Ground
Bank Sta
Elevation (ft)
Station (ft)

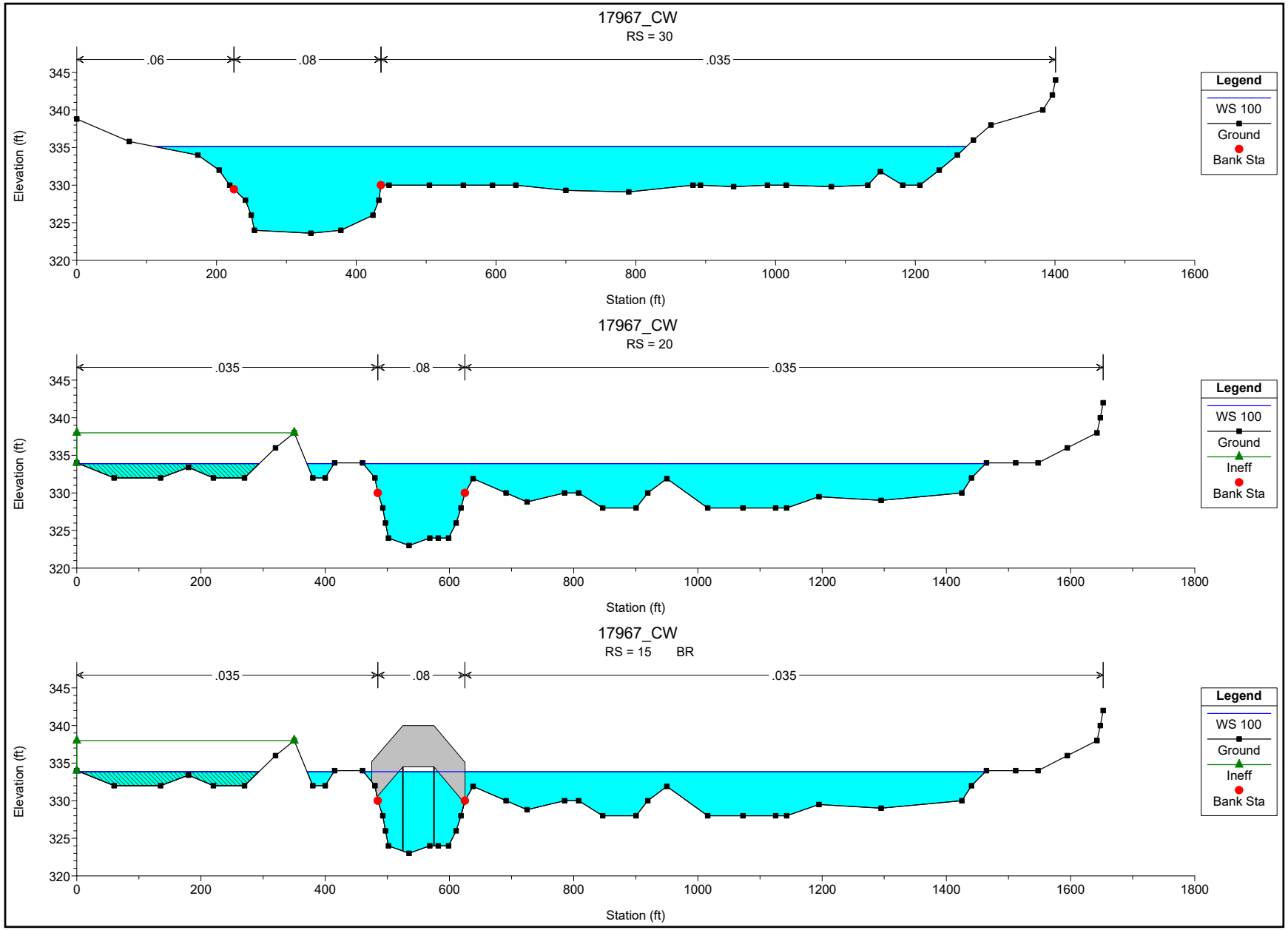

17967_CW
RS = 150
.08
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
17967_CW
RS = 140
.08
.025
.06
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
17967_CW
RS = 130
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta

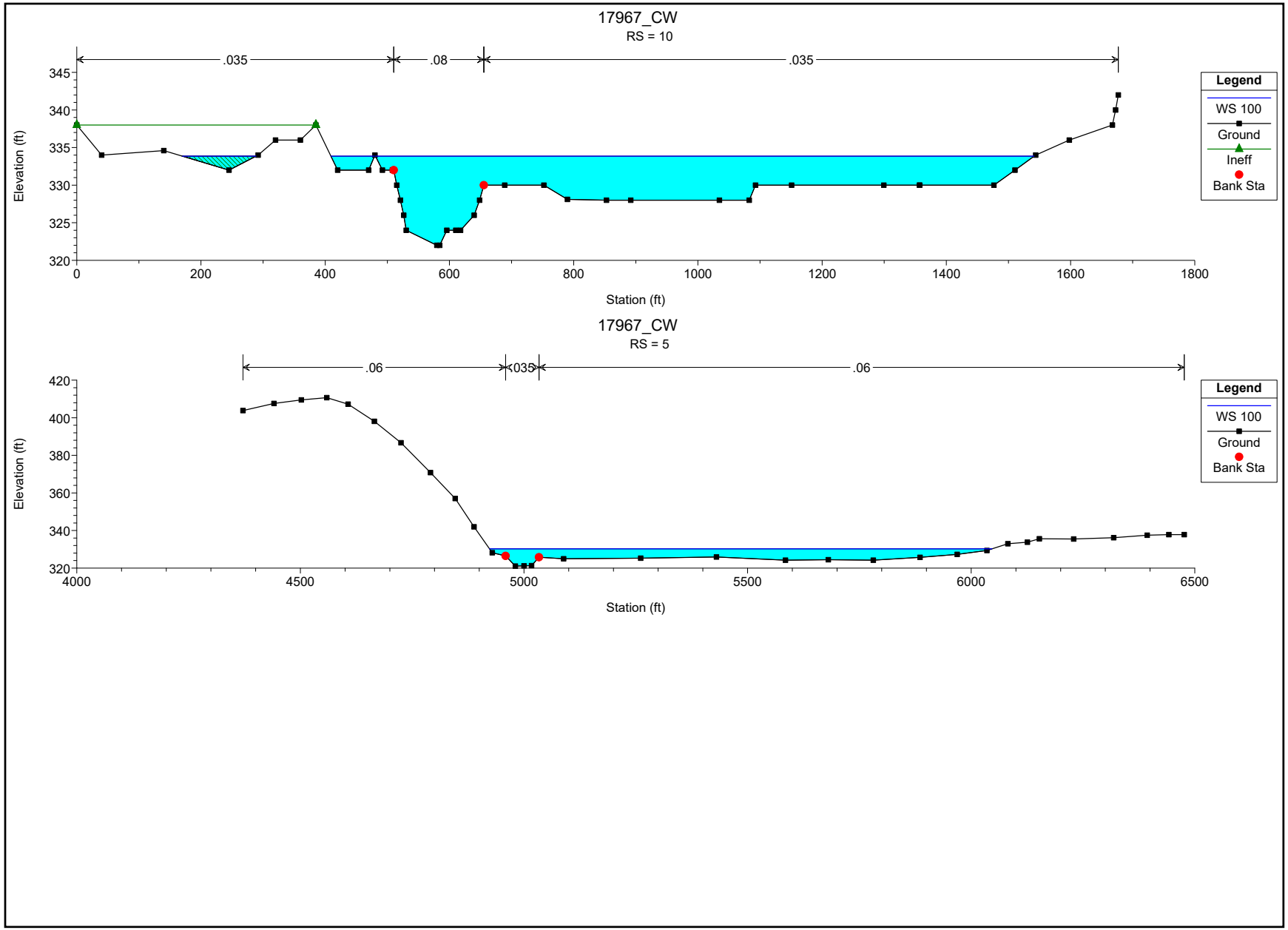

17967_CW
RS = 125 MO
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
17967_CW
RS = 120
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
17967_CW
RS = 110
.035
.025
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta


17967_CW
RS = 100
.035
.03
.035
Legend
WS 100
Ground
Bank Sta
Elevation (ft)
Station (ft)
17967_CW
RS = 90
.035
.03
.035
Legend
WS 100
Ground
Bank Sta
Elevation (ft)
Station (ft)
17967_CW
RS = 85 BR
.035
.03
.035
Legend
WS 100
Ground
Bank Sta
Elevation (ft)
Station (ft)


17967_CW
RS = 80
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
17967_CW
RS = 70
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
17967_CW
RS = 65 BR
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta


17967_CW
RS = 60
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
17967_CW
RS = 50
.06
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
17967_CW
RS = 40
.05
.08
.035
.025
.035
.025
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta


17967_CW
RS = 30
.06
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Bank Sta
17967_CW
RS = 20
.035
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
17967_CW
RS = 15 BR
.035
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta


17967_CW
RS = 10
.035
.08
.035
Elevation (ft)
345
340
335
330
325
320
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)
Legend
WS 100
Ground
Ineff
Bank Sta
17967_CW
RS = 5
.06
.035
.06
Elevation (ft)
420
400
380
360
340
320
4000
4500
5000
5500
6000
6500
Station (ft)
Legend
WS 100
Ground
Bank Sta

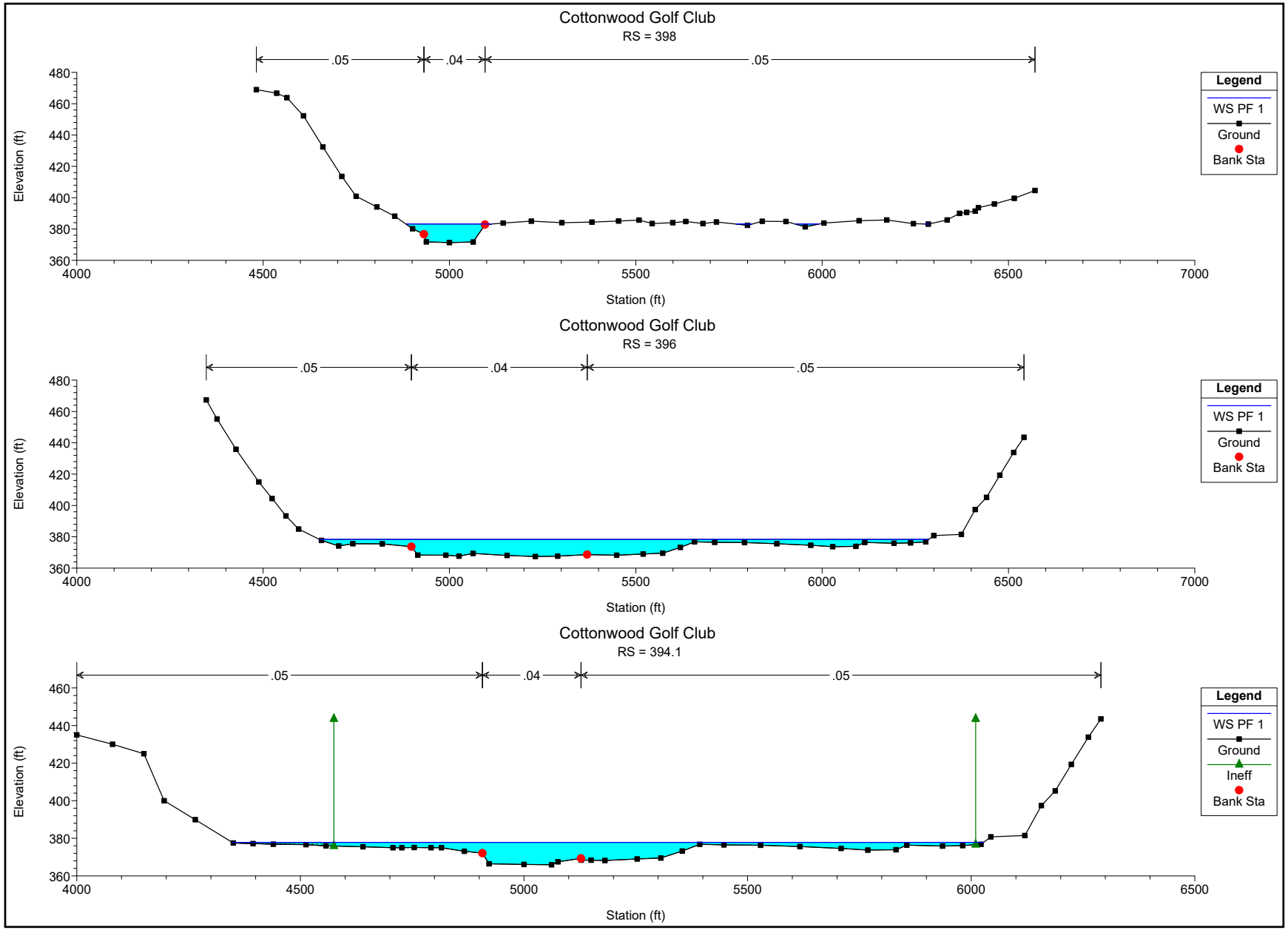
Mining Phase 1

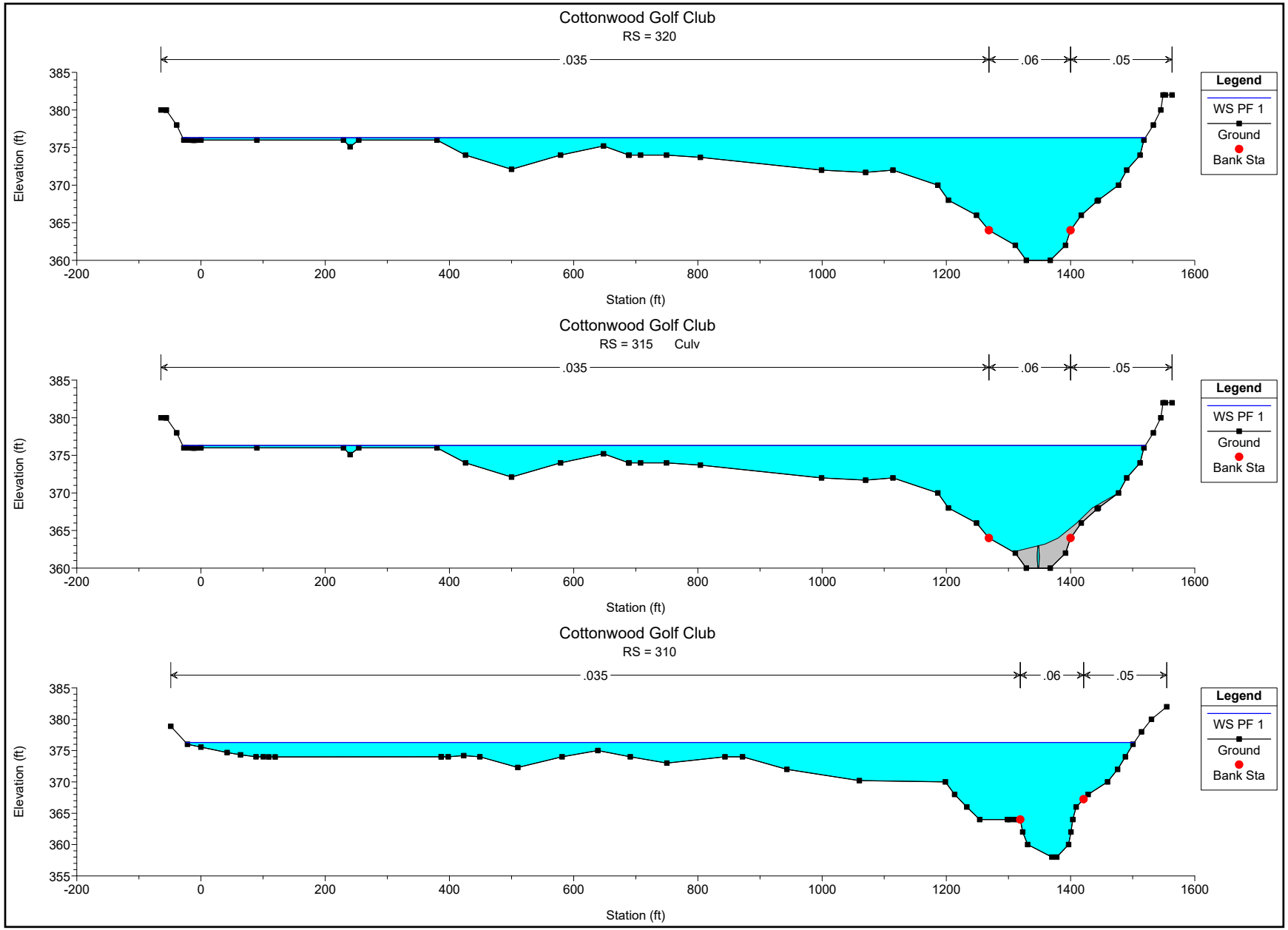
HEC-RAS Plan: PC Phase 1 River: RIVER-1 Reach: Reach-1 Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	398	PF 1	29500.00	371.30	383.17	383.17	387.25	0.008936	16.52	1955.33	346.72	0.90
Reach-1	396	PF 1	29500.00	367.40	378.38		378.59	0.000584	4.20	9721.67	1635.85	0.23
Reach-1	394.1	PF 1	29500.00	365.90	377.81		378.32	0.001542	7.14	6838.40	1679.65	0.38
Reach-1	320	PF 1	29500.00	360.00	376.30	371.89	376.73	0.001952	6.59	6279.88	1549.75	0.30
Reach-1	315		Culvert									
Reach-1	310	PF 1	29500.00	358.00	376.28		376.58	0.001332	5.57	7123.00	1526.89	0.25
Reach-1	300	PF 1	29500.00	356.70	375.73	374.22	376.36	0.003003	7.94	5237.41	1389.15	0.37
Reach-1	295		Bridge									
Reach-1	290	PF 1	29500.00	357.00	375.52		376.15	0.003116	8.26	5088.77	1311.24	0.37
Reach-1	280	PF 1	29500.00	354.60	372.00	372.00	374.39	0.006896	15.00	2918.15	813.73	0.79
Reach-1	270	PF 1	29500.00	351.30	370.66	370.66	372.55	0.002422	13.13	3851.40	1241.65	0.64
Reach-1	260	PF 1	29500.00	349.90	367.90	367.90	369.70	0.002600	12.88	3797.93	1077.01	0.66
Reach-1	250	PF 1	29500.00	347.70	365.55	364.94	366.98	0.001893	10.89	4095.02	981.89	0.56
Reach-1	245		Bridge									
Reach-1	240	PF 1	29500.00	347.70	365.31	364.86	366.87	0.002054	11.27	3932.89	950.11	0.58
Reach-1	230	PF 1	29500.00	346.00	364.67	363.81	366.22	0.001776	11.32	3984.29	1061.74	0.55
Reach-1	225		Bridge									
Reach-1	220	PF 1	29500.00	346.00	363.65	363.65	365.86	0.002594	13.12	3294.18	896.67	0.66
Reach-1	210	PF 1	29500.00	345.30	362.54	361.40	363.56	0.001345	9.77	5066.40	1143.45	0.48
Reach-1	205		Bridge									
Reach-1	200	PF 1	29500.00	345.30	361.42	361.42	363.30	0.002438	12.49	3775.20	1032.94	0.64
Reach-1	190	PF 1	29500.00	343.70	359.56	359.56	361.51	0.002915	12.91	3651.46	1022.27	0.69
Reach-1	180	PF 1	29500.00	342.80	356.18	356.18	357.72	0.003876	12.86	3862.30	1116.68	0.77
Reach-1	170	PF 1	29500.00	342.10	354.53	354.06	355.68	0.003014	11.51	4697.07	1191.20	0.68
Reach-1	165		Bridge									
Reach-1	160	PF 1	29500.00	342.10	353.77	353.77	355.38	0.004551	13.38	3963.11	1107.15	0.83
Reach-1	150	PF 1	29500.00	340.70	351.69	351.69	353.25	0.004000	12.70	4463.50	1266.04	0.78
Reach-1	140	PF 1	29500.00	340.00	349.51		349.73	0.000249	2.64	8024.10	1059.92	0.19
Reach-1	130	PF 1	29500.00	337.30	348.46	345.10	349.33	0.001372	7.64	4039.56	1122.09	0.46
Reach-1	125		Mult Open									
Reach-1	120	PF 1	29500.00	338.10	346.46	346.46	348.93	0.007768	12.80	2359.51	982.82	1.01
Reach-1	110	PF 1	29500.00	334.00	342.69		342.93	0.001323	3.97	7431.45	1017.85	0.26
Reach-1	100	PF 1	29500.00	332.20	341.94		342.22	0.002151	3.79	7249.99	866.61	0.22
Reach-1	90	PF 1	29500.00	331.00	340.53		340.79	0.002873	4.11	7209.08	1000.04	0.24
Reach-1	80	PF 1	29500.00	331.00	340.45		340.72	0.002908	4.12	7205.16	1036.12	0.24
Reach-1	70	PF 1	29500.00	329.80	339.28		339.50	0.002975	3.76	7799.26	1156.97	0.22
Reach-1	60	PF 1	29500.00	329.80	339.21		339.43	0.003037	3.63	7955.90	1166.75	0.21
Reach-1	50	PF 1	29500.00	326.00	337.28		337.62	0.004460	5.39	6378.49	1064.31	0.31

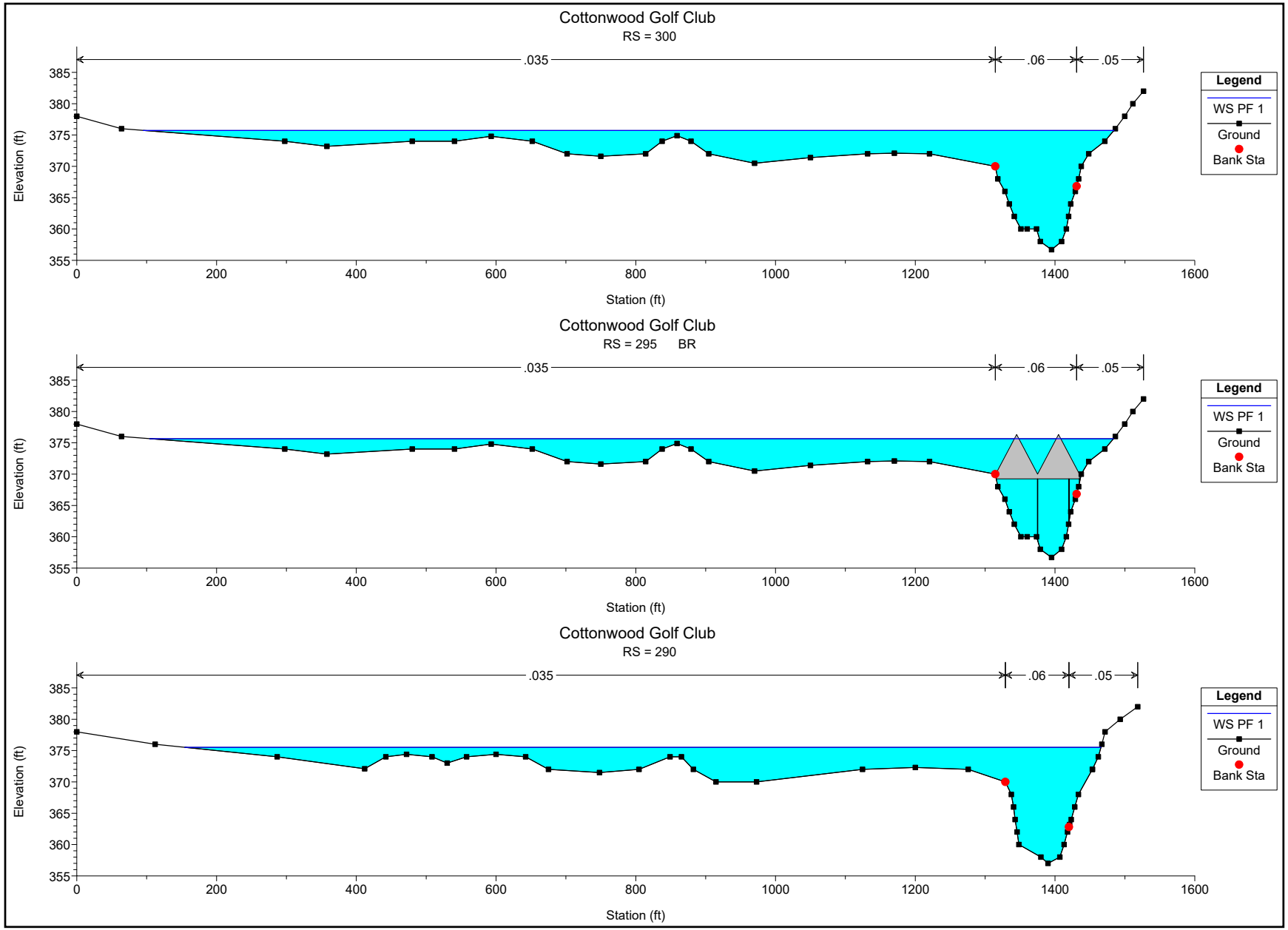
HEC-RAS Plan: PC Phase 1 River: RIVER-1 Reach: Reach-1 Profile: PF 1 (Continued)

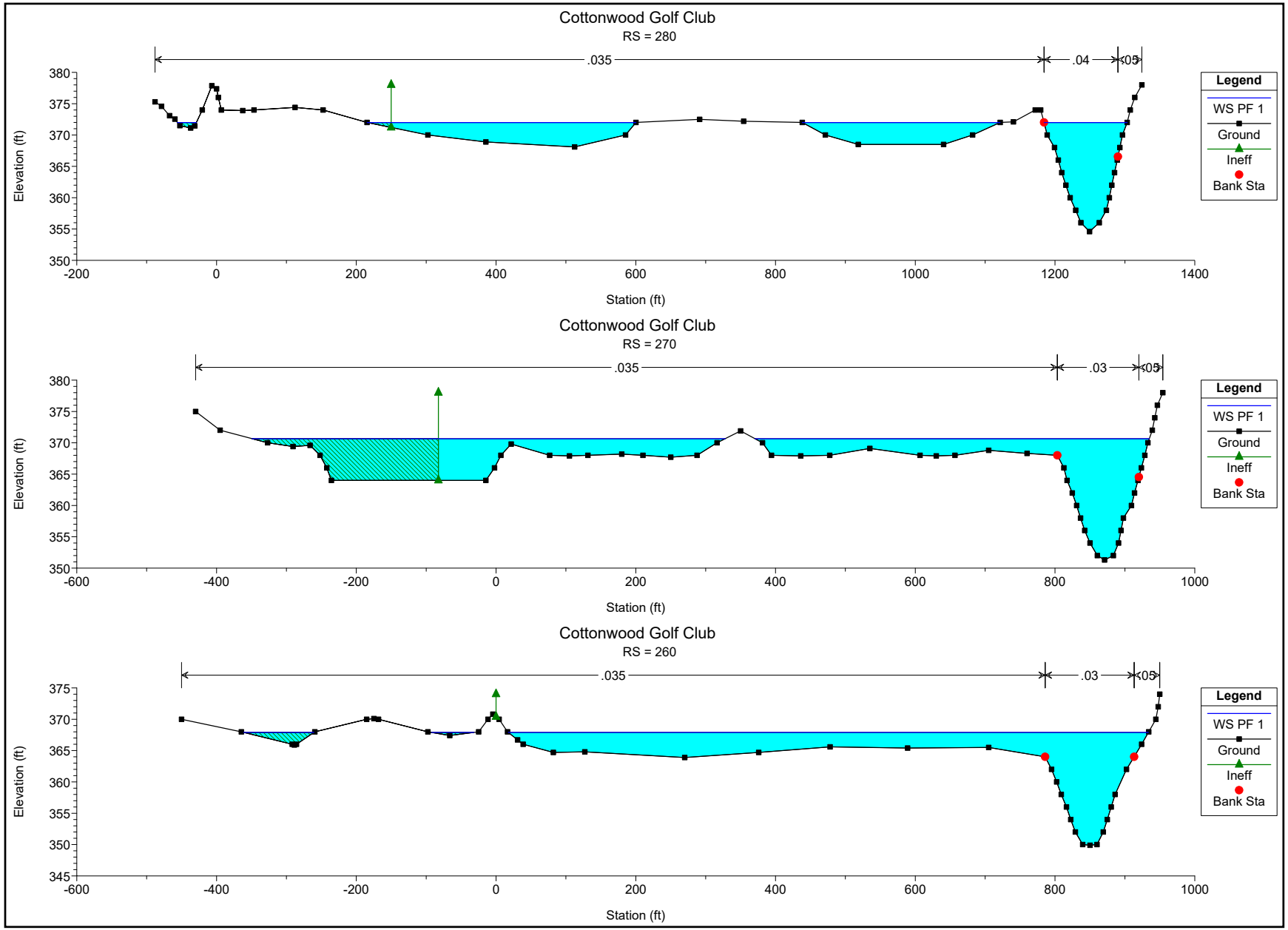
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	40	PF 1	29500.00	324.00	335.63		335.91	0.002460	4.55	7081.80	1096.53	0.27
Reach-1	30	PF 1	29500.00	324.00	334.80		335.01	0.001108	2.70	8251.28	1142.26	0.16
Reach-1	20	PF 1	29500.00	324.00	333.91		334.32	0.001881	4.77	5746.74	1011.29	0.34
Reach-1	10	PF 1	29500.00	324.00	333.75		334.26	0.002611	5.83	5166.49	1069.62	0.40
Reach-1	5	PF 1	29500.00	321.10	330.28	328.76	330.93	0.004294	10.82	5598.21	1123.72	0.68

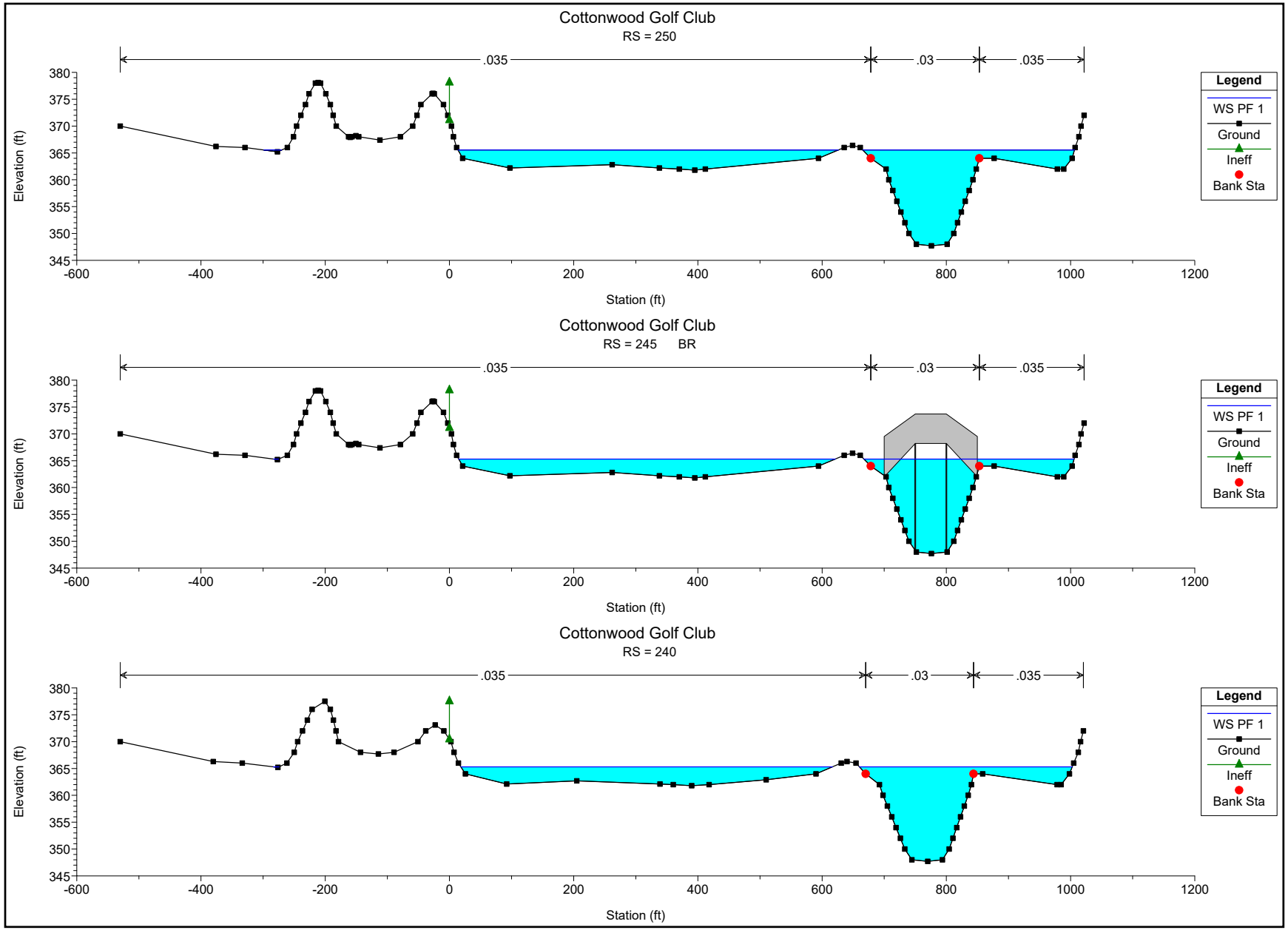

Cottonwood Golf Club
RS = 398
.05
.04
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 396
.05
.04
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 394.1
.05
.04
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta


Cottonwood Golf Club
RS = 320
.035
.06
.05
Elevation (ft)
385
380
375
370
365
360
-200
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 315 Culv
.035
.06
.05
Elevation (ft)
385
380
375
370
365
360
-200
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 310
.035
.06
.05
Elevation (ft)
385
380
375
370
365
360
355
-200
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

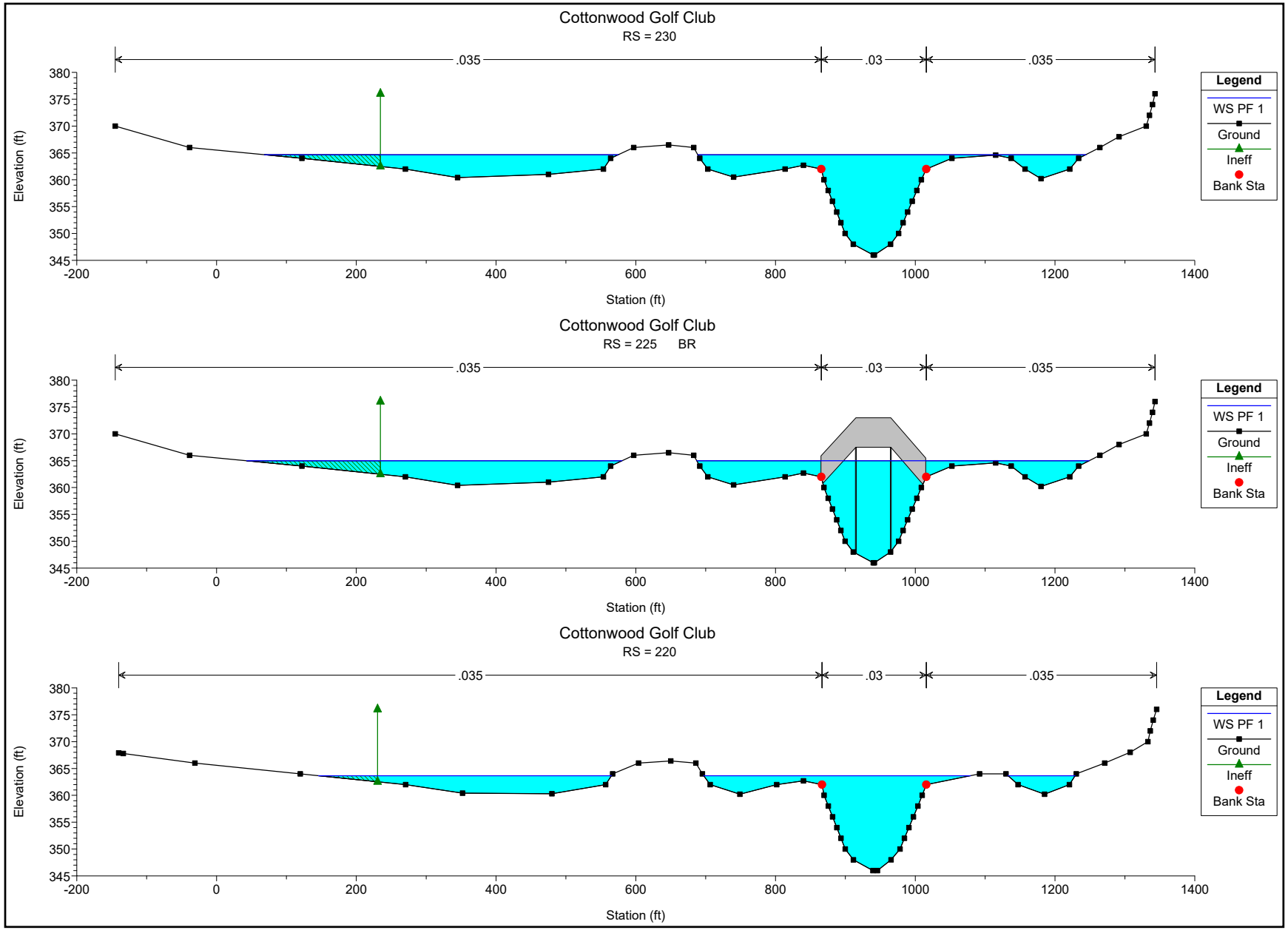
3 - 272

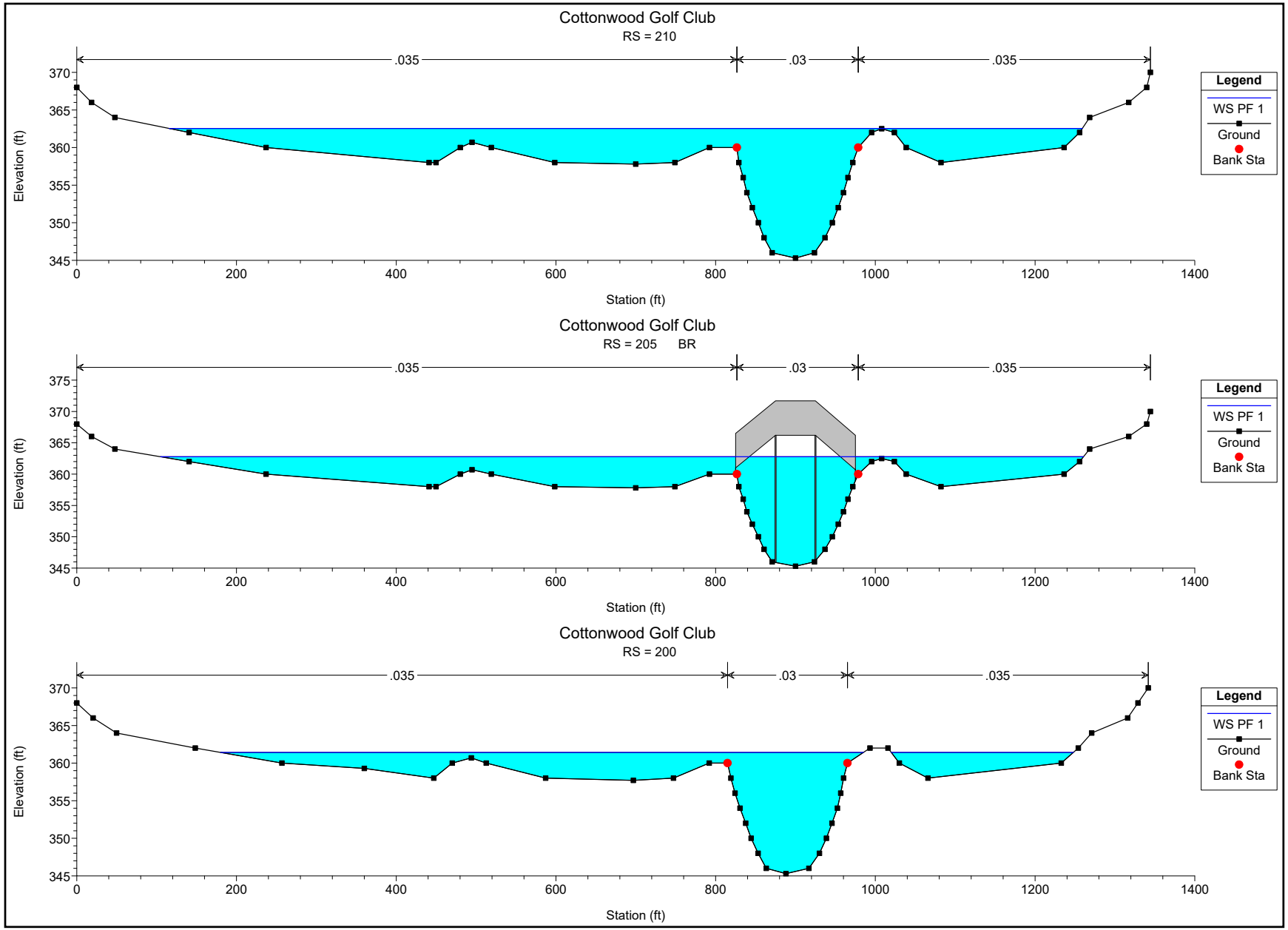

Cottonwood Golf Club
RS = 300
.035
.06
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Cottonwood Golf Club
RS = 295 BR
.035
.06
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Cottonwood Golf Club
RS = 290
.035
.06
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

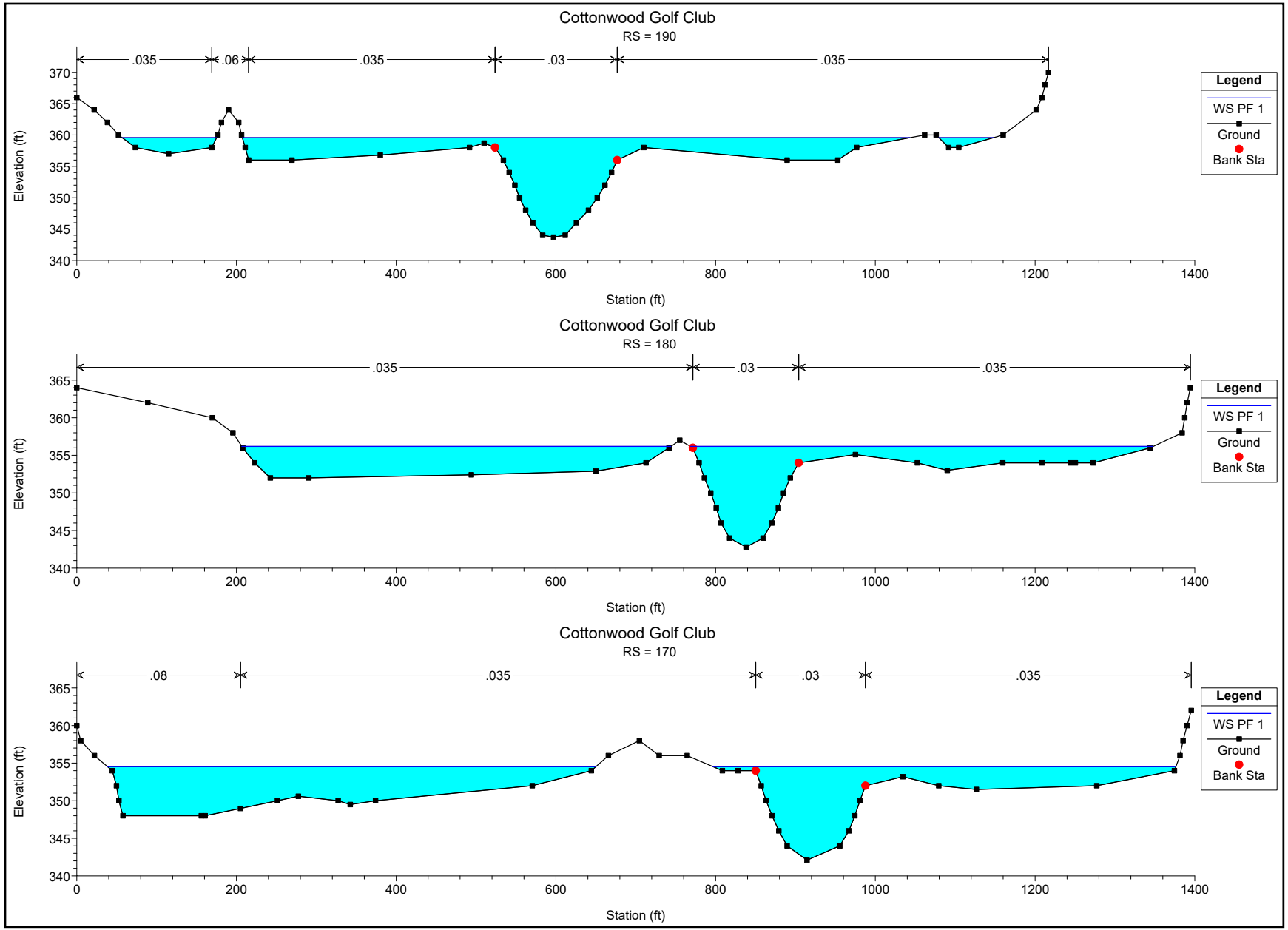

Cottonwood Golf Club
RS = 280
.035
.04
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 270
.035
.03
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 260
.035
.03
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta

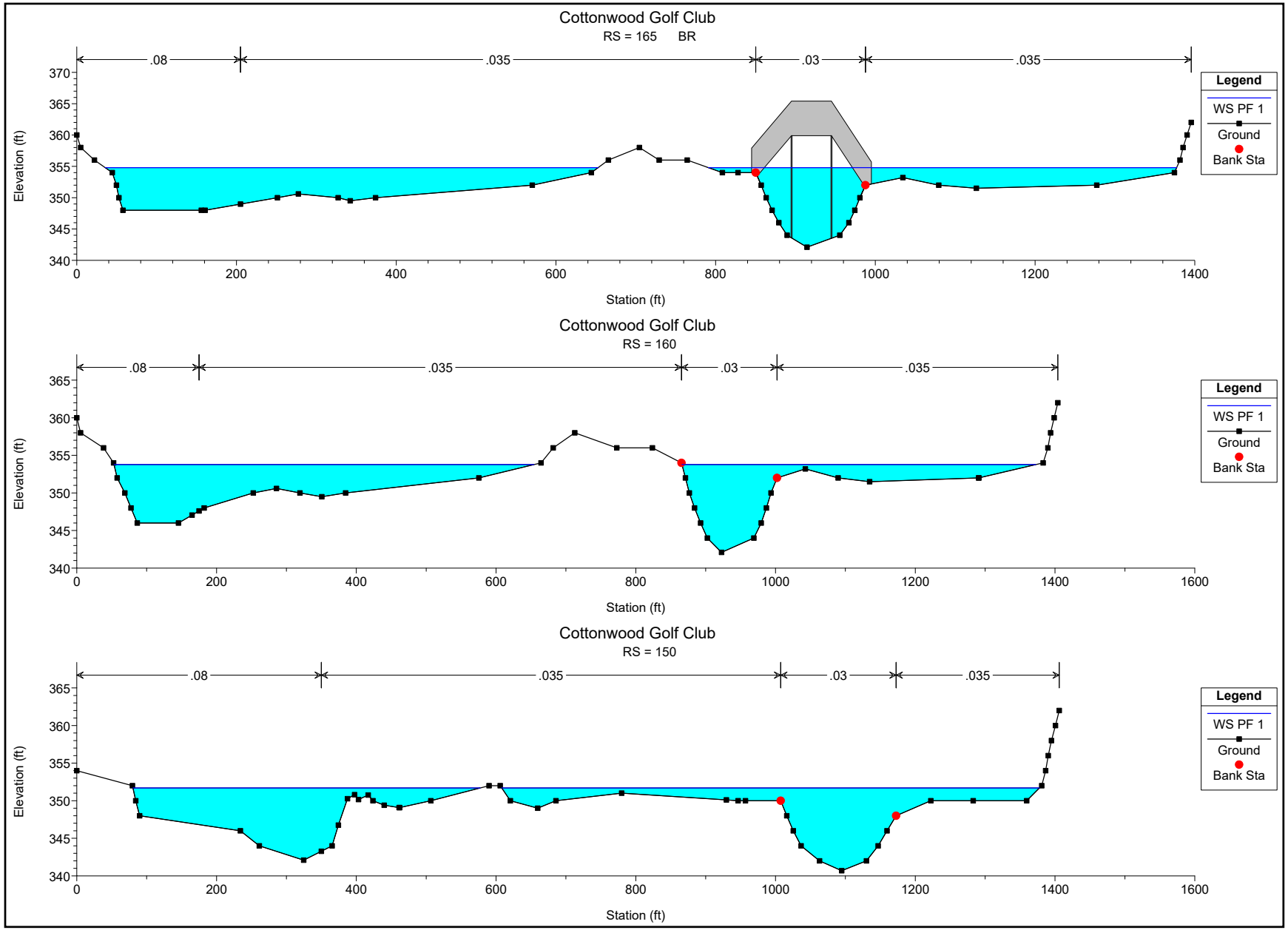

Cottonwood Golf Club
RS = 250
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 245 BR
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 240
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta

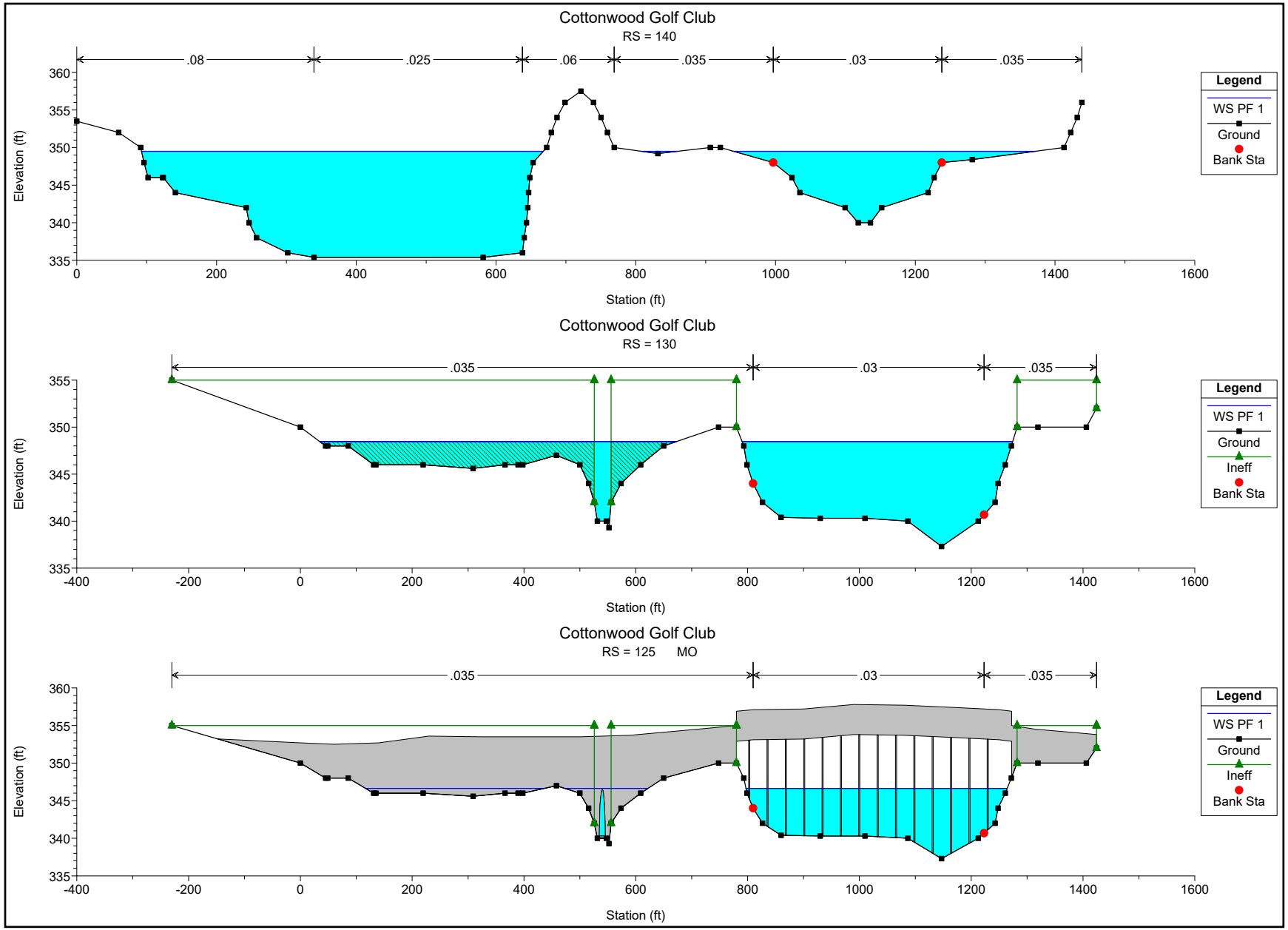
3 - 275


Cottonwood Golf Club
RS = 230
.035
.03
.035
Elevation (ft)
380
375
370
365
360
355
350
345
-200
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 225 BR
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 220
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta

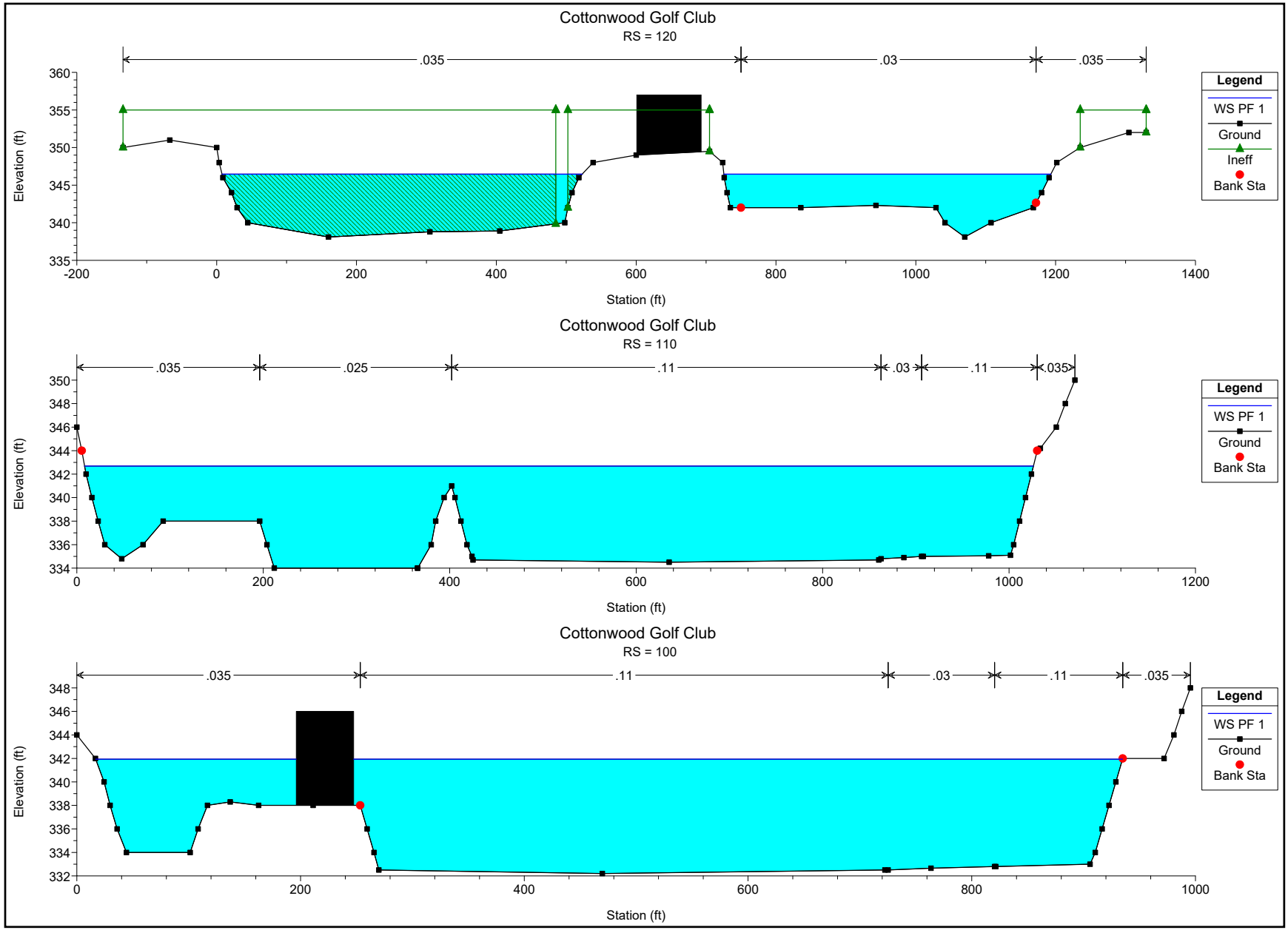

Cottonwood Golf Club
RS = 210
.035
.03
.035
Elevation (ft)
370
365
360
355
350
345
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 205 BR
.035
.03
.035
Elevation (ft)
375
370
365
360
355
350
345
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 200
.035
.03
.035
Elevation (ft)
370
365
360
355
350
345
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

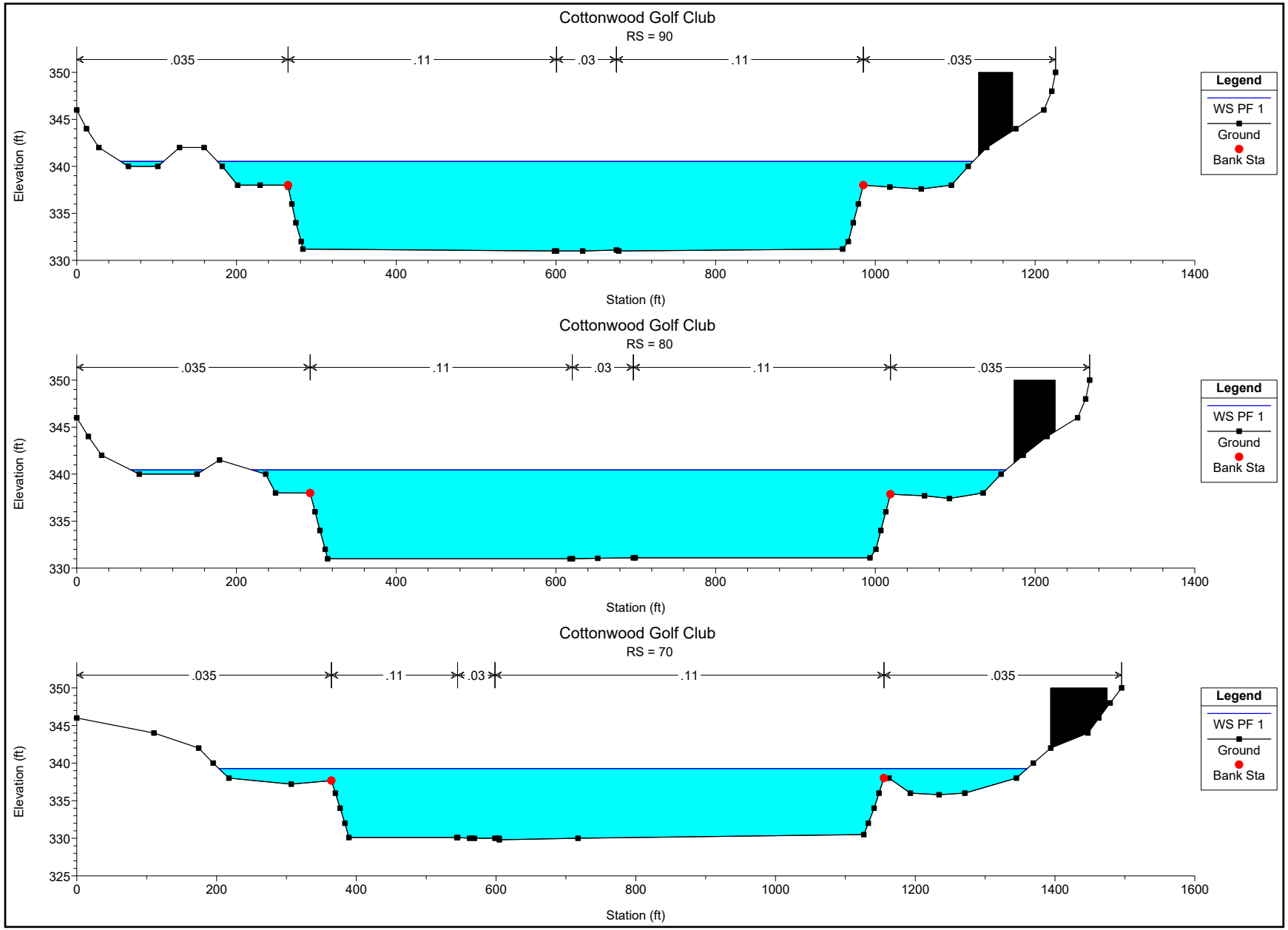

Cottonwood Golf Club
RS = 190
.035
.06
.035
.03
.035
Elevation (ft)
370
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 180
.035
.03
.035
Elevation (ft)
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 170
.08
.035
.03
.035
Elevation (ft)
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

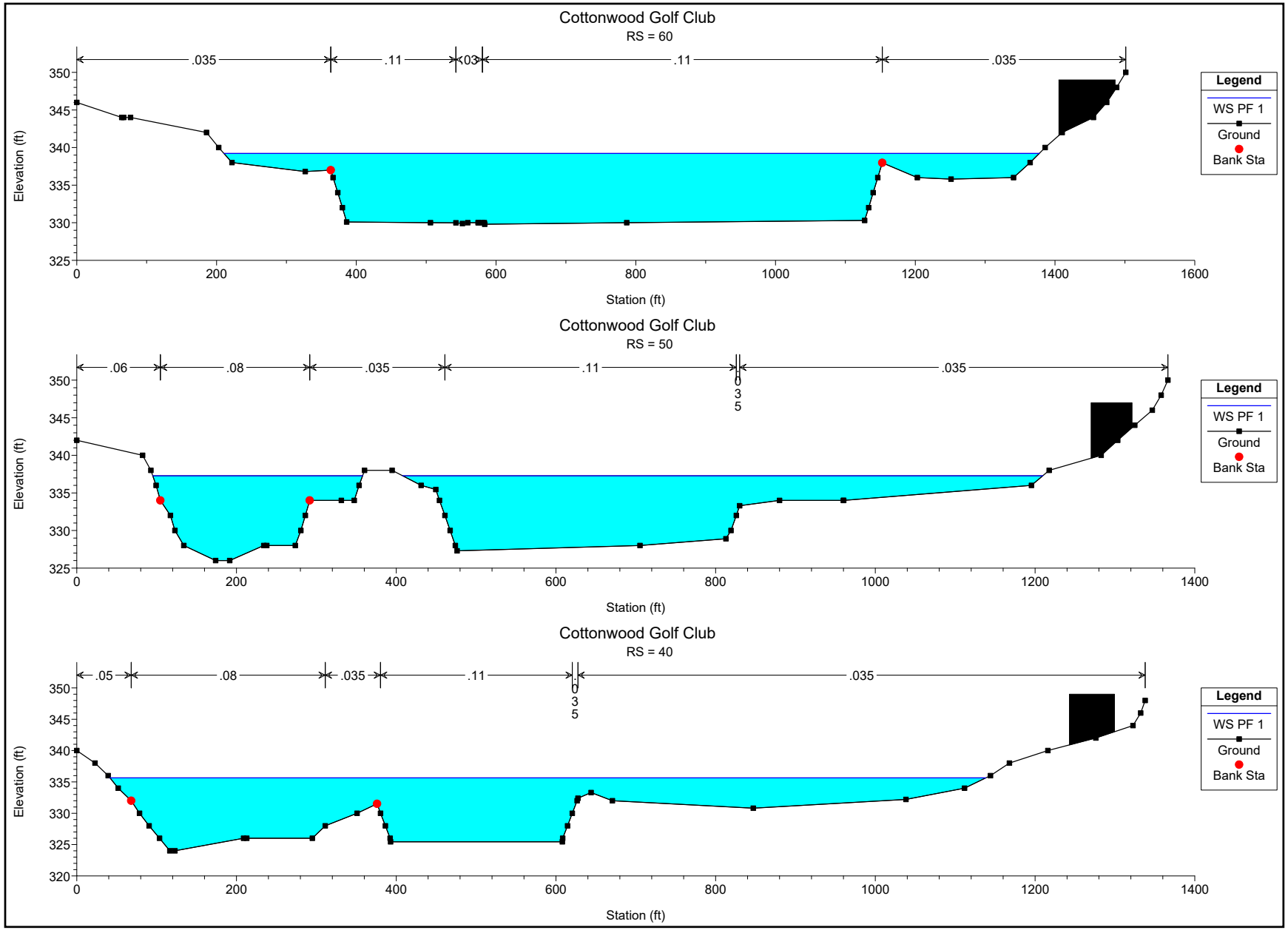

Cottonwood Golf Club
RS = 165 BR
.08
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 160
.08
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 150
.08
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

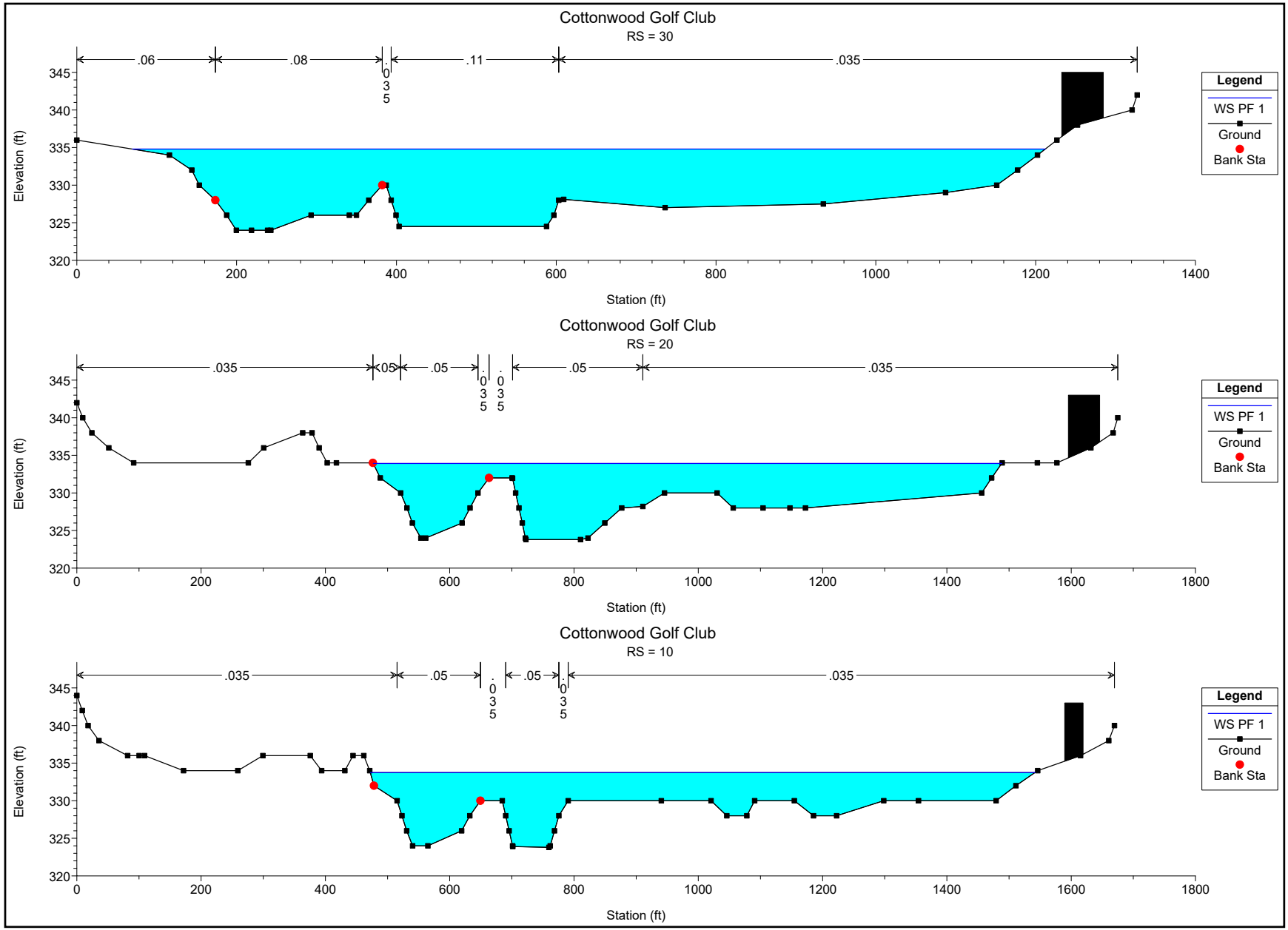

Cottonwood Golf Club
RS = 140
.08
.025
.06
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 130
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 125 MO
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta

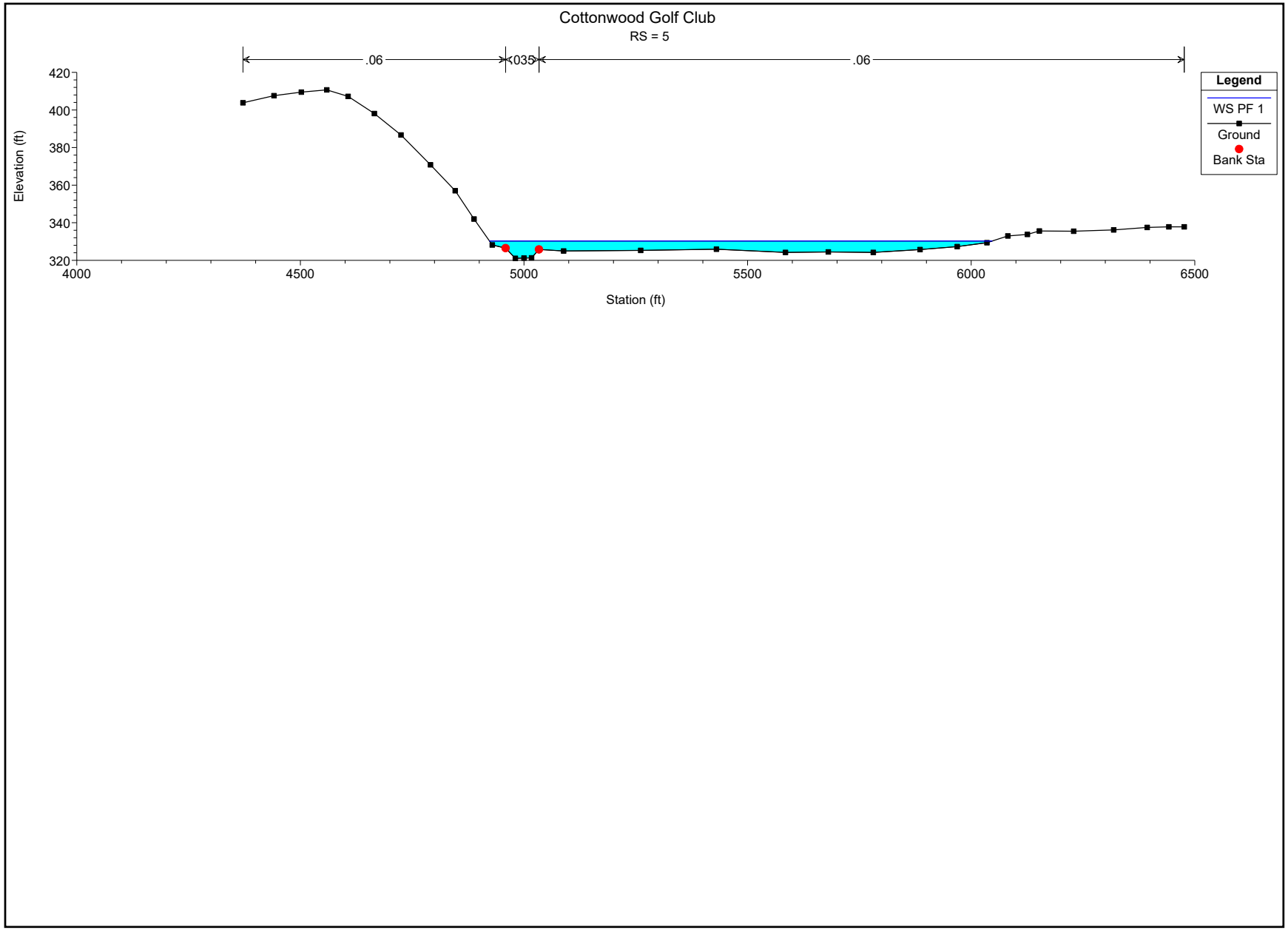
3 - 280


Cottonwood Golf Club
RS = 120
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 110
.035
.025
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 100
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta


Cottonwood Golf Club
RS = 90
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 80
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 70
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta


Cottonwood Golf Club
RS = 60
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 50
.06
.08
.035
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 40
.05
.08
.035
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta


Cottonwood Golf Club
RS = 30
.06
.08
.035
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 20
.035
.05
.05
.035
.05
.035
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 10
.035
.05
.05
.035
.035
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta


Cottonwood Golf Club
RS = 5
.06
.035
.06
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
420
400
380
360
340
320
4000
4500
5000
5500
6000
6500
Station (ft)

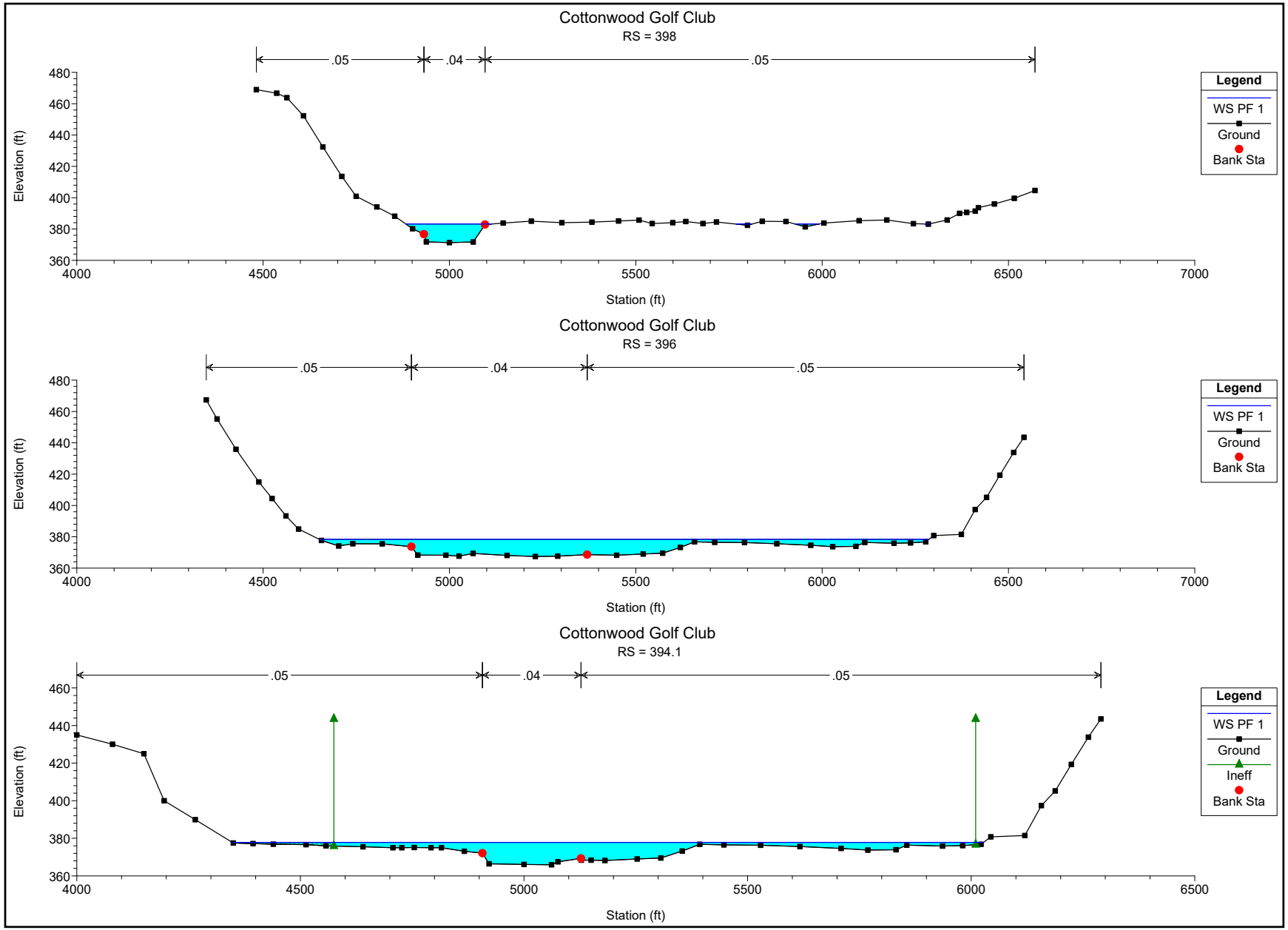
Mining Phase 2

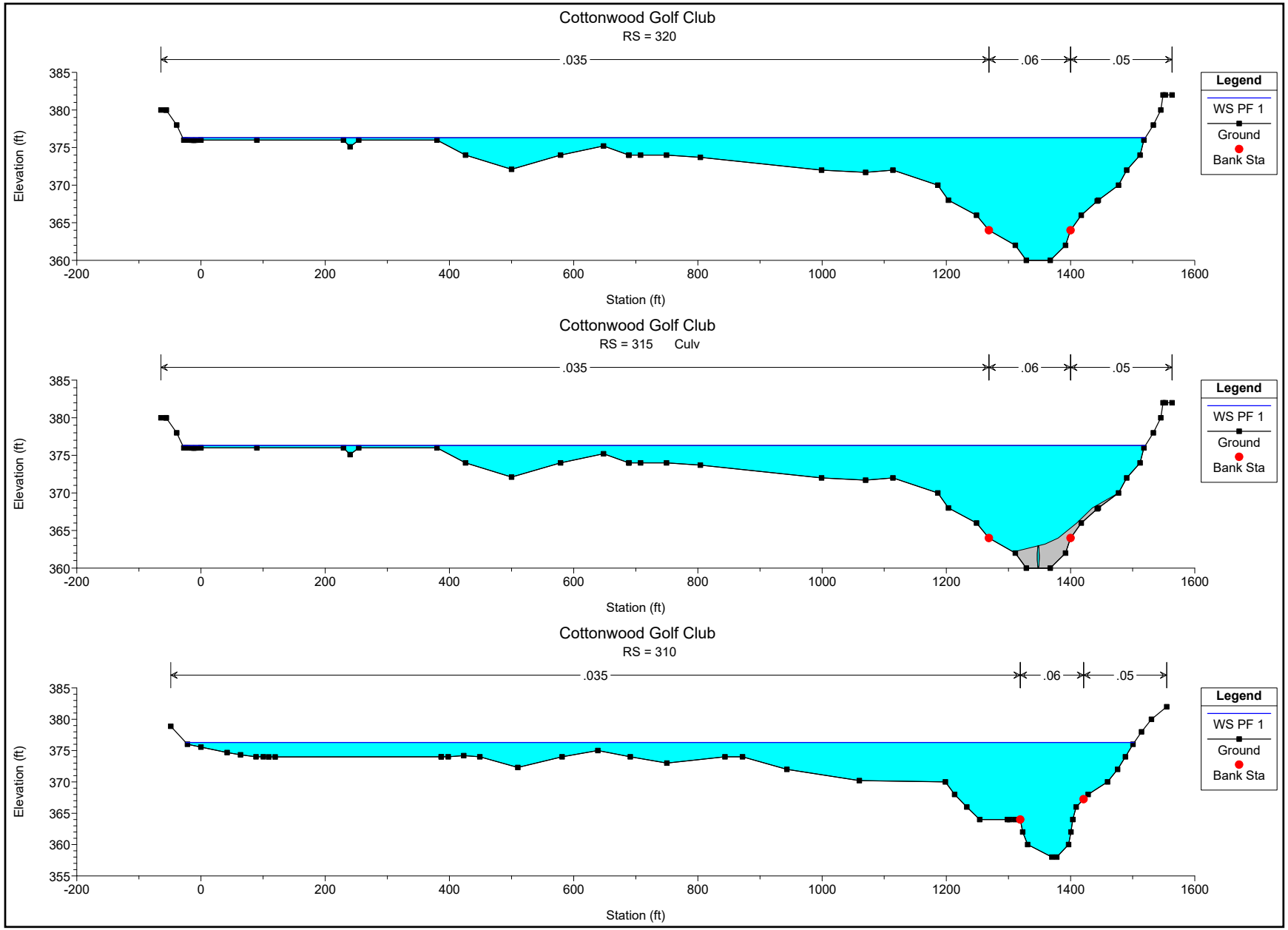
HEC-RAS Plan: PC Phase 2 River: RIVER-1 Reach: Reach-1 Profile: PF 1

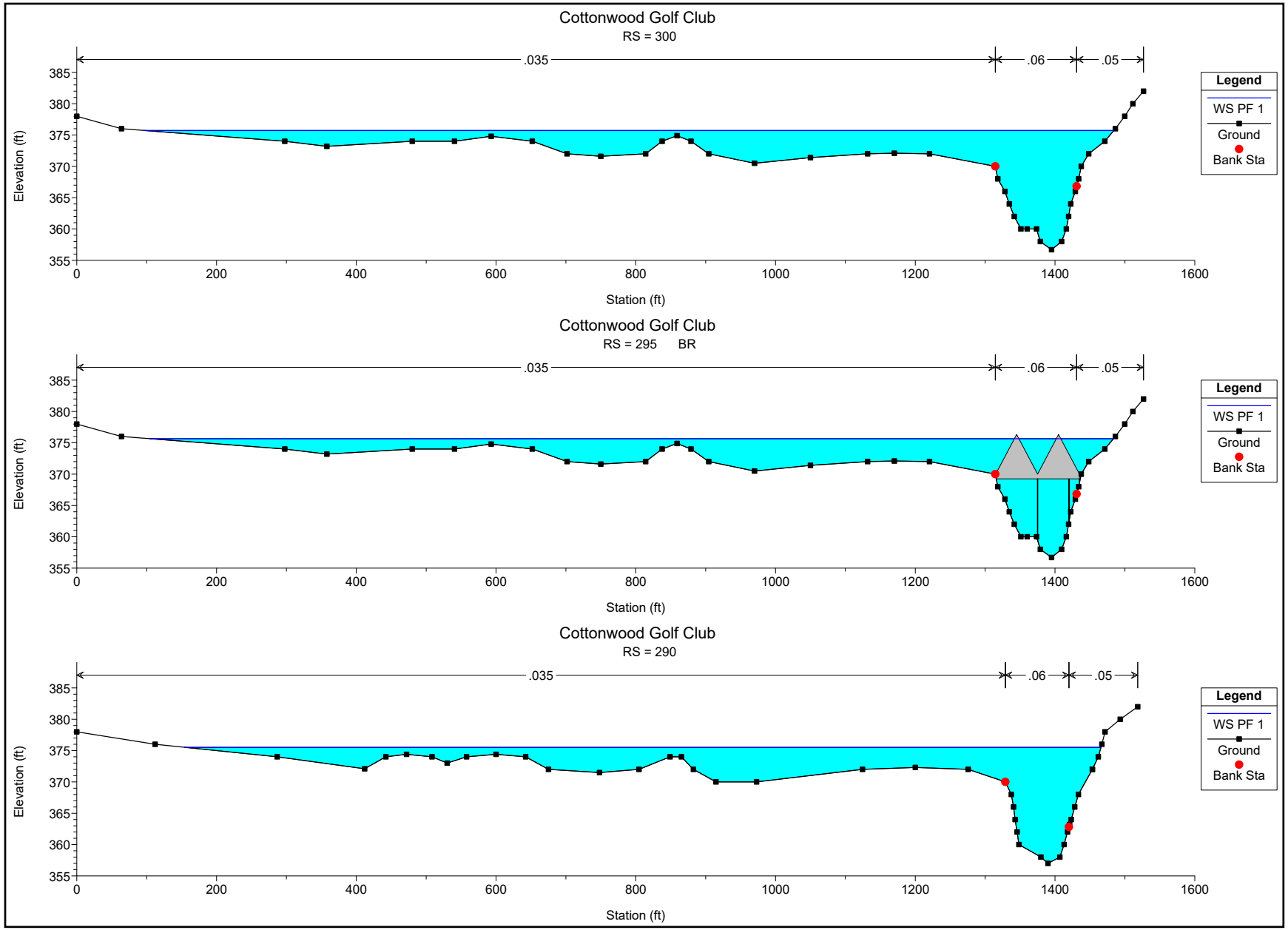
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	398	PF 1	29500.00	371.30	383.17	383.17	387.25	0.008936	16.52	1955.33	346.72	0.90
Reach-1	396	PF 1	29500.00	367.40	378.38		378.59	0.000584	4.20	9721.67	1635.85	0.23
Reach-1	394.1	PF 1	29500.00	365.90	377.81		378.32	0.001542	7.14	6838.40	1679.65	0.38
Reach-1	320	PF 1	29500.00	360.00	376.30	371.89	376.73	0.001952	6.59	6279.88	1549.75	0.30
Reach-1	315		Culvert									
Reach-1	310	PF 1	29500.00	358.00	376.28		376.58	0.001332	5.57	7123.00	1526.89	0.25
Reach-1	300	PF 1	29500.00	356.70	375.73	374.22	376.36	0.003003	7.94	5237.41	1389.15	0.37
Reach-1	295		Bridge									
Reach-1	290	PF 1	29500.00	357.00	375.52		376.15	0.003116	8.26	5088.77	1311.24	0.37
Reach-1	280	PF 1	29500.00	354.60	372.00	372.00	374.39	0.006896	15.00	2918.15	813.73	0.79
Reach-1	270	PF 1	29500.00	351.30	370.66	370.66	372.55	0.002422	13.13	3851.40	1241.65	0.64
Reach-1	260	PF 1	29500.00	349.90	367.90	367.90	369.70	0.002600	12.88	3797.93	1077.01	0.66
Reach-1	250	PF 1	29500.00	347.70	365.45	364.94	366.95	0.001994	11.11	3999.68	969.47	0.58
Reach-1	245		Bridge									
Reach-1	240	PF 1	29500.00	347.70	365.17	364.86	366.84	0.002206	11.59	3803.53	935.87	0.60
Reach-1	230	PF 1	29500.00	346.00	364.37	363.81	366.11	0.002020	11.89	3721.92	994.34	0.59
Reach-1	225		Bridge									
Reach-1	220	PF 1	29500.00	346.00	363.65	363.65	365.71	0.002465	12.78	3291.45	896.21	0.64
Reach-1	210	PF 1	29500.00	345.00	356.97		357.29	0.002732	4.55	6483.13	588.28	0.24
Reach-1	200	PF 1	29500.00	345.00	356.90		357.23	0.002830	4.61	6397.23	578.25	0.24
Reach-1	190	PF 1	29500.00	344.00	355.37		355.81	0.003686	5.27	5619.94	589.24	0.29
Reach-1	180	PF 1	29500.00	343.20	354.12		354.41	0.003137	4.33	6933.46	926.23	0.24
Reach-1	170	PF 1	29500.00	342.10	351.69		352.44	0.007351	7.00	4305.24	580.28	0.43
Reach-1	160	PF 1	29500.00	342.00	351.56	347.86	352.32	0.007737	7.08	4274.74	592.05	0.44
Reach-1	150	PF 1	29500.00	340.40	349.73		349.95	0.003184	3.84	8062.17	1158.98	0.23
Reach-1	140	PF 1	29500.00	338.00	349.44		349.66	0.000343	1.20	11684.50	1320.25	0.07
Reach-1	130	PF 1	29500.00	337.30	348.46	345.10	349.33	0.001372	7.64	4039.56	1122.09	0.46
Reach-1	125		Mult Open									
Reach-1	120	PF 1	29500.00	338.10	346.46	346.46	348.93	0.007768	12.80	2359.51	982.82	1.01
Reach-1	110	PF 1	29500.00	334.00	342.69		342.93	0.001323	3.97	7431.45	1017.85	0.26
Reach-1	100	PF 1	29500.00	332.20	341.94		342.22	0.002151	3.79	7249.99	866.61	0.22
Reach-1	90	PF 1	29500.00	331.00	340.53		340.79	0.002873	4.11	7209.08	1000.04	0.24
Reach-1	80	PF 1	29500.00	331.00	340.45		340.72	0.002908	4.12	7205.16	1036.12	0.24
Reach-1	70	PF 1	29500.00	329.80	339.28		339.50	0.002975	3.76	7799.26	1156.97	0.22
Reach-1	60	PF 1	29500.00	329.80	339.21		339.43	0.003037	3.63	7955.90	1166.75	0.21
Reach-1	50	PF 1	29500.00	326.00	337.28		337.62	0.004460	5.39	6378.49	1064.31	0.31
Reach-1	40	PF 1	29500.00	324.00	335.63		335.91	0.002460	4.55	7081.80	1096.53	0.27
Reach-1	30	PF 1	29500.00	324.00	334.80		335.01	0.001108	2.70	8251.28	1142.26	0.16

HEC-RAS Plan: PC Phase 2 River: RIVER-1 Reach: Reach-1 Profile: PF 1 (Continued)

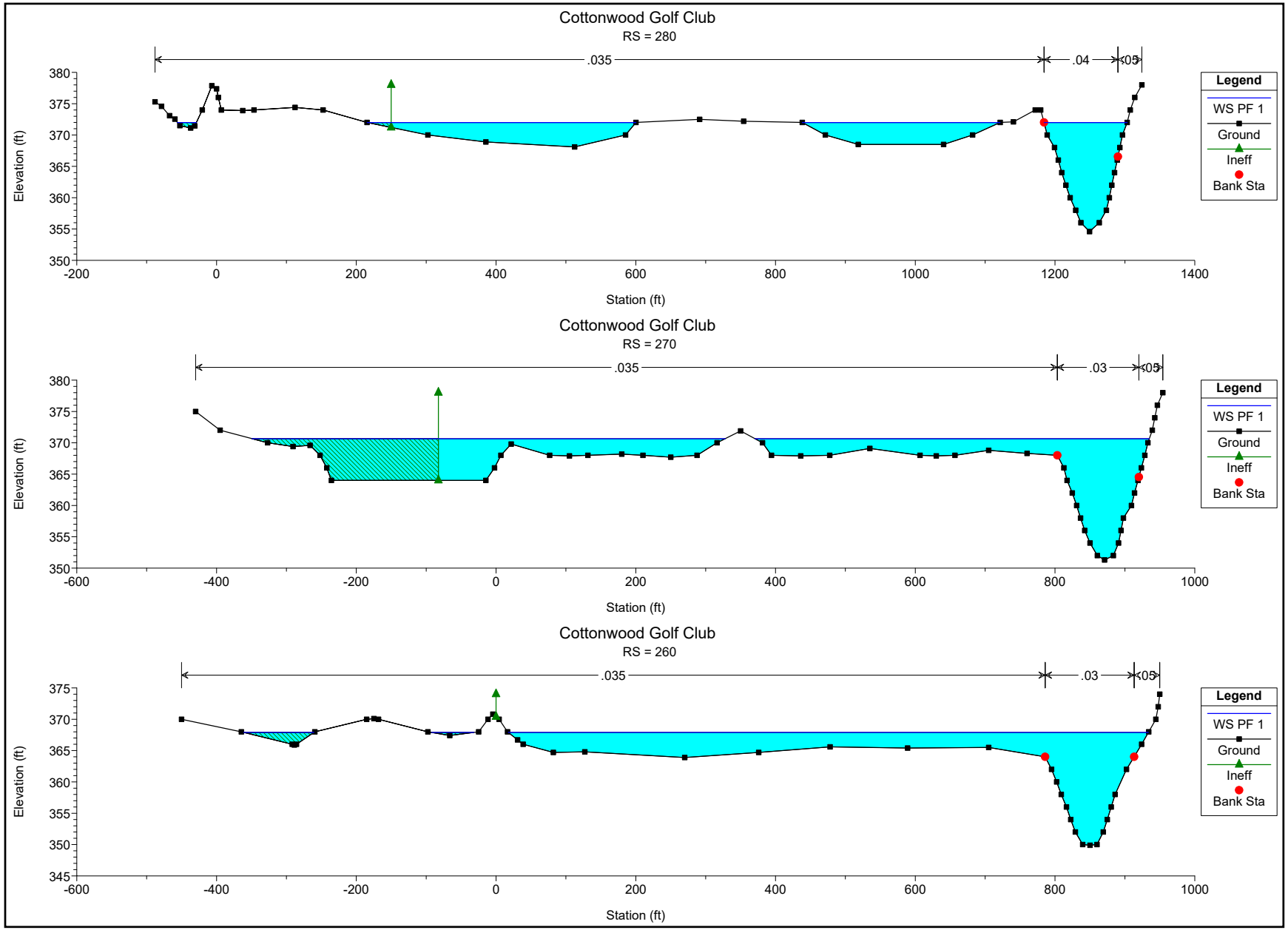
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	20	PF 1	29500.00	324.00	333.91		334.32	0.001881	4.77	5746.74	1011.29	0.34
Reach-1	10	PF 1	29500.00	324.00	333.75		334.26	0.002611	5.83	5166.49	1069.62	0.40
Reach-1	5	PF 1	29500.00	321.10	330.28	328.76	330.93	0.004294	10.82	5598.21	1123.72	0.68

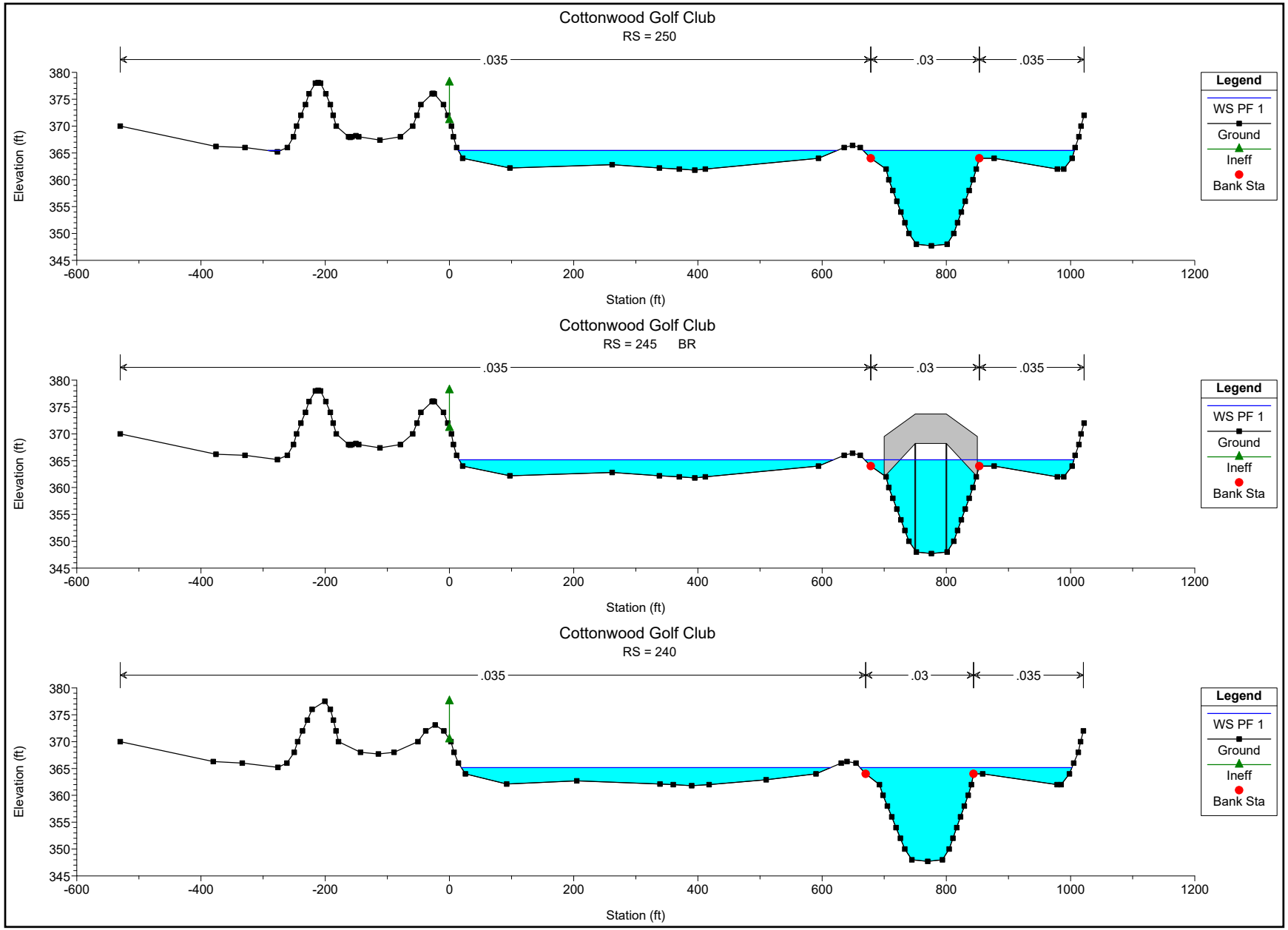

Cottonwood Golf Club
RS = 398
.05
.04
.05
Elevation (ft)
480
460
440
420
400
380
360
4000
4500
5000
5500
6000
6500
7000
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 396
.05
.04
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 394.1
.05
.04
.05
Elevation (ft)
460
440
420
400
380
360
4000
4500
5000
5500
6000
6500
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta

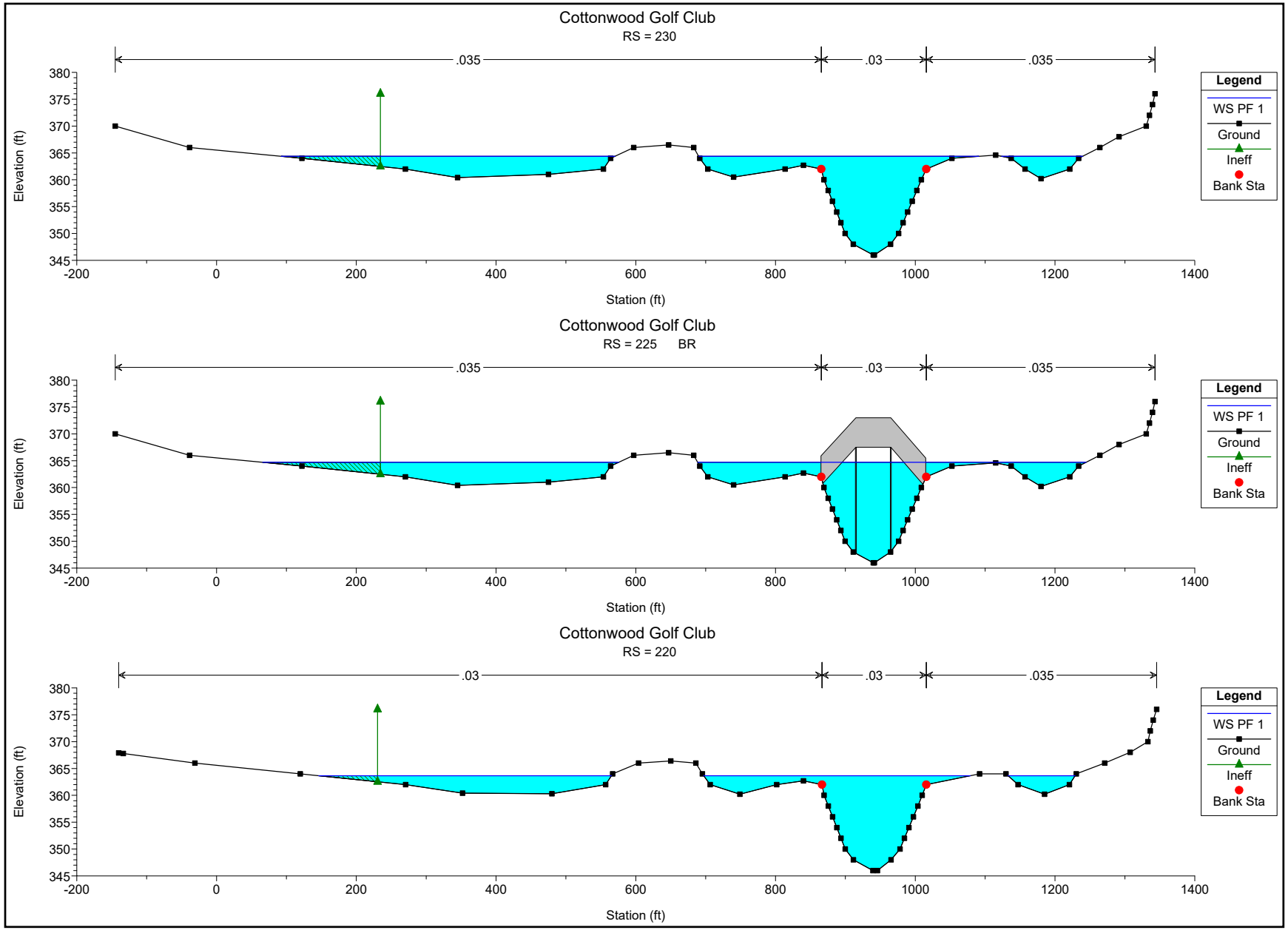

Cottonwood Golf Club
RS = 320
.035
.06
.05
Elevation (ft)
385
380
375
370
365
360
-200
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 315 Culv
.035
.06
.05
Elevation (ft)
385
380
375
370
365
360
-200
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 310
.035
.06
.05
Elevation (ft)
385
380
375
370
365
360
355
-200
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

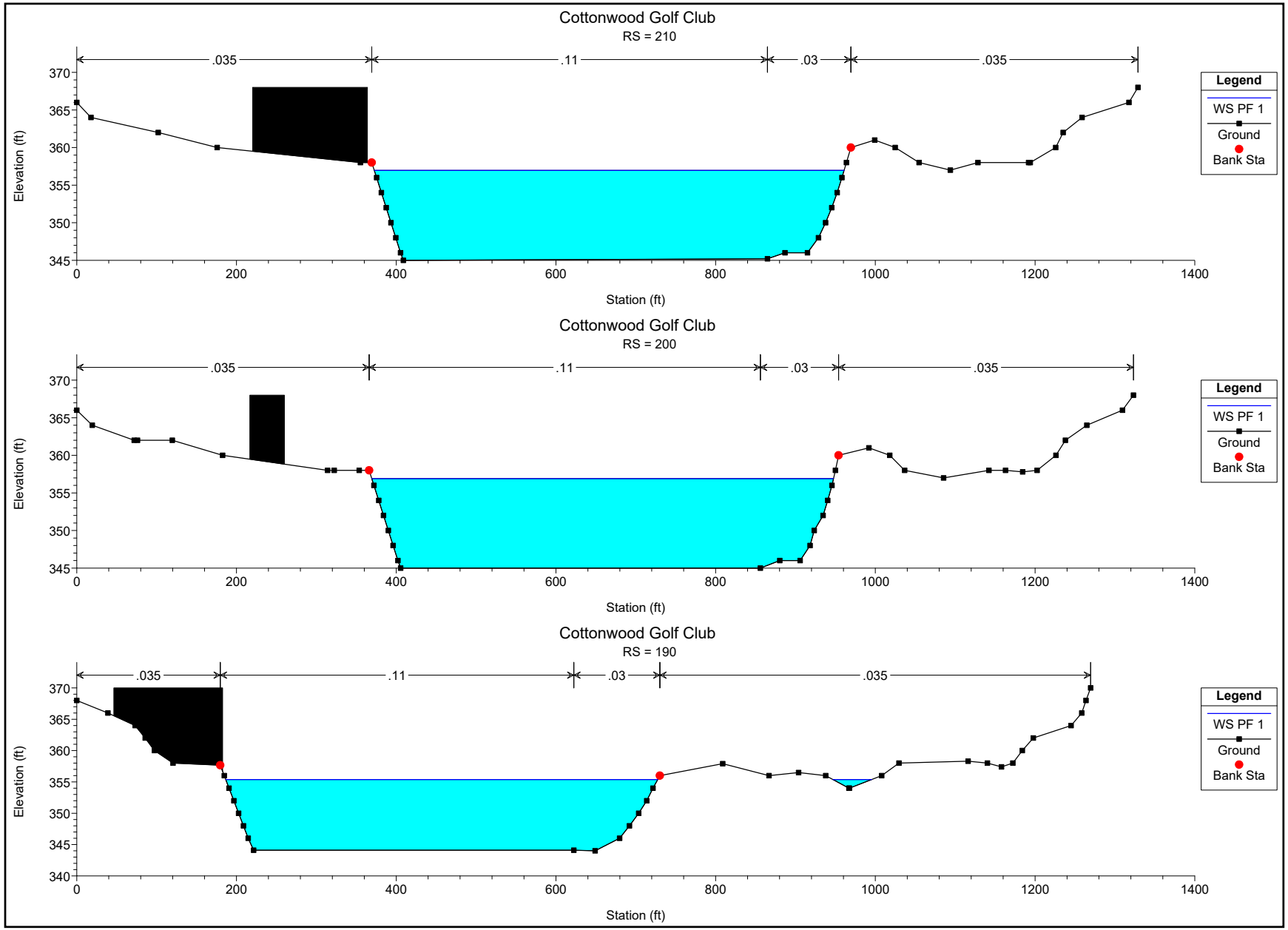

Cottonwood Golf Club
RS = 300
.035
.06
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Cottonwood Golf Club
RS = 295 BR
.035
.06
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Cottonwood Golf Club
RS = 290
.035
.06
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

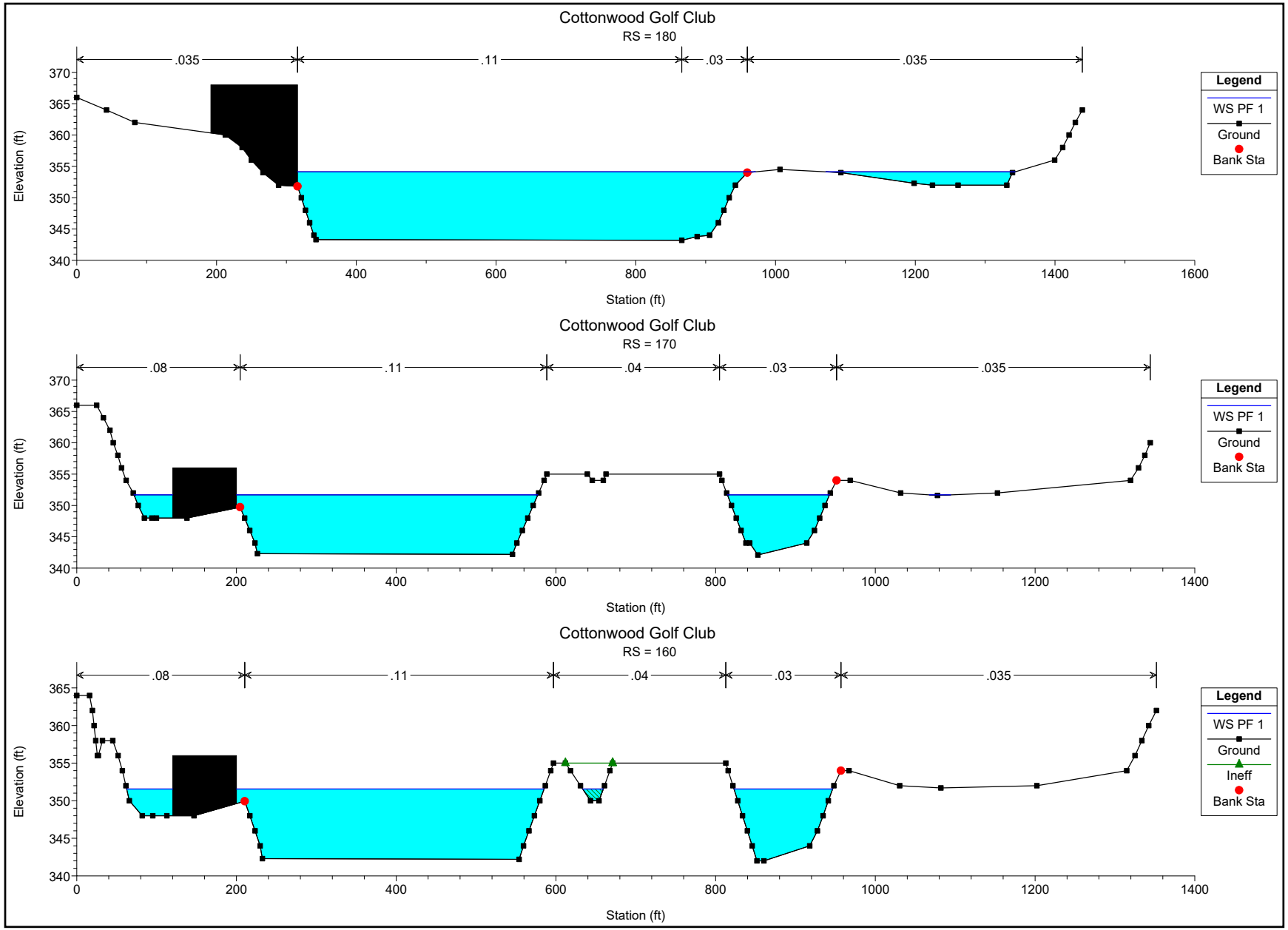
3 - 290

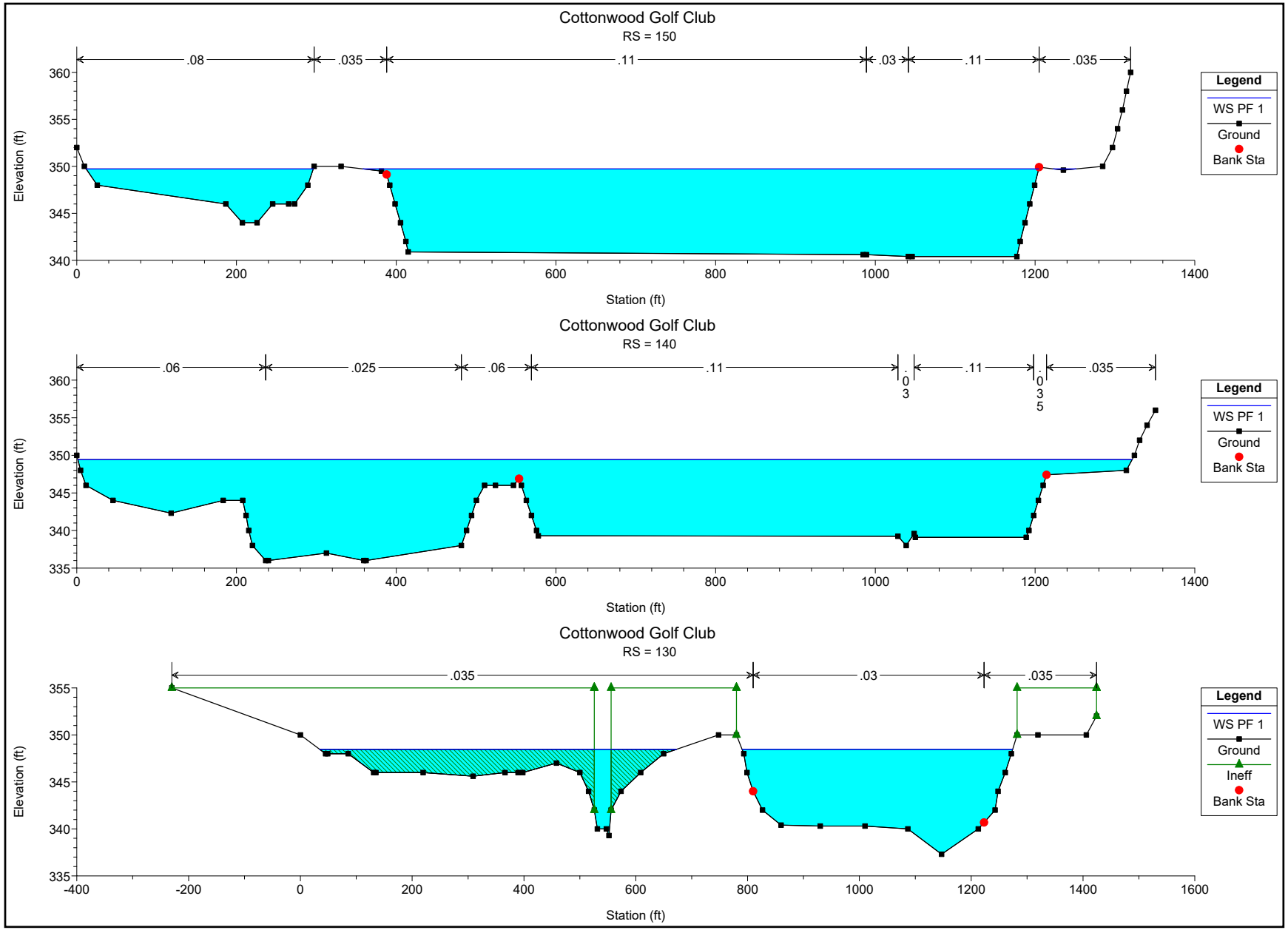

Cottonwood Golf Club
RS = 280
.035
.04
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 270
.035
.03
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 260
.035
.03
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta

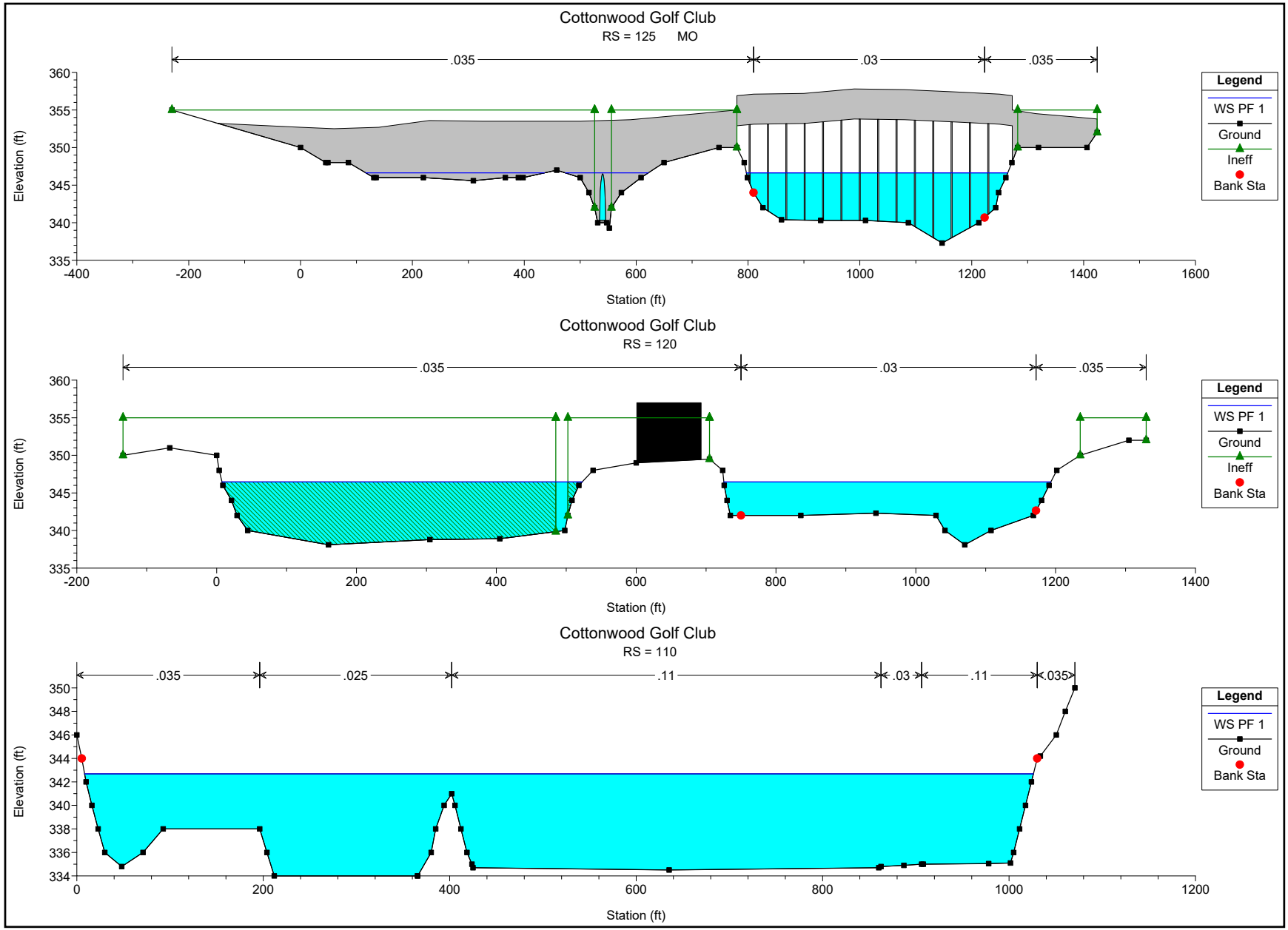

Cottonwood Golf Club
RS = 250
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 245 BR
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 240
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta

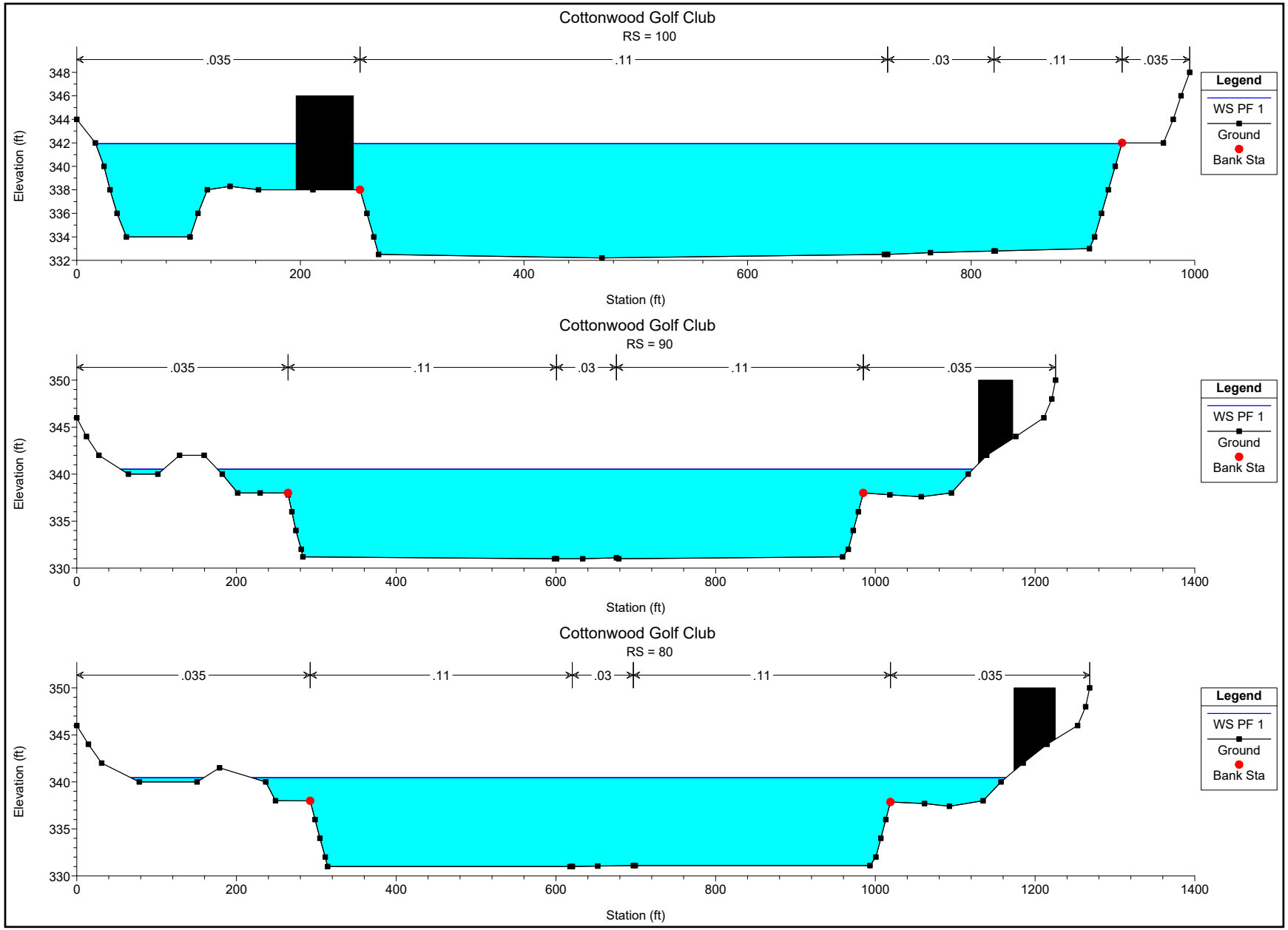

Cottonwood Golf Club
RS = 230
.035
.03
.035
Elevation (ft)
380
375
370
365
360
355
350
345
-200
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 225 BR
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 220
.03
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta


Cottonwood Golf Club
RS = 210
.035
.11
.03
.035
Elevation (ft)
370
365
360
355
350
345
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 200
.035
.11
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 190
.035
.11
.03
.035
Elevation (ft)
370
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

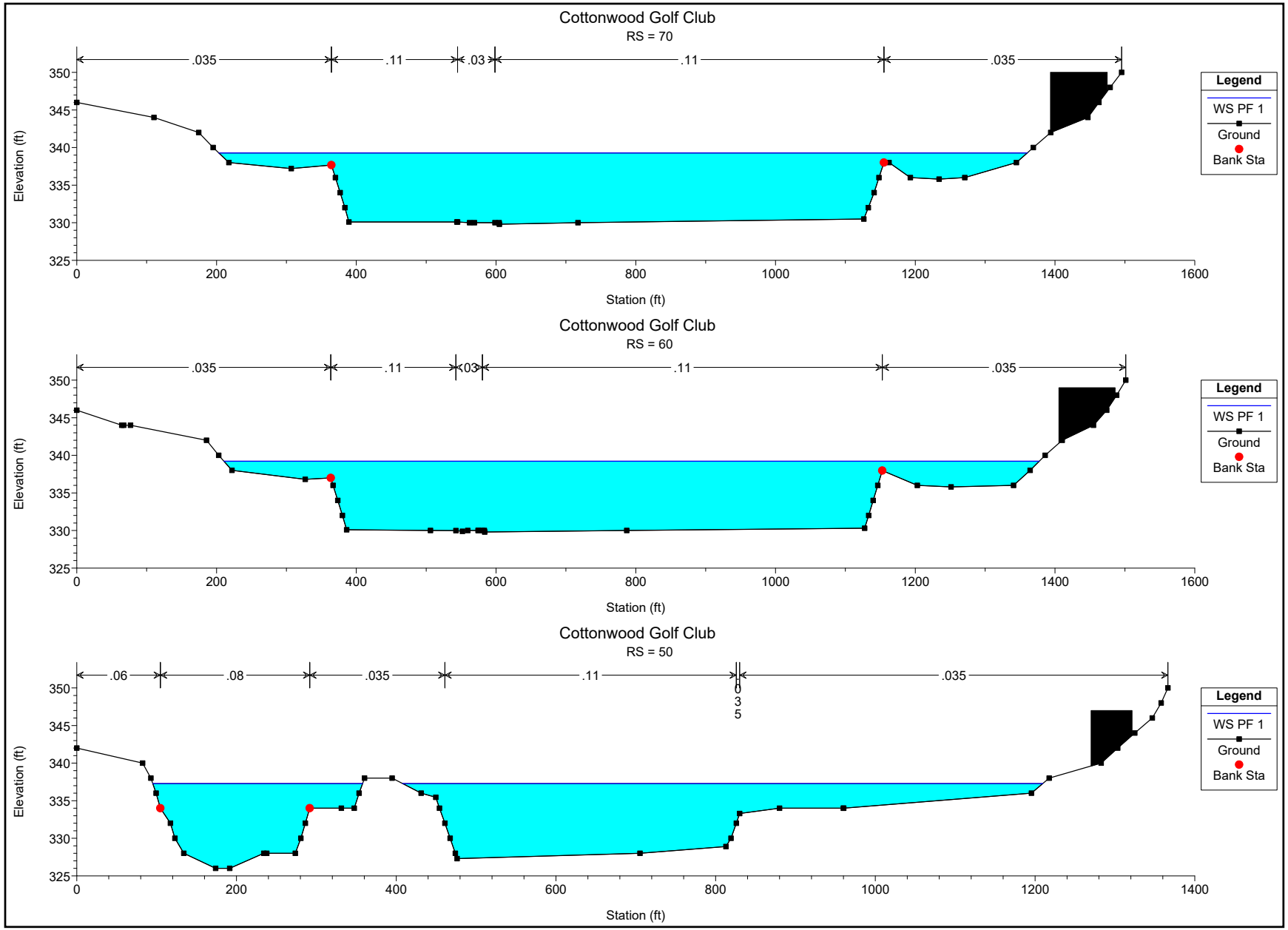

Cottonwood Golf Club
RS = 180
.035
.11
.03
.035
Elevation (ft)
370
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 170
.08
.11
.04
.03
.035
Elevation (ft)
370
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 160
.08
.11
.04
.03
.035
Elevation (ft)
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta

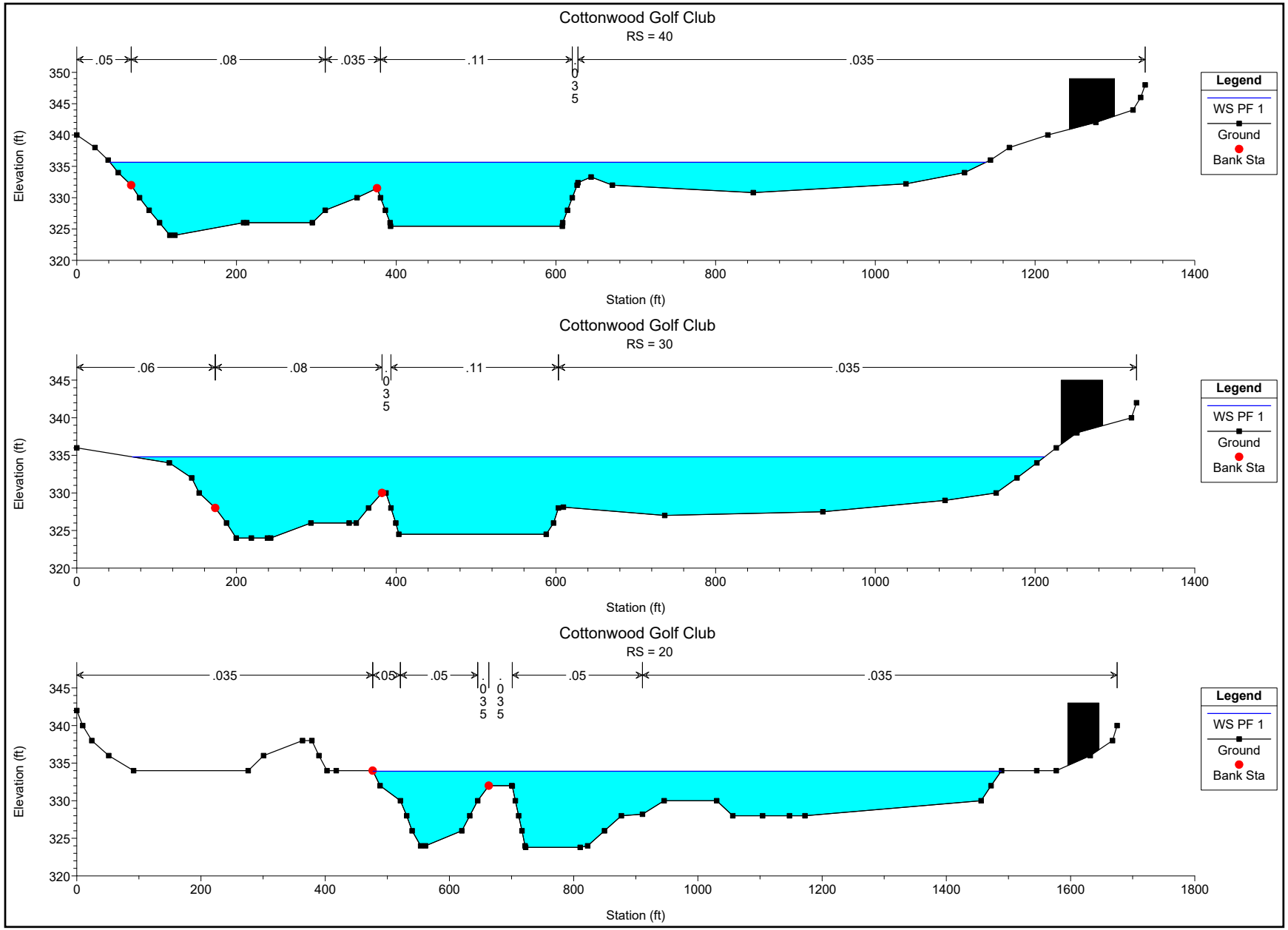

Cottonwood Golf Club
RS = 150
.08
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 140
.06
.025
.06
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 130
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta


Cottonwood Golf Club
RS = 125 MO
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 120
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 110
.035
.025
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

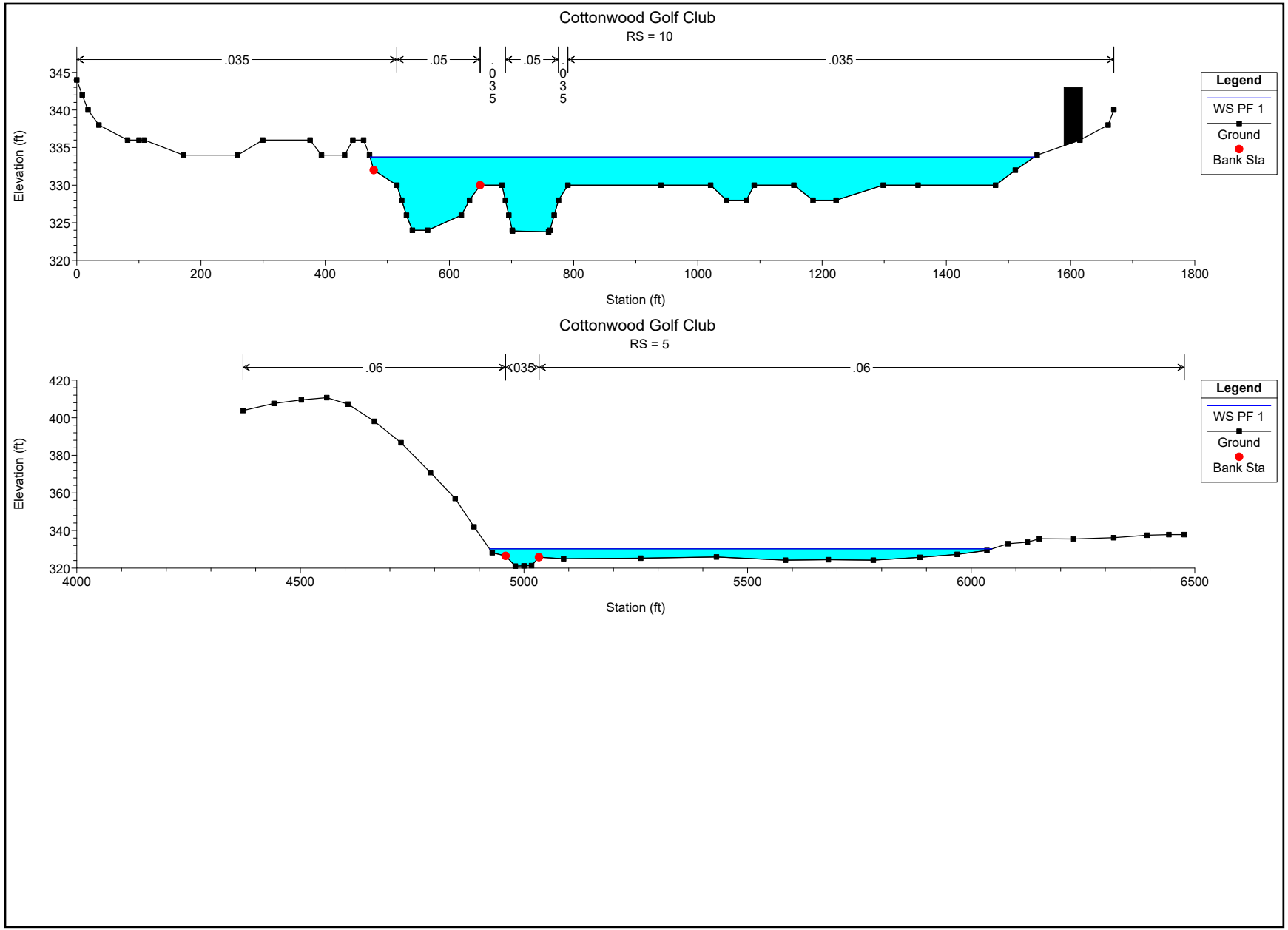

Cottonwood Golf Club
RS = 100
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 90
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 80
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

3 - 298


Cottonwood Golf Club
RS = 70
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 60
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 50
.06
.08
.035
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta


Cottonwood Golf Club
RS = 40
.05
.08
.035
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 30
.06
.08
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 20
.035
.05
.05
.05
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

3 - 300


Cottonwood Golf Club
RS = 10
.035
.05
.035
.05
.035
Elevation (ft)
345
340
335
330
325
320
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 5
.06
.035
.06
Elevation (ft)
420
400
380
360
340
320
4000
4500
5000
5500
6000
6500
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

Mining Phase 3

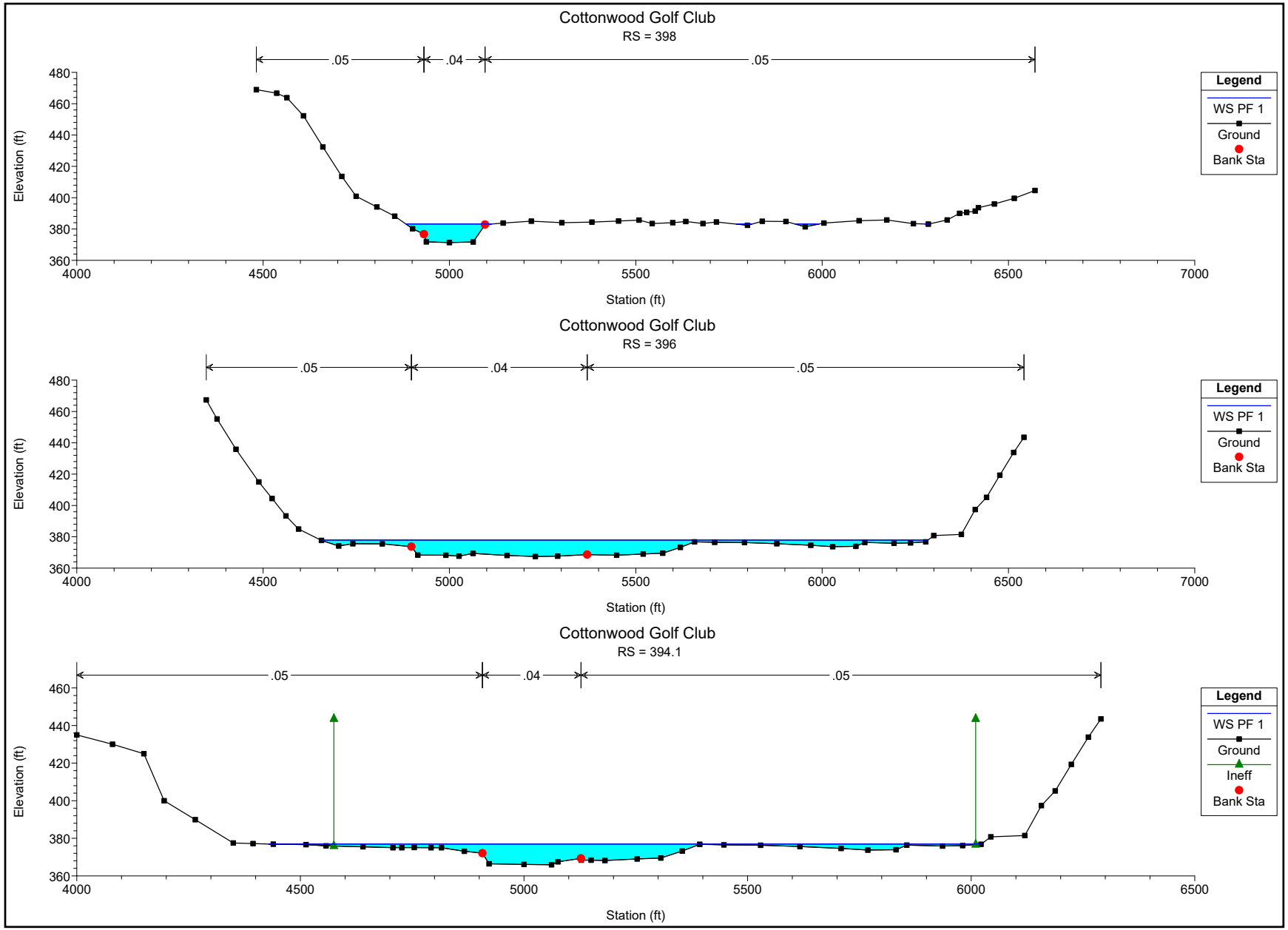
HEC-RAS Plan: PC Phase 3 River: RIVER-1 Reach: Reach-1 Profile: PF 1

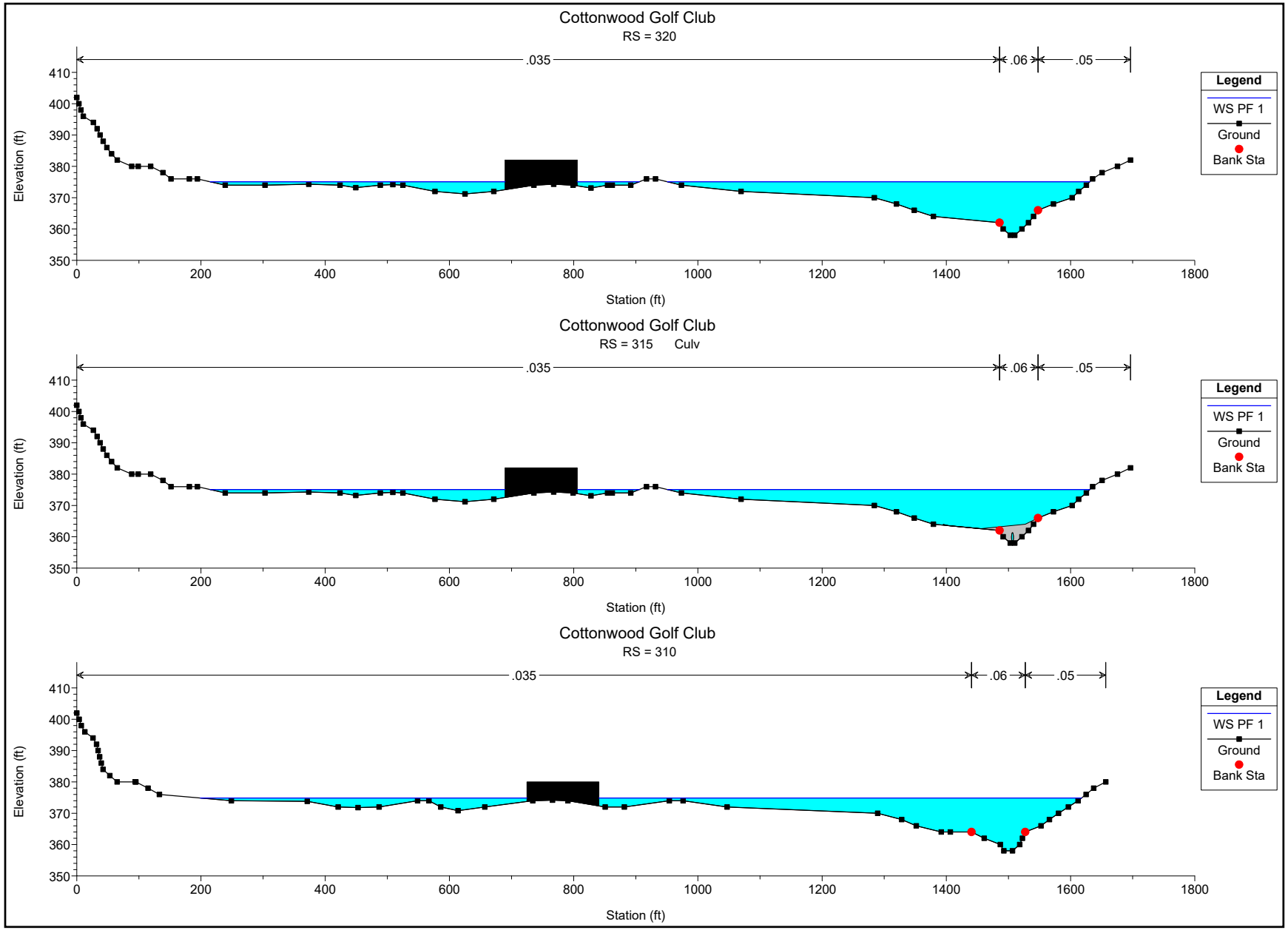
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	398	PF 1	29500.00	371.30	383.17	383.17	387.25	0.008936	16.52	1955.33	346.72	0.90
Reach-1	396	PF 1	29500.00	367.40	377.94		378.18	0.000724	4.54	8995.08	1629.67	0.26
Reach-1	394.1	PF 1	29500.00	365.90	376.97		377.78	0.002528	8.67	5635.37	1593.94	0.48
Reach-1	320	PF 1	29500.00	358.00	375.09	372.02	375.56	0.001994	6.47	5433.80	1255.25	0.30
Reach-1	315		Culvert									
Reach-1	310	PF 1	29500.00	358.00	374.86		375.36	0.002439	7.08	5417.09	1302.76	0.33
Reach-1	300	PF 1	29500.00	356.00	374.07	373.56	374.98	0.005361	9.41	4263.89	1238.66	0.47
Reach-1	295		Bridge									
Reach-1	290	PF 1	29500.00	356.00	373.18	373.18	374.44	0.006936	11.12	3758.37	1181.64	0.54
Reach-1	280	PF 1	29500.00	352.90	362.75		363.02	0.004761	4.19	7039.47	744.78	0.24
Reach-1	270	PF 1	29500.00	350.00	361.11		361.36	0.004000	3.99	7424.62	832.86	0.22
Reach-1	260	PF 1	29500.00	348.00	359.20		359.45	0.003794	4.01	7348.81	717.24	0.22
Reach-1	250	PF 1	29500.00	347.00	357.17		357.44	0.003283	4.18	7060.01	727.77	0.24
Reach-1	240	PF 1	29500.00	346.00	357.14		357.39	0.002917	4.02	7346.61	727.35	0.22
Reach-1	230	PF 1	29500.00	346.00	356.19		356.41	0.002637	3.74	7890.29	822.17	0.21
Reach-1	220	PF 1	29500.00	346.00	356.15		356.37	0.002616	3.71	7948.61	827.26	0.21
Reach-1	210	PF 1	29500.00	345.00	354.94		355.10	0.002289	3.27	9029.17	945.77	0.19
Reach-1	200	PF 1	29500.00	344.90	354.90		355.06	0.002211	3.23	9119.39	947.31	0.18
Reach-1	190	PF 1	29500.00	344.00	353.92		354.08	0.002214	3.22	9166.21	962.53	0.18
Reach-1	180	PF 1	29500.00	343.00	353.11		353.25	0.001947	2.95	9990.12	1030.26	0.17
Reach-1	170	PF 1	29500.00	341.90	351.66		351.93	0.005605	4.26	6984.19	836.42	0.25
Reach-1	160	PF 1	29500.00	341.10	351.58	345.90	351.85	0.005264	4.19	7114.03	870.56	0.25
Reach-1	150	PF 1	29500.00	340.40	349.73		349.95	0.003184	3.84	8062.17	1158.98	0.23
Reach-1	140	PF 1	29500.00	338.00	349.44		349.66	0.000343	1.20	11684.50	1320.25	0.07
Reach-1	130	PF 1	29500.00	337.30	348.46	345.10	349.33	0.001372	7.64	4039.56	1122.09	0.46
Reach-1	125		Mult Open									
Reach-1	120	PF 1	29500.00	338.10	346.46	346.46	348.93	0.007768	12.80	2359.51	982.82	1.01
Reach-1	110	PF 1	29500.00	334.00	342.69		342.93	0.001323	3.97	7431.45	1017.85	0.26
Reach-1	100	PF 1	29500.00	332.20	341.94		342.22	0.002151	3.79	7249.99	866.61	0.22
Reach-1	90	PF 1	29500.00	331.00	340.53		340.79	0.002873	4.11	7209.08	1000.04	0.24
Reach-1	80	PF 1	29500.00	331.00	340.45		340.72	0.002908	4.12	7205.16	1036.12	0.24
Reach-1	70	PF 1	29500.00	329.80	339.28		339.50	0.002975	3.76	7799.26	1156.97	0.22
Reach-1	60	PF 1	29500.00	329.80	339.21		339.43	0.003037	3.63	7955.90	1166.75	0.21
Reach-1	50	PF 1	29500.00	326.00	337.28		337.62	0.004460	5.39	6378.49	1064.31	0.31
Reach-1	40	PF 1	29500.00	324.00	335.63		335.91	0.002460	4.55	7081.80	1096.53	0.27
Reach-1	30	PF 1	29500.00	324.00	334.80		335.01	0.001108	2.70	8251.28	1142.26	0.16
Reach-1	20	PF 1	29500.00	324.00	333.91		334.32	0.001881	4.77	5746.74	1011.29	0.34
Reach-1	10	PF 1	29500.00	324.00	333.75		334.26	0.002611	5.83	5166.49	1069.62	0.40

HEC-RAS Plan: PC Phase 3 River: RIVER-1 Reach: Reach-1 Profile: PF 1 (Continued)

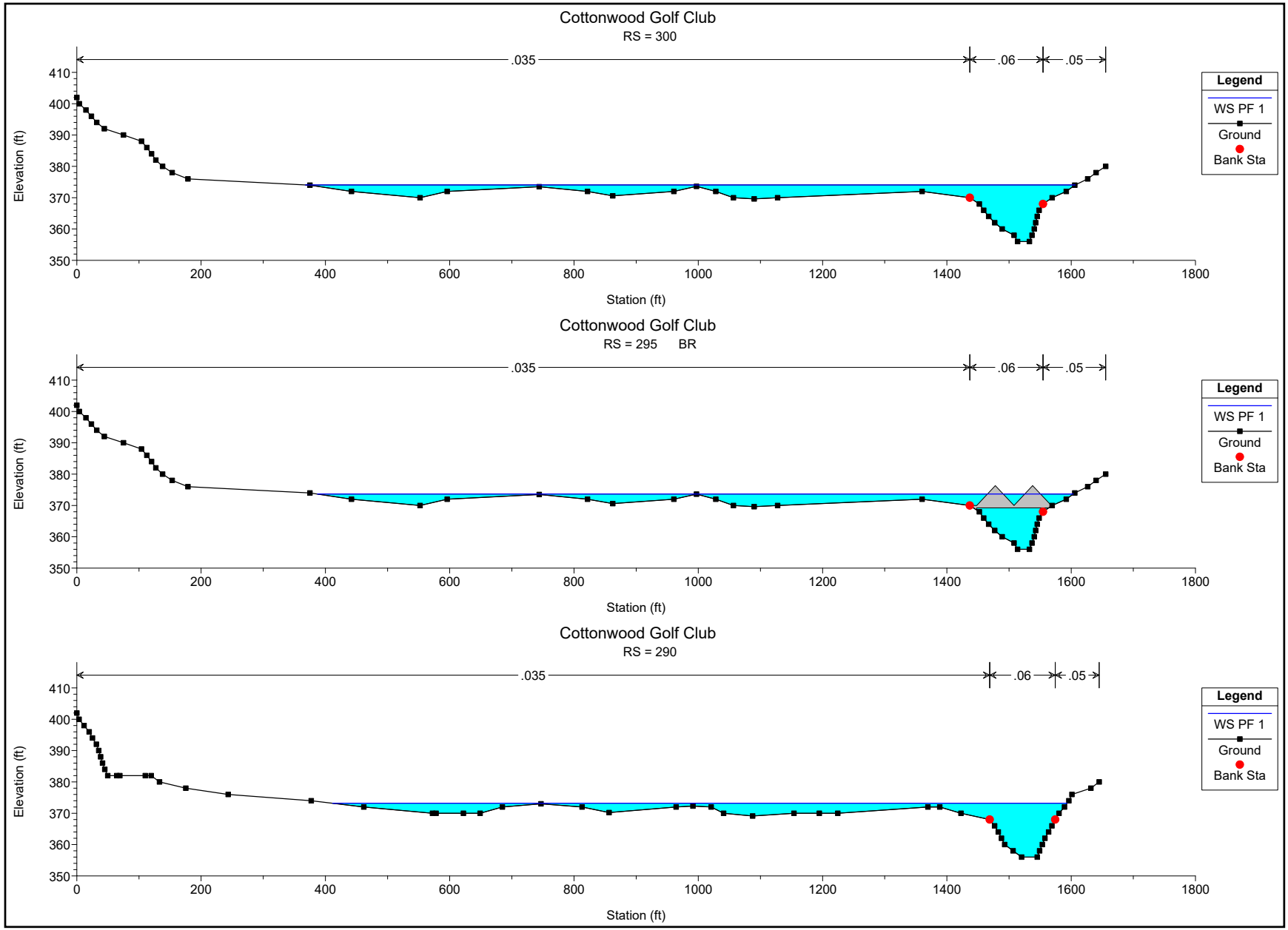
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	5	PF 1	29500.00	321.10	330.28	328.76	330.93	0.004294	10.82	5598.21	1123.72	0.68

3 - 303

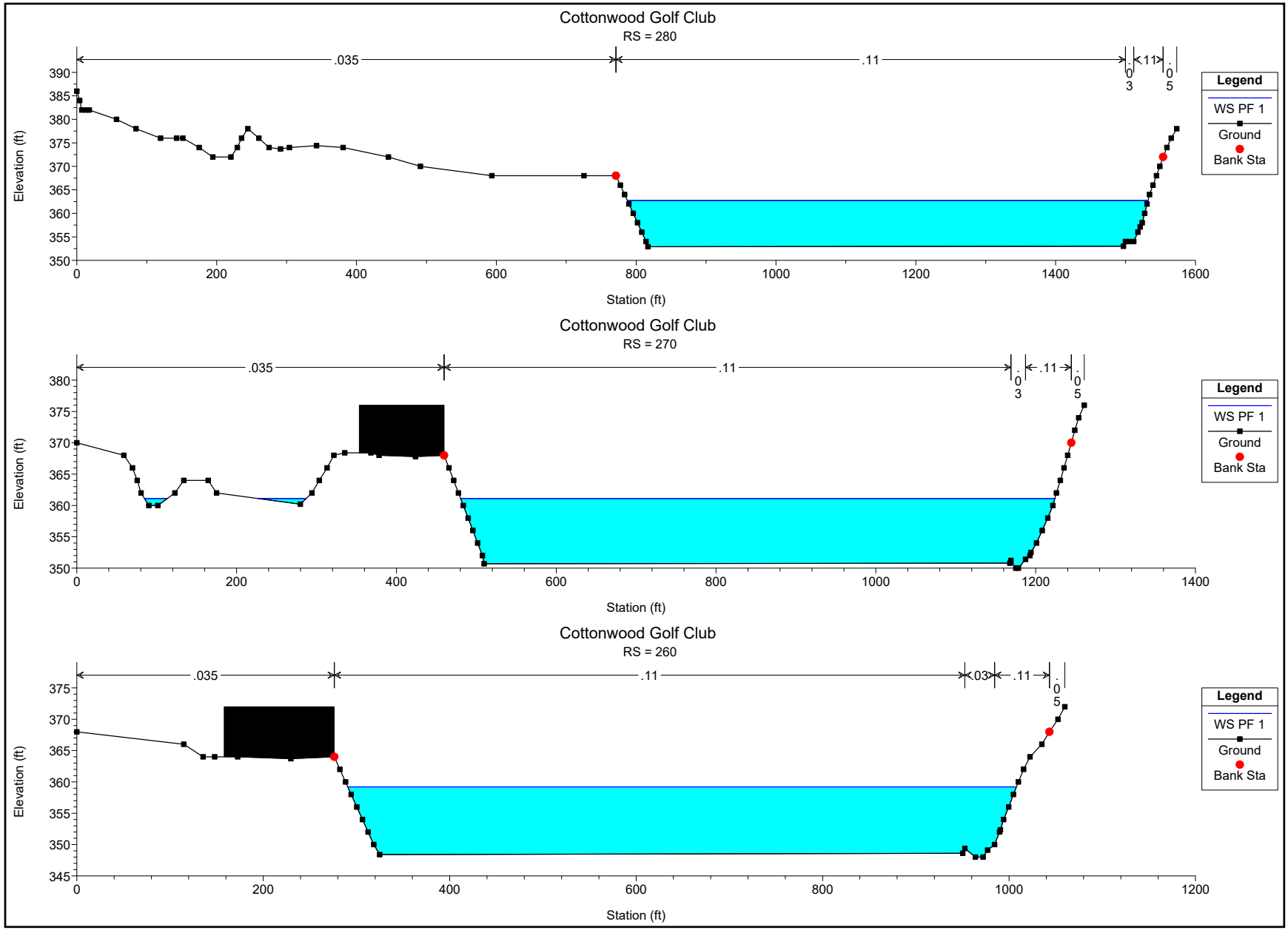

Cottonwood Golf Club
RS = 398
.05
.04
.05
Elevation (ft)
480
460
440
420
400
380
360
4000
4500
5000
5500
6000
6500
7000
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 396
.05
.04
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 394.1
.05
.04
.05
Elevation (ft)
460
440
420
400
380
360
4000
4500
5000
5500
6000
6500
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta

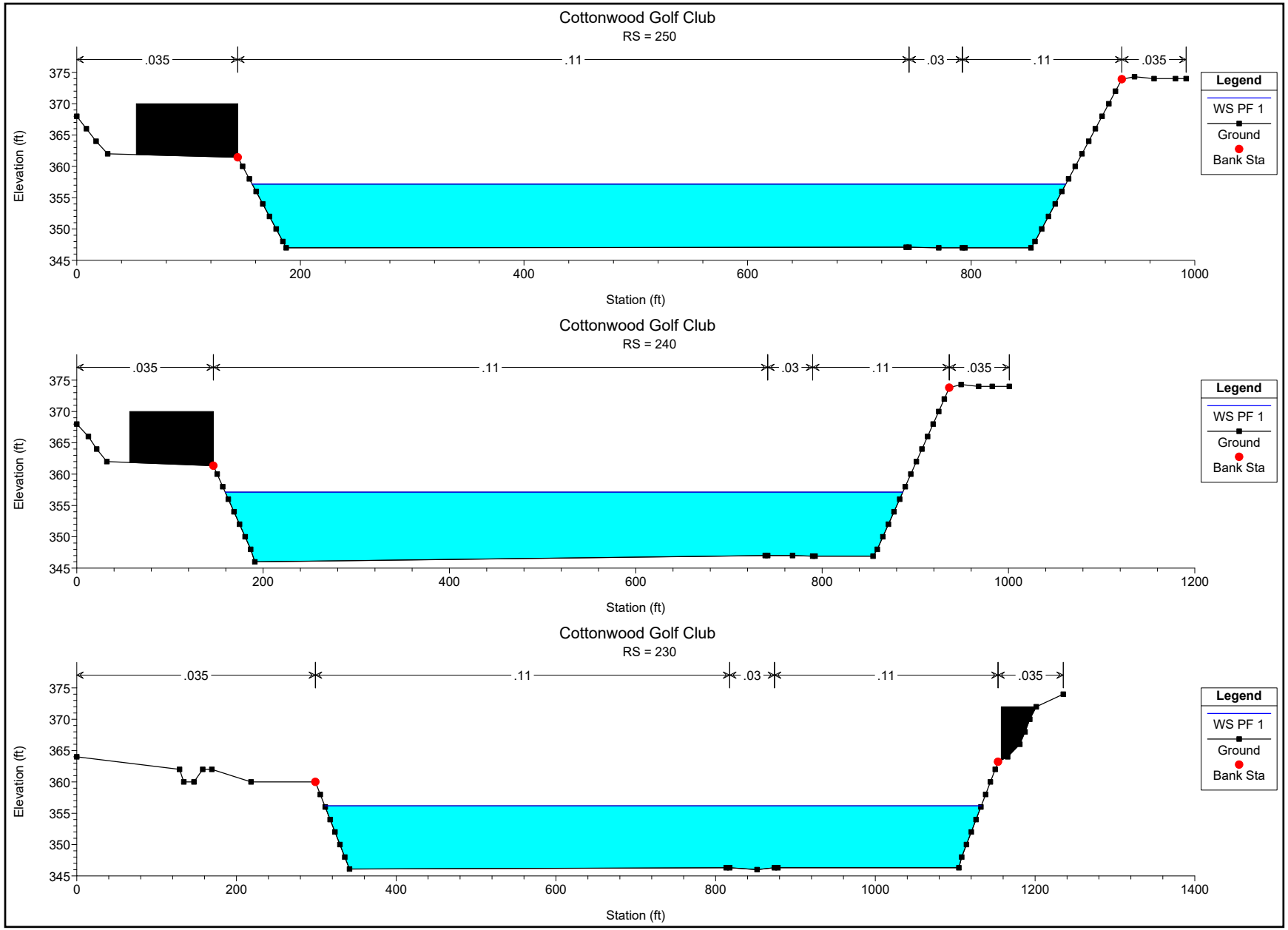

Cottonwood Golf Club
RS = 320
.035
.06
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 315 Culv
.035
.06
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 310
.035
.06
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

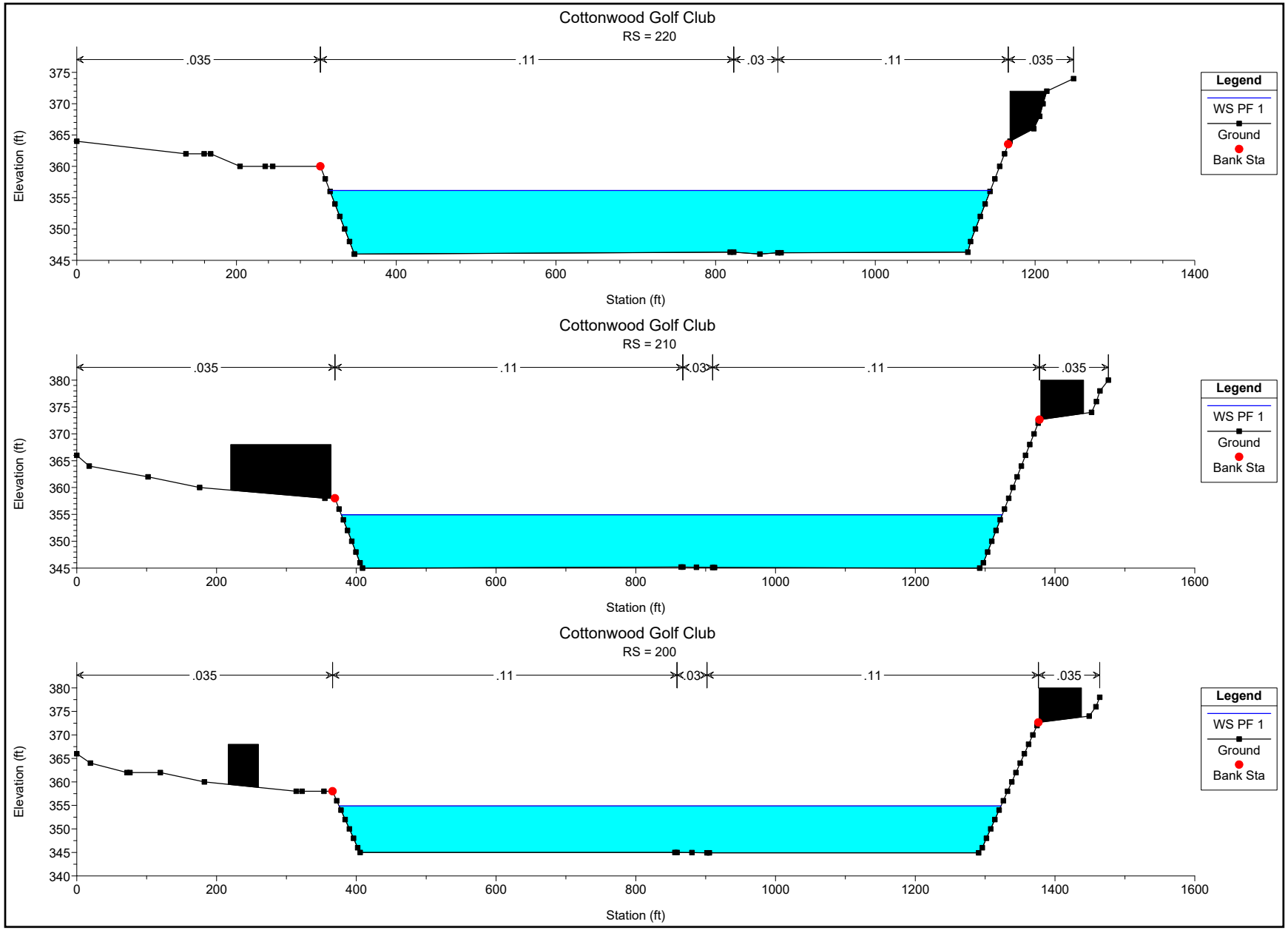
3 - 305


Cottonwood Golf Club
RS = 300
.035
.06
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 295 BR
.035
.06
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 290
.035
.06
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

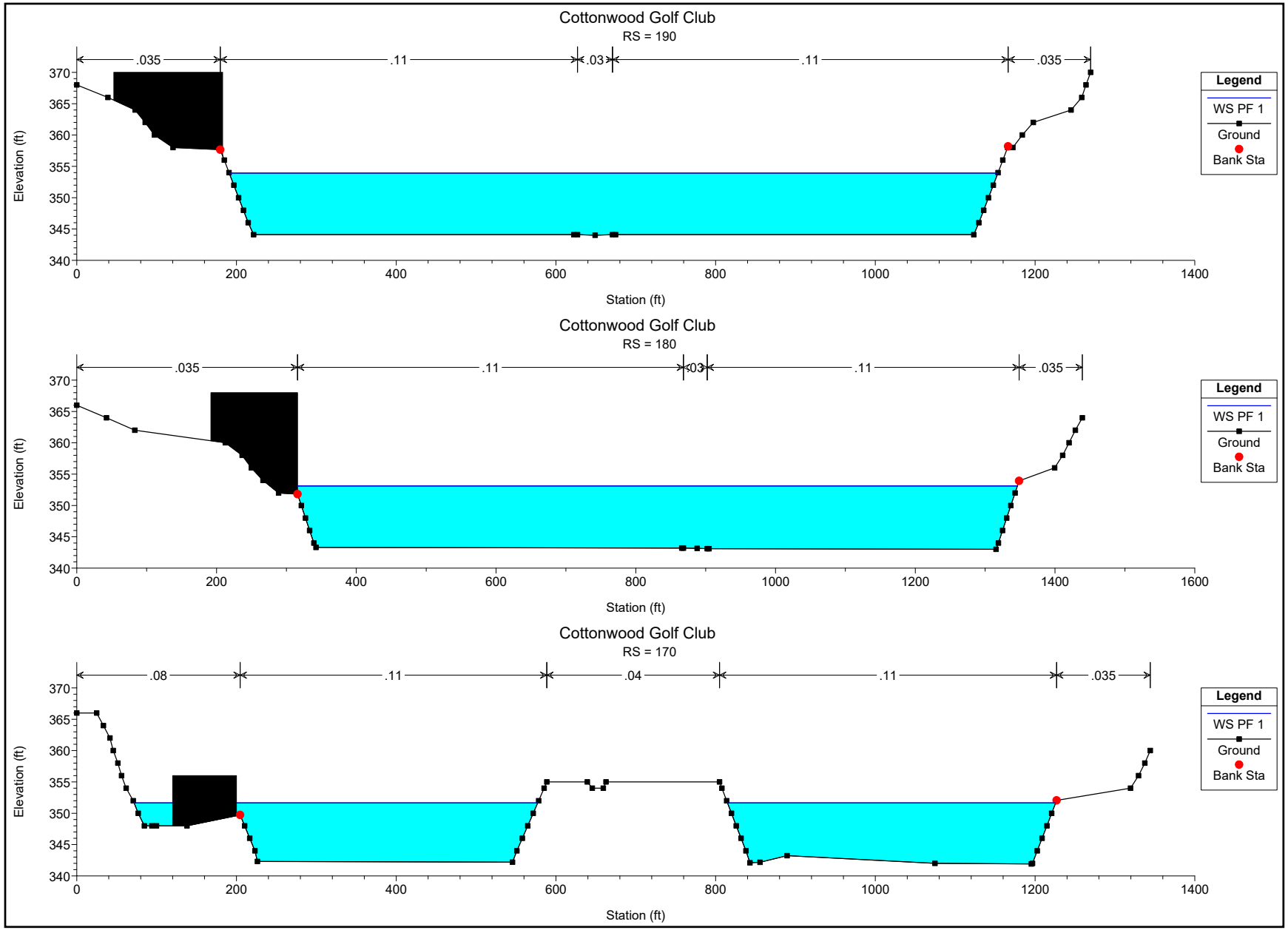
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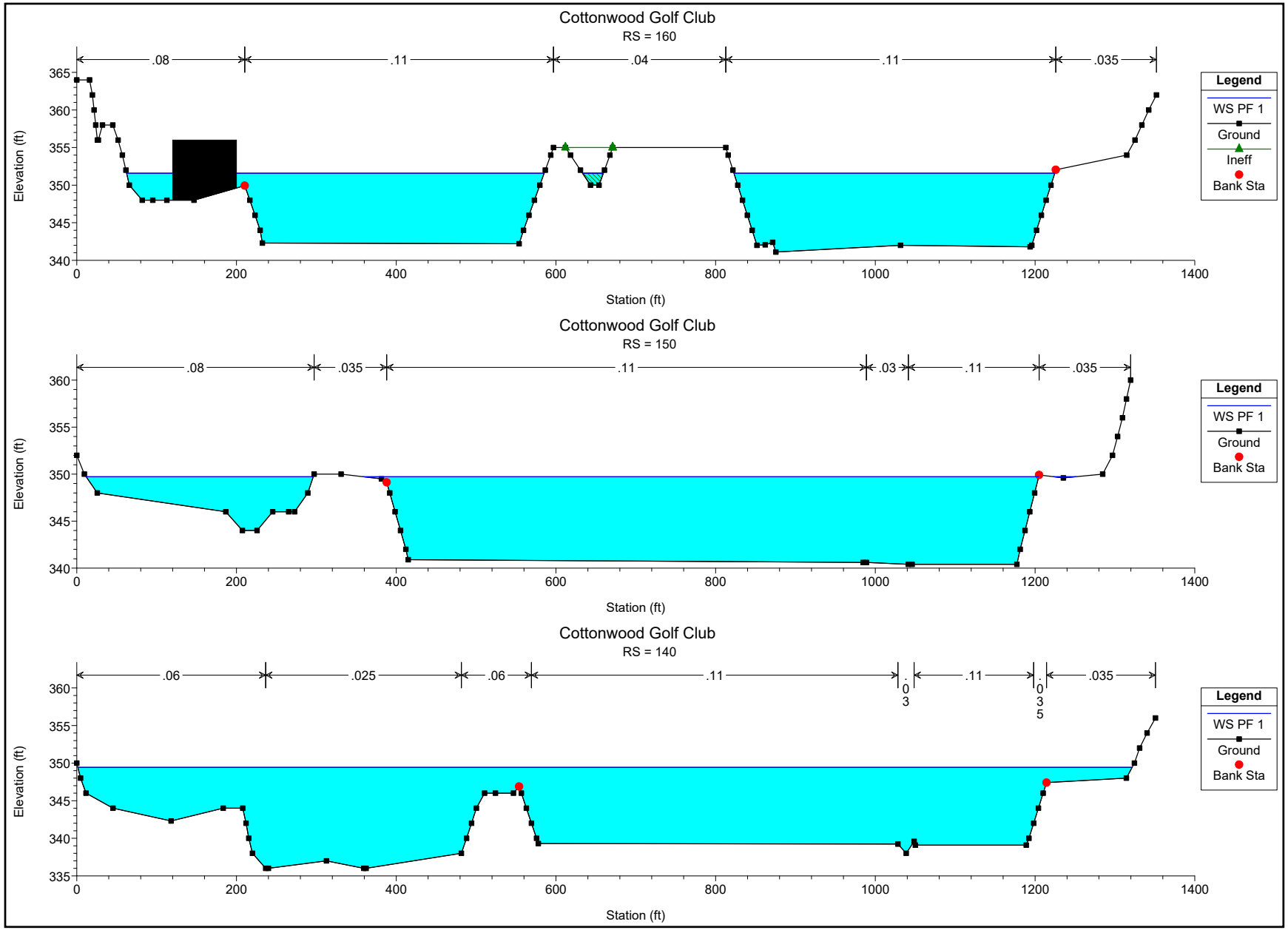

Cottonwood Golf Club
RS = 280
.035
.11
.03
.11
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 270
.035
.11
.03
.11
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
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.03
.11
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

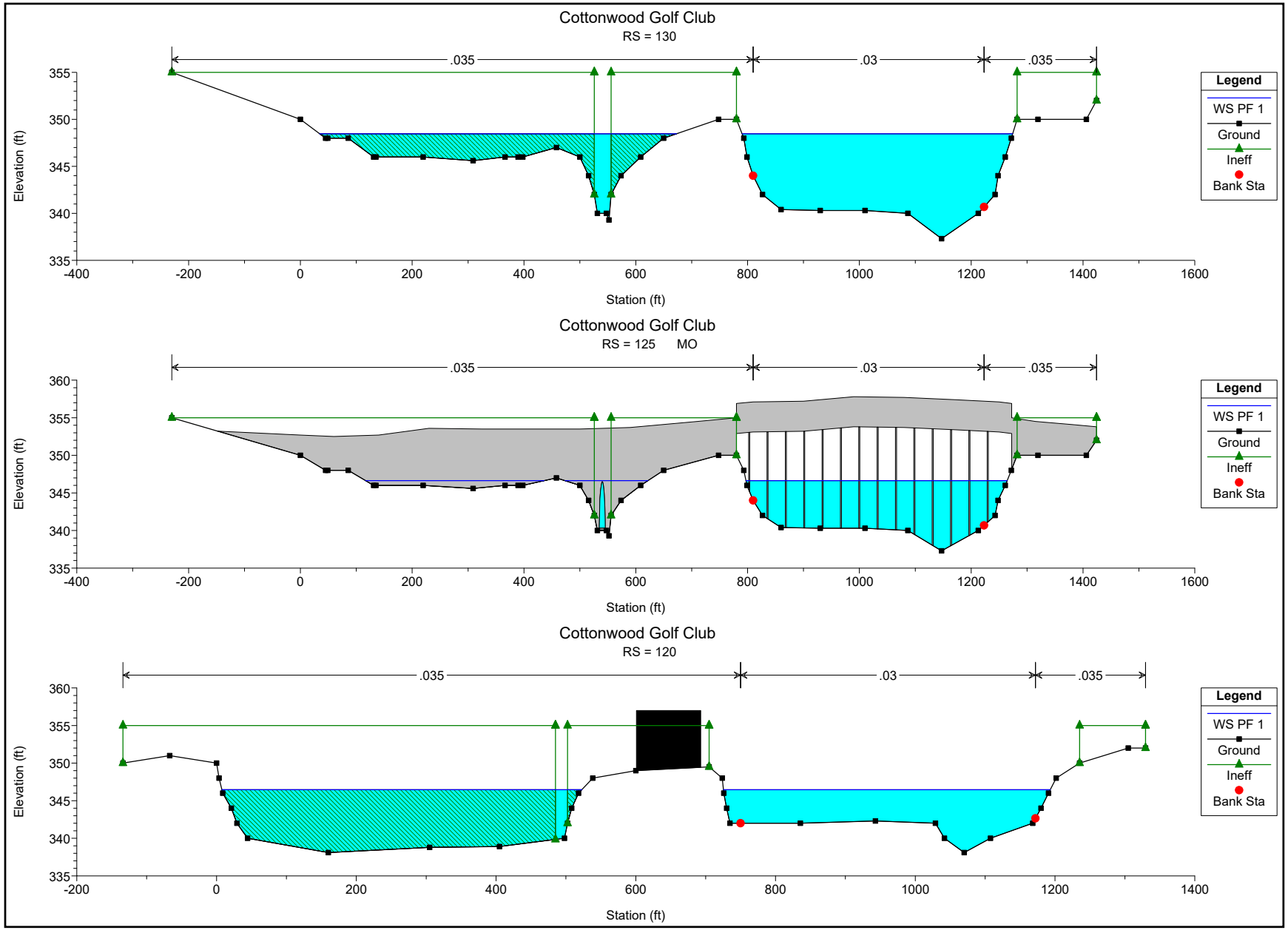

Cottonwood Golf Club
RS = 250
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 240
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
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.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

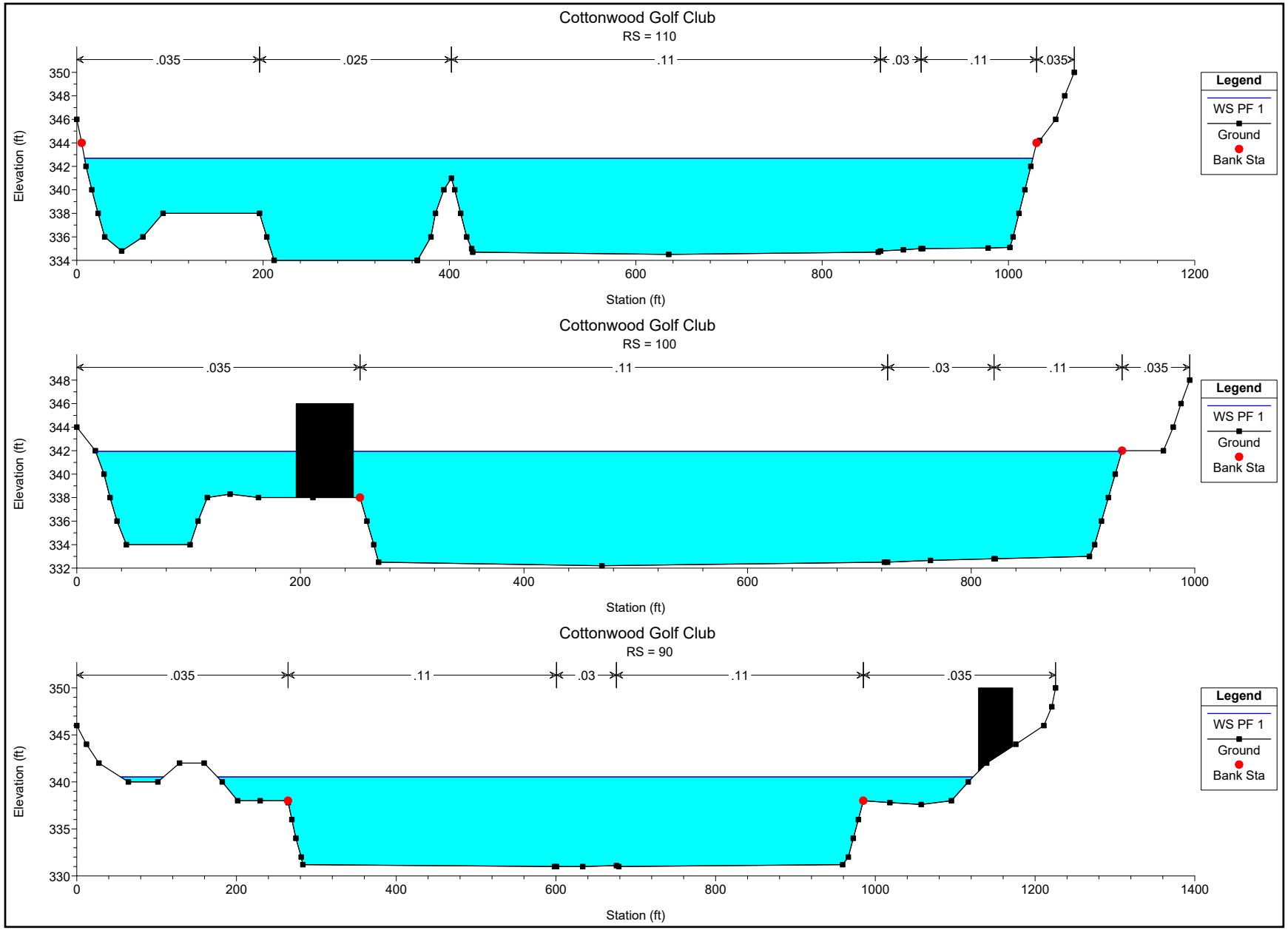

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Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 210
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 200
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.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

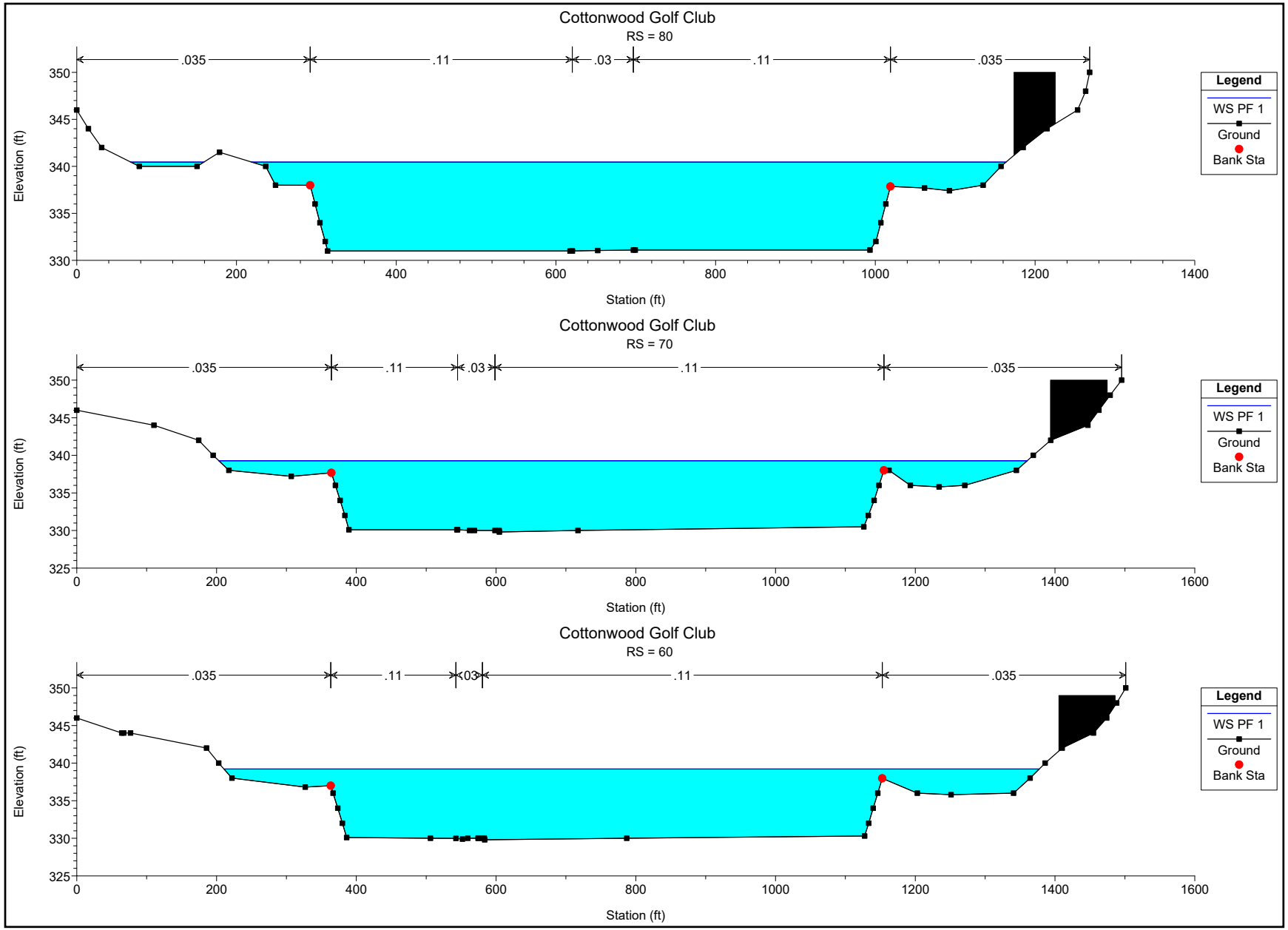
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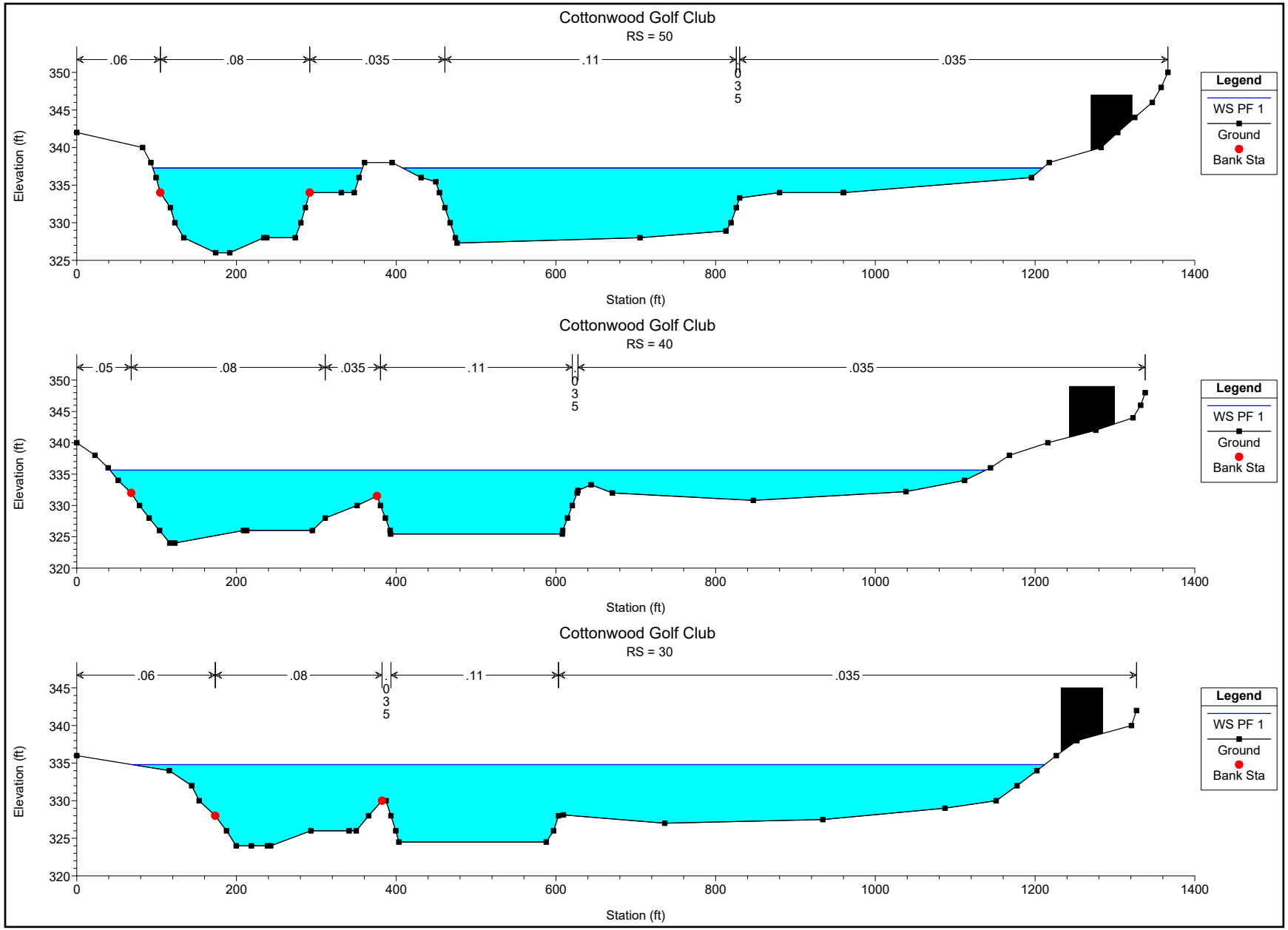

Cottonwood Golf Club
RS = 190
.035
.11
.03
.11
.035
Elevation (ft)
370
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 180
.035
.11
.03
.11
.035
Elevation (ft)
370
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
1600
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 170
.08
.11
.04
.11
.035
Elevation (ft)
370
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

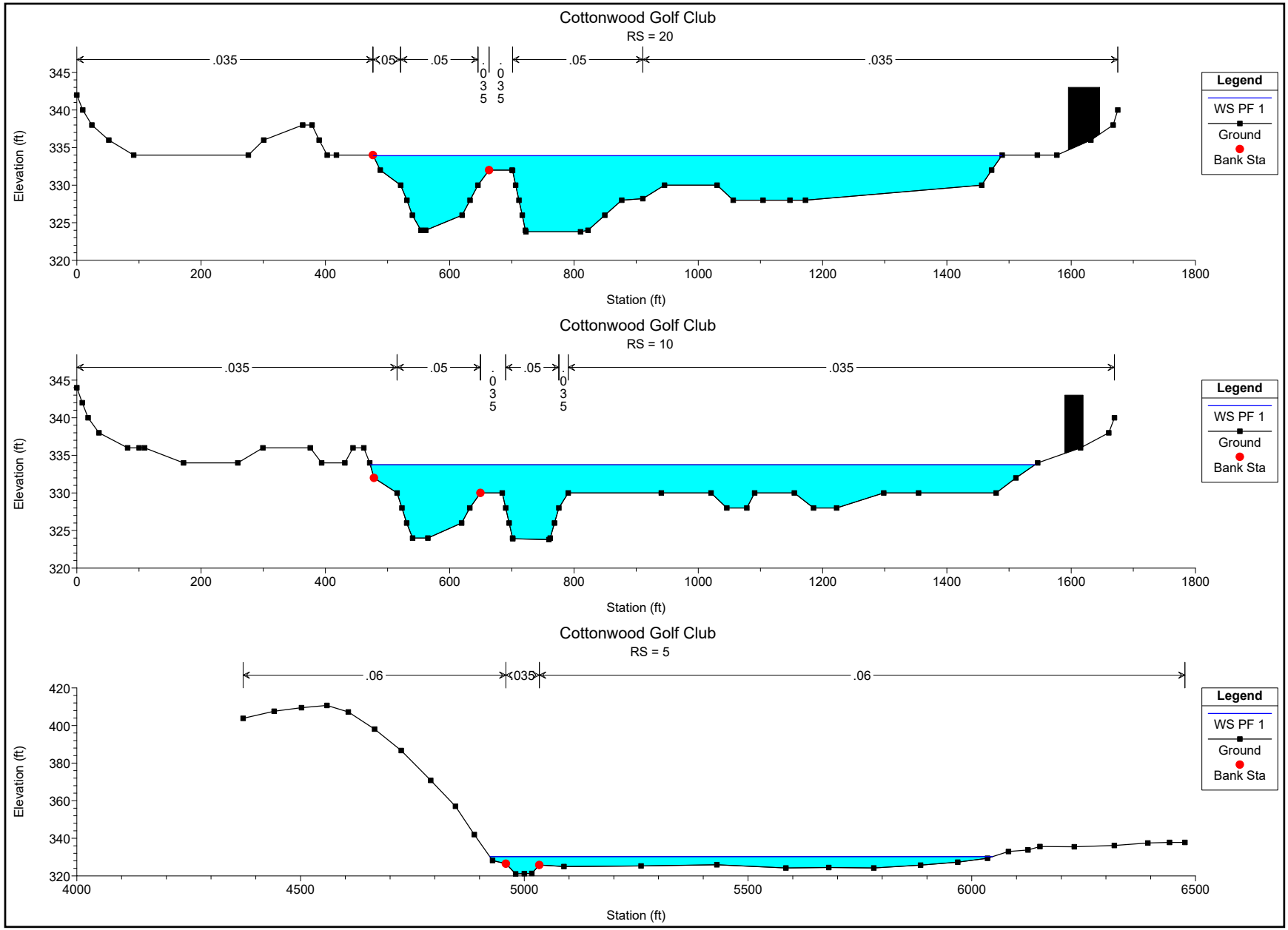

Cottonwood Golf Club
RS = 160
.08
.11
.04
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 150
.08
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 140
.06
.025
.06
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta


Cottonwood Golf Club
RS = 130
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 125 MO
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 120
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta


Cottonwood Golf Club
RS = 110
.035
.025
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 100
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 90
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta


Cottonwood Golf Club
RS = 80
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 70
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 60
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta


Cottonwood Golf Club
RS = 50
.06
.08
.035
.11
.035
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Cottonwood Golf Club
RS = 40
.05
.08
.035
.11
.035
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Cottonwood Golf Club
RS = 30
.06
.08
.11
.035
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Cottonwood Golf Club
RS = 20
.035
.05
.05
.035
.05
.035
.035
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Cottonwood Golf Club
RS = 10
.035
.05
.05
.035
.035
.035
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Cottonwood Golf Club
RS = 5
.06
.035
.06
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

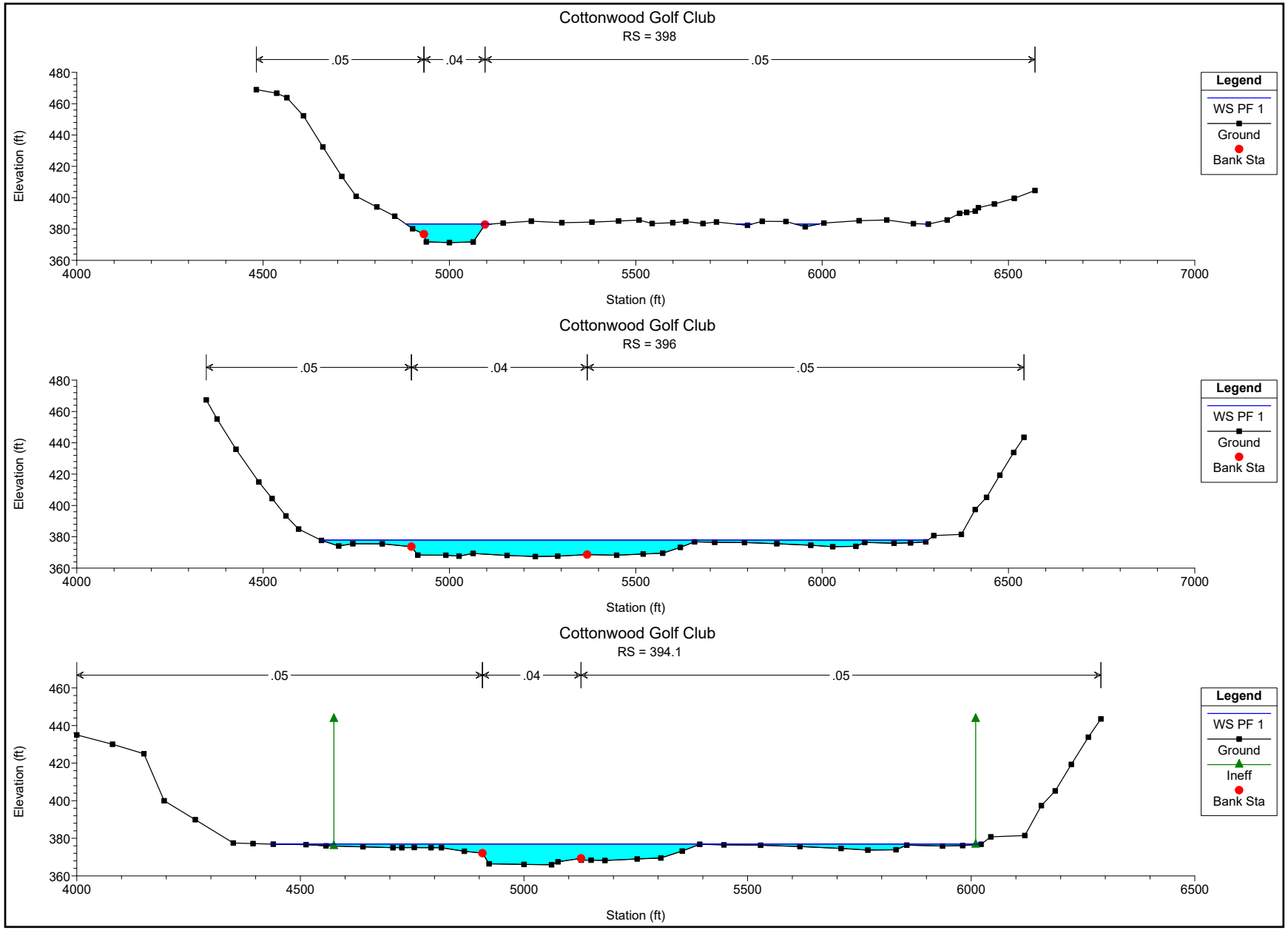
Reclamation Phase 4

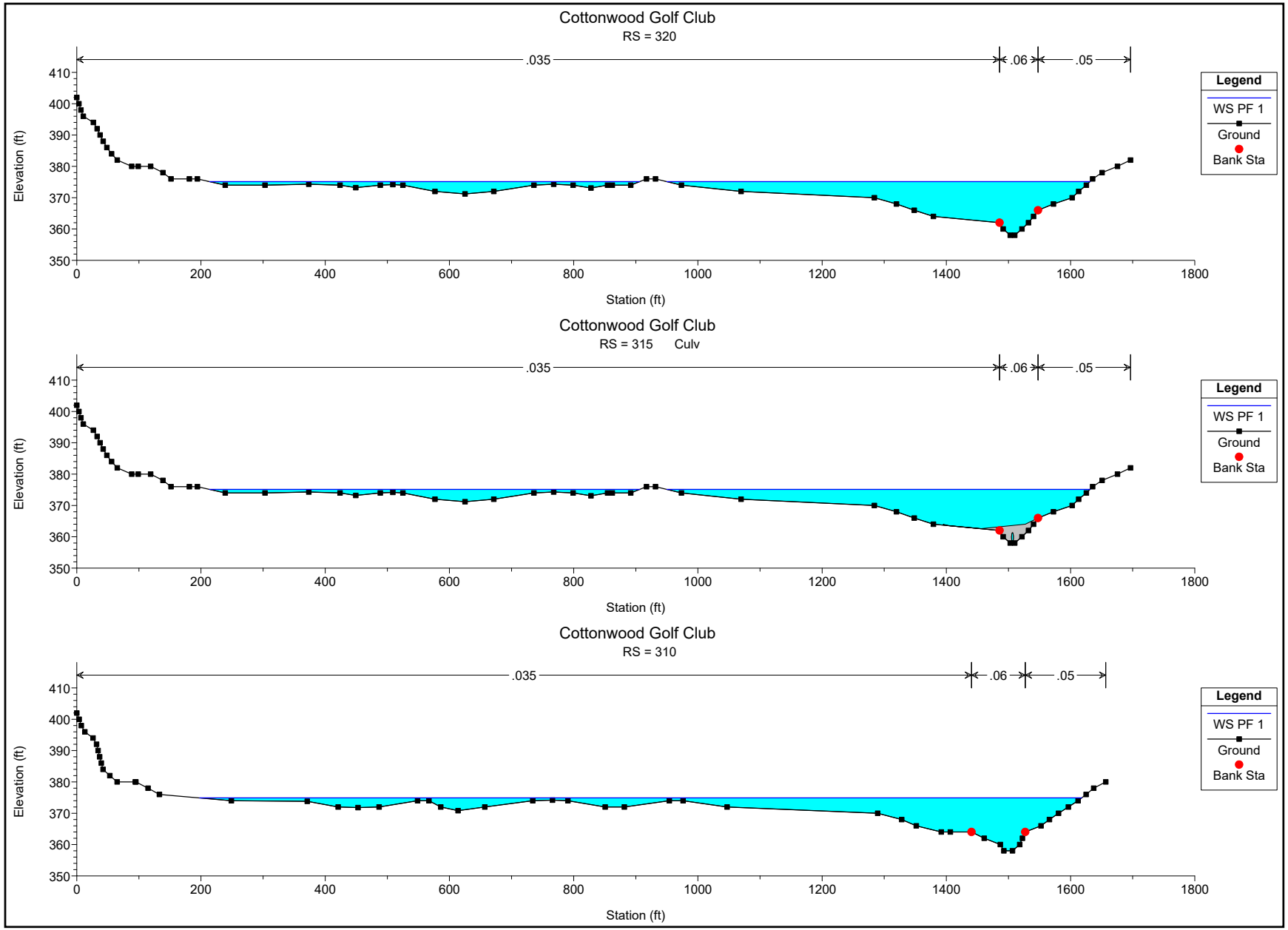
HEC-RAS Plan: PC Phase 4 River: RIVER-1 Reach: Reach-1 Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	398	PF 1	29500.00	371.30	383.17	383.17	387.25	0.008936	16.52	1955.33	346.72	0.90
Reach-1	396	PF 1	29500.00	367.40	377.93		378.17	0.000727	4.55	8978.87	1629.54	0.26
Reach-1	394.1	PF 1	29500.00	365.90	376.94		377.77	0.002571	8.73	5596.40	1589.67	0.49
Reach-1	320	PF 1	29500.00	358.00	375.12	372.02	375.57	0.001912	6.34	5630.40	1373.51	0.29
Reach-1	315		Culvert									
Reach-1	310	PF 1	29500.00	358.00	374.88		375.38	0.002675	7.42	5581.72	1420.00	0.35
Reach-1	300	PF 1	29500.00	356.00	374.07	373.56	374.98	0.005361	9.41	4263.89	1238.66	0.47
Reach-1	295		Bridge									
Reach-1	290	PF 1	29500.00	356.00	373.18	373.18	374.44	0.006936	11.12	3758.37	1181.64	0.54
Reach-1	280	PF 1	29500.00	352.90	363.63		363.86	0.003566	3.83	7696.40	749.07	0.21
Reach-1	270	PF 1	29500.00	350.00	362.54		362.72	0.002483	3.41	8694.27	922.67	0.18
Reach-1	260	PF 1	29500.00	348.00	361.46		361.63	0.001992	3.28	8986.93	730.28	0.16
Reach-1	250	PF 1	29500.00	347.00	360.26		360.45	0.002155	3.48	8486.68	683.61	0.17
Reach-1	240	PF 1	29500.00	346.00	360.24		360.41	0.001961	3.39	8702.74	677.93	0.17
Reach-1	230	PF 1	29500.00	346.00	359.39		359.62	0.002619	3.87	7613.56	617.78	0.19
Reach-1	220	PF 1	29500.00	346.00	359.35		359.58	0.002633	3.88	7596.85	615.84	0.19
Reach-1	210	PF 1	29500.00	345.00	357.79		358.07	0.003344	4.21	7006.03	592.63	0.22
Reach-1	200	PF 1	29500.00	344.90	357.72		358.00	0.003368	4.23	6967.36	588.05	0.22
Reach-1	190	PF 1	29500.00	344.00	355.74		356.14	0.005365	5.07	5813.55	534.51	0.27
Reach-1	180	PF 1	29500.00	343.00	354.46		354.68	0.002494	3.76	7862.60	771.20	0.20
Reach-1	170	PF 1	29500.00	342.10	352.37		352.83	0.009103	5.54	5444.81	687.26	0.33
Reach-1	160	PF 1	29500.00	341.10	352.24	347.24	352.69	0.008780	5.48	5520.05	728.68	0.32
Reach-1	150	PF 1	29500.00	340.40	349.71		349.98	0.003976	4.35	7168.46	1040.53	0.26
Reach-1	140	PF 1	29500.00	338.00	349.44		349.66	0.000342	1.20	11688.17	1320.27	0.07
Reach-1	130	PF 1	29500.00	337.30	348.47	345.10	349.33	0.001370	7.64	4041.50	1122.41	0.46
Reach-1	125		Mult Open									
Reach-1	120	PF 1	29500.00	338.10	346.46	346.46	348.93	0.007768	12.80	2359.51	982.82	1.01
Reach-1	110	PF 1	29500.00	334.00	342.62		342.87	0.001362	4.00	7368.00	1017.51	0.26
Reach-1	100	PF 1	29500.00	332.20	341.90		342.17	0.002037	3.68	7417.15	917.67	0.21
Reach-1	90	PF 1	29500.00	331.00	340.53		340.79	0.002873	4.11	7209.08	1000.04	0.24
Reach-1	80	PF 1	29500.00	331.00	340.45		340.72	0.002908	4.12	7205.16	1036.12	0.24
Reach-1	70	PF 1	29500.00	329.80	339.28		339.50	0.002975	3.76	7799.26	1156.97	0.22
Reach-1	60	PF 1	29500.00	329.80	339.21		339.43	0.003037	3.63	7955.90	1166.75	0.21
Reach-1	50	PF 1	29500.00	326.00	337.28		337.62	0.004460	5.39	6378.49	1064.31	0.31
Reach-1	40	PF 1	29500.00	324.00	335.63		335.91	0.002460	4.55	7081.80	1096.53	0.27
Reach-1	30	PF 1	29500.00	324.00	334.80		335.01	0.001108	2.70	8251.28	1142.26	0.16
Reach-1	20	PF 1	29500.00	324.00	333.91		334.32	0.001881	4.77	5746.74	1011.29	0.34
Reach-1	10	PF 1	29500.00	324.00	333.75		334.26	0.002611	5.83	5166.49	1069.62	0.40

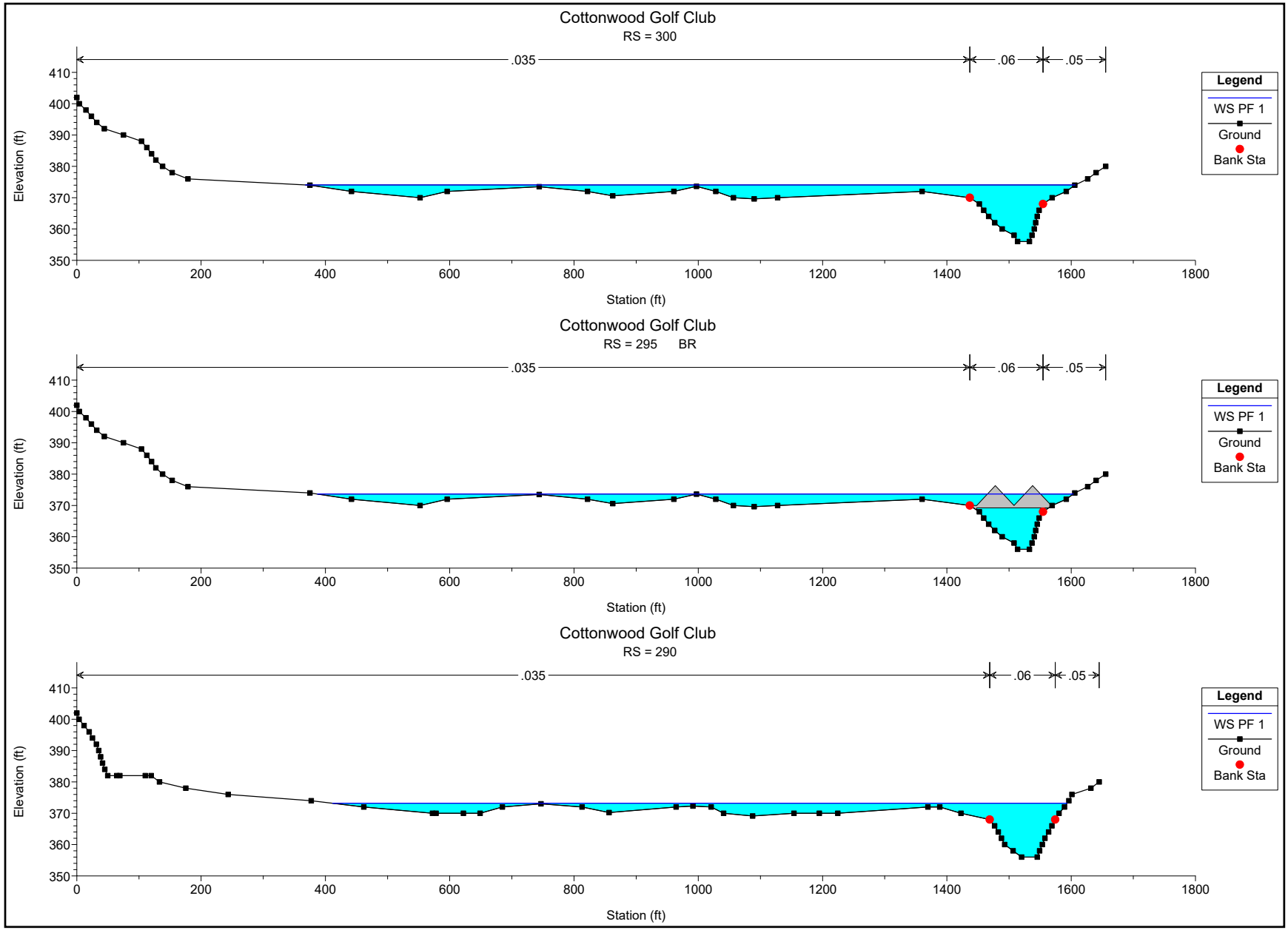
HEC-RAS Plan: PC Phase 4 River: RIVER-1 Reach: Reach-1 Profile: PF 1 (Continued)

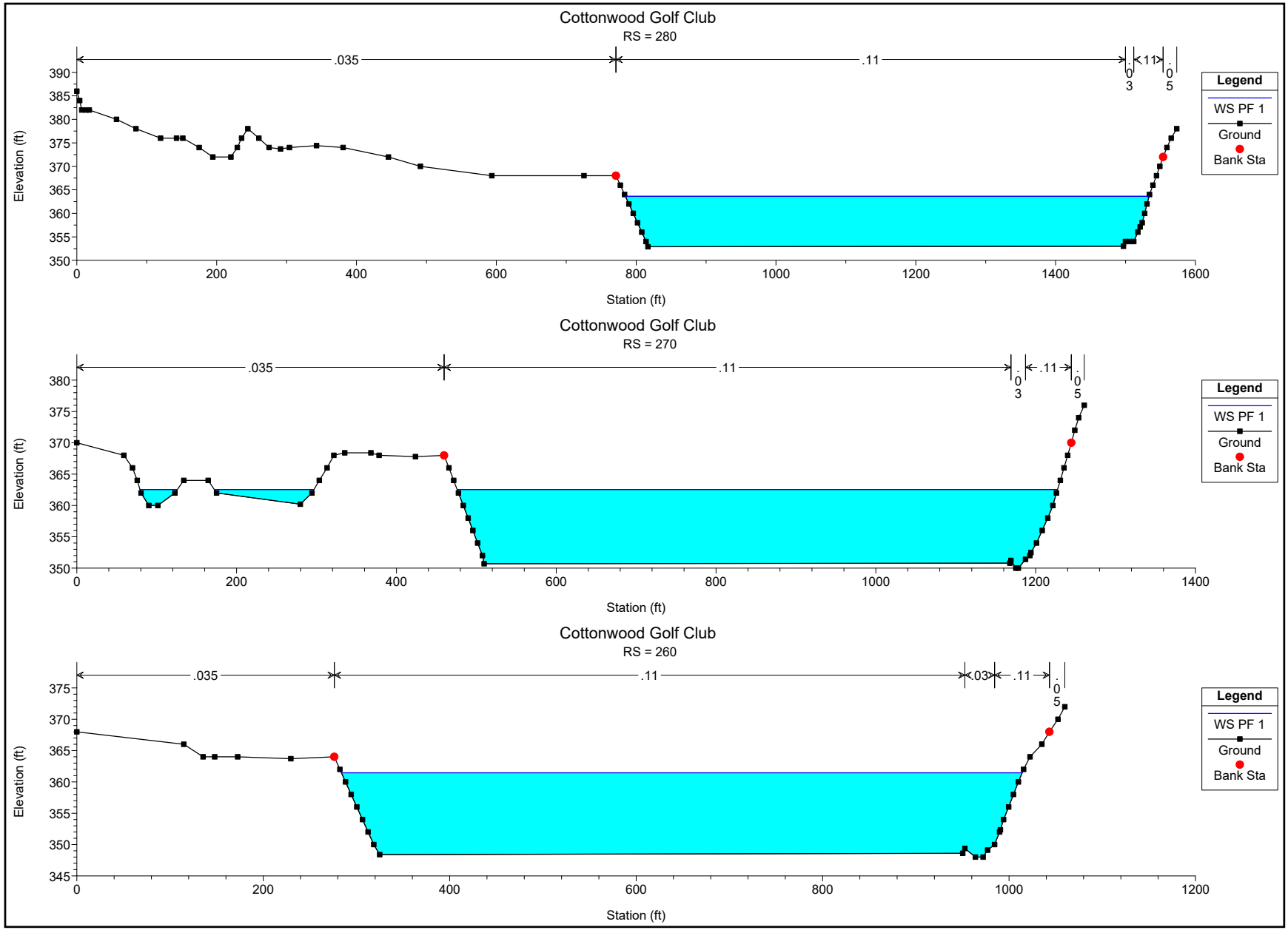
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	5	PF 1	29500.00	321.10	330.28	328.76	330.93	0.004294	10.82	5598.21	1123.72	0.68

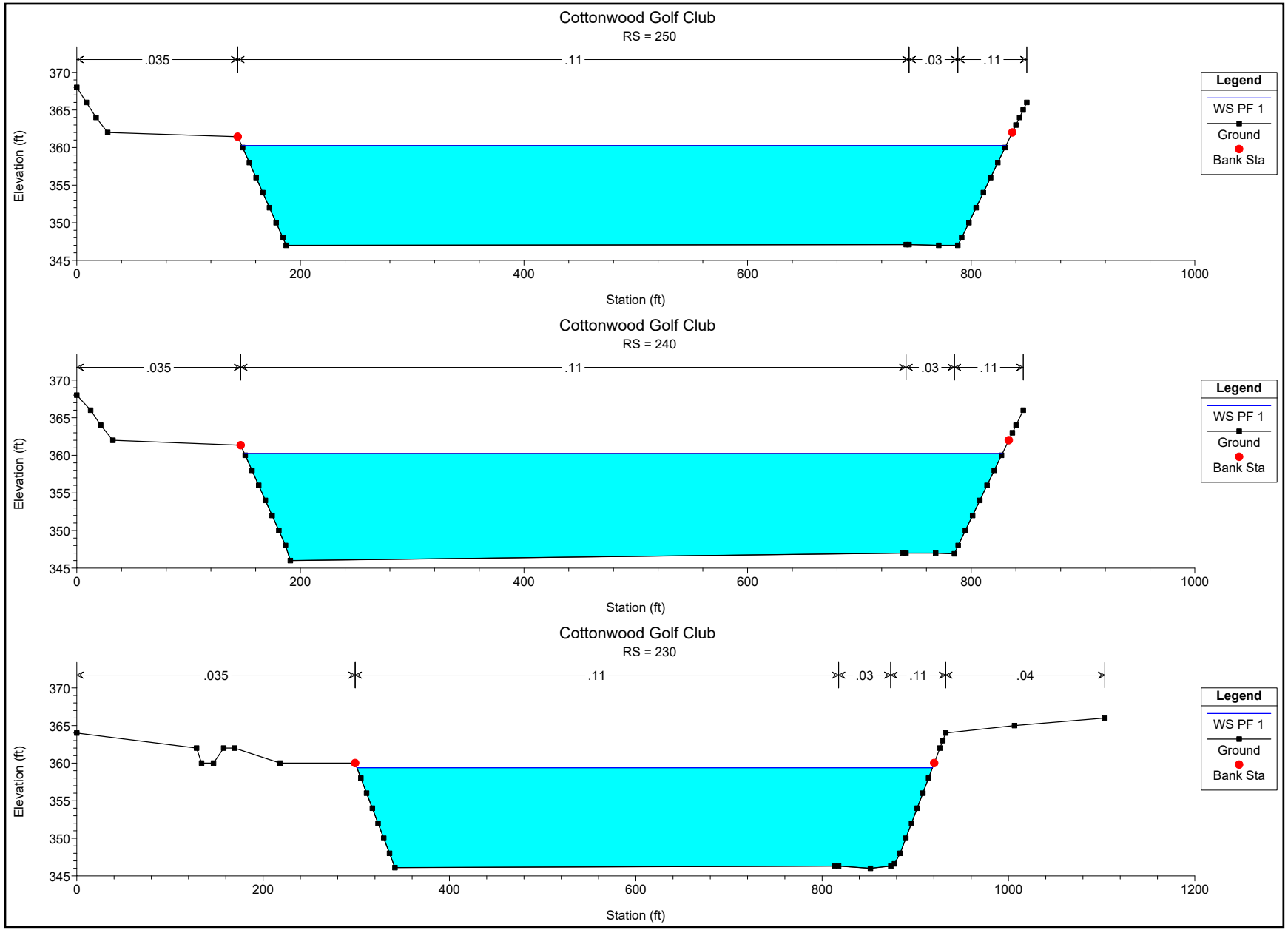

Cottonwood Golf Club
RS = 398
.05
.04
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 396
.05
.04
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 394.1
.05
.04
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta

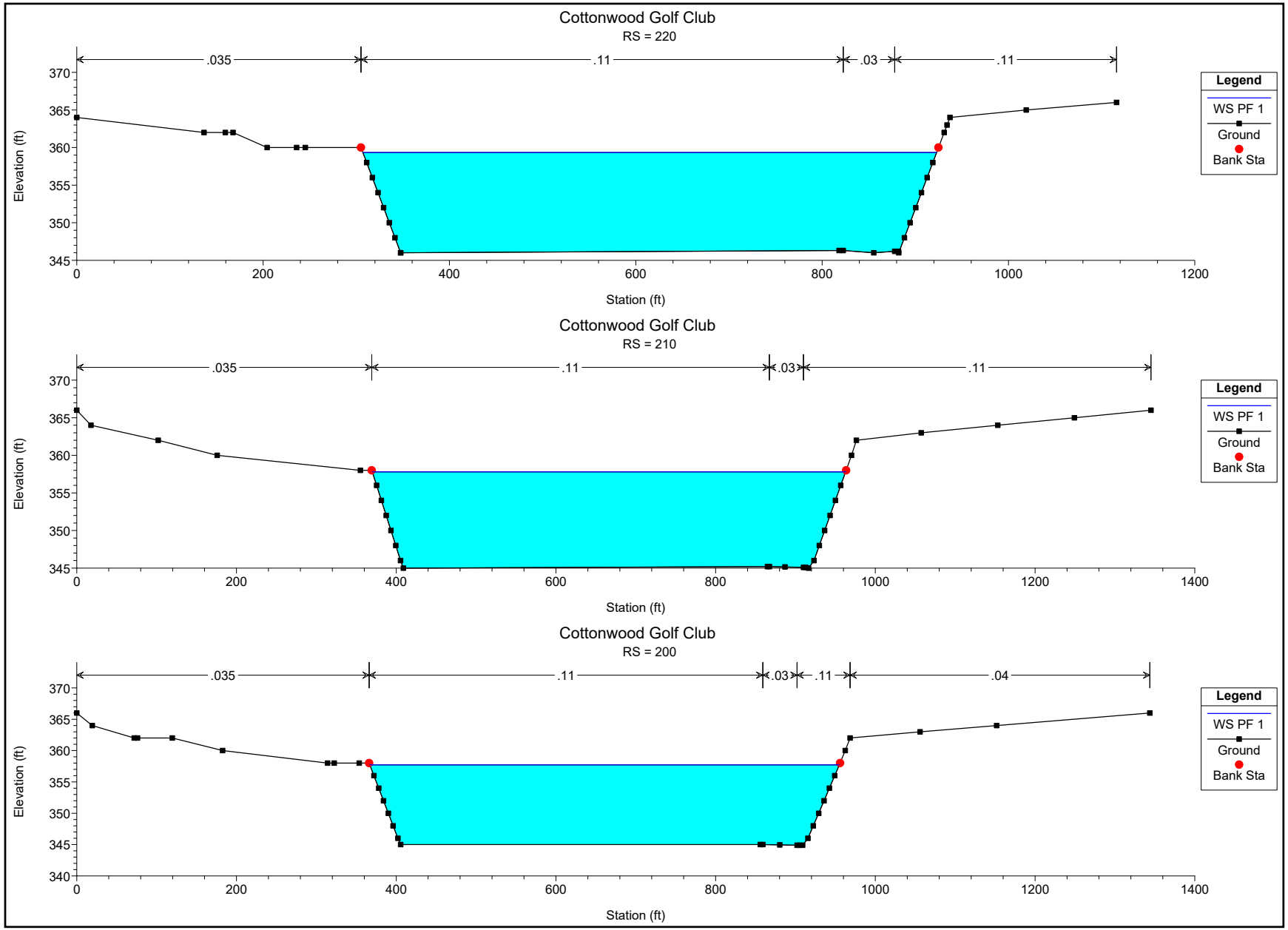

Cottonwood Golf Club
RS = 320
.035
.06
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 315 Culv
.035
.06
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 310
.035
.06
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

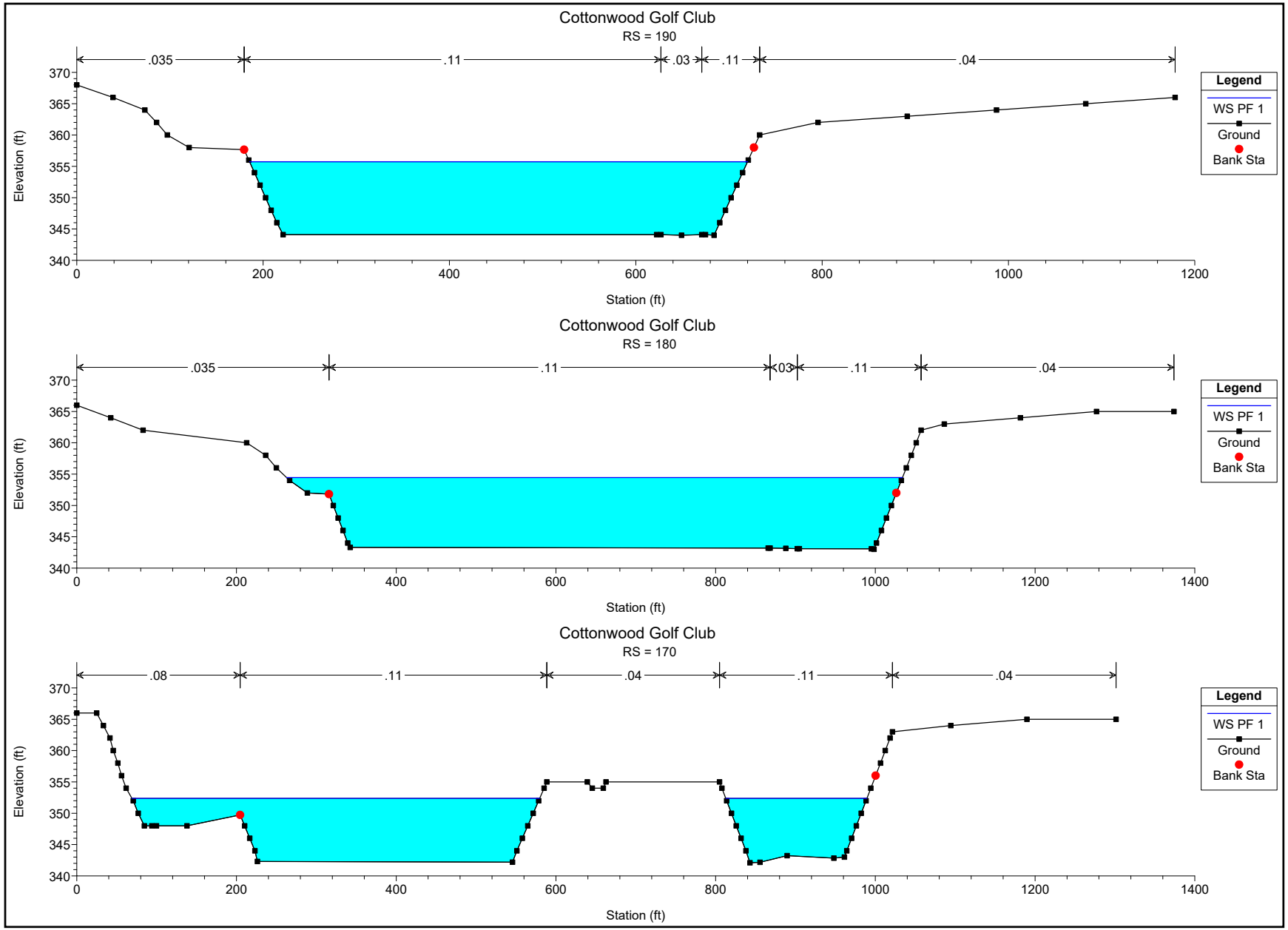
3 - 320


Cottonwood Golf Club
RS = 300
.035
.06
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 295 BR
.035
.06
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 290
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.06
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

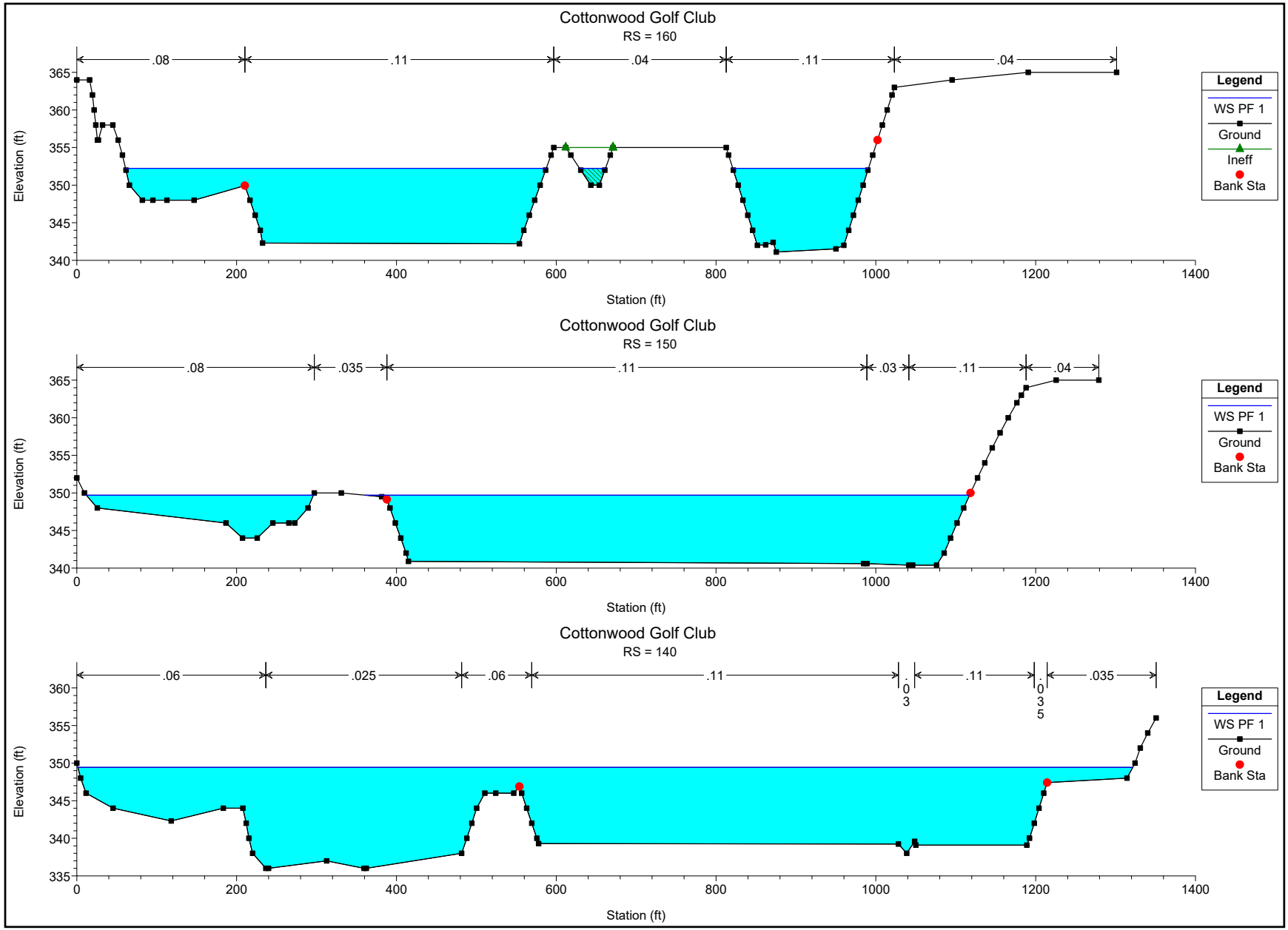

Cottonwood Golf Club
RS = 280
.035
.11
.03
.11
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 270
.035
.11
.03
.11
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 260
.035
.11
.03
.11
.05
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta


Cottonwood Golf Club
RS = 250
.035
.11
.03
.11
Elevation (ft)
370
365
360
355
350
345
0
200
400
600
800
1000
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 240
.035
.11
.03
.11
Elevation (ft)
370
365
360
355
350
345
0
200
400
600
800
1000
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 230
.035
.11
.03
.11
.04
Elevation (ft)
370
365
360
355
350
345
0
200
400
600
800
1000
1200
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

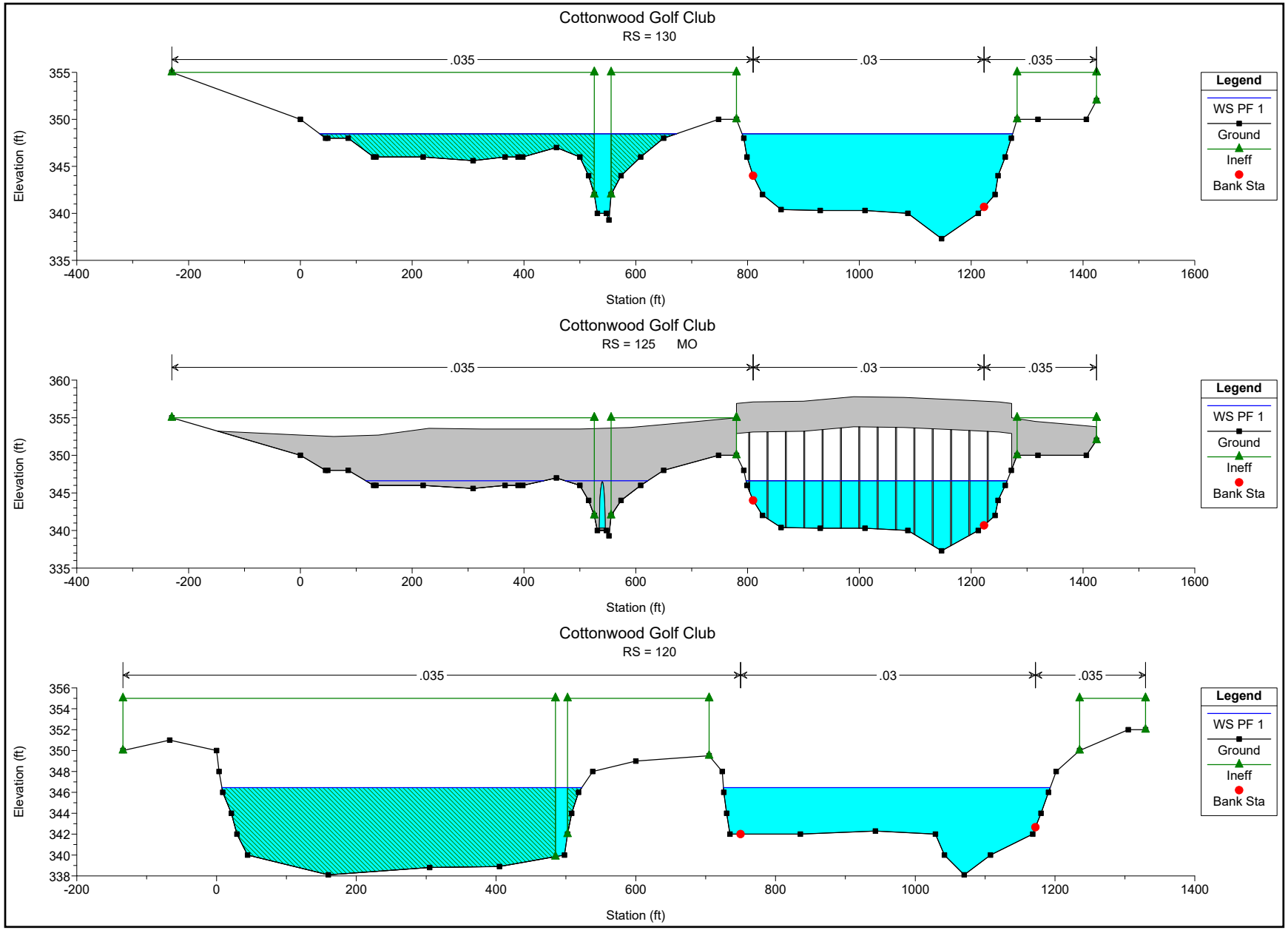

Cottonwood Golf Club
RS = 220
.035
.11
.03
.11
Elevation (ft)
370
365
360
355
350
345
0
200
400
600
800
1000
1200
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 210
.035
.11
.03
.11
Elevation (ft)
370
365
360
355
350
345
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 200
.035
.11
.03
.11
.04
Elevation (ft)
370
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta


Cottonwood Golf Club
RS = 190
.035
.11
.03
.11
.04
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 180
.035
.11
.03
.11
.04
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 170
.08
.11
.04
.11
.04
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

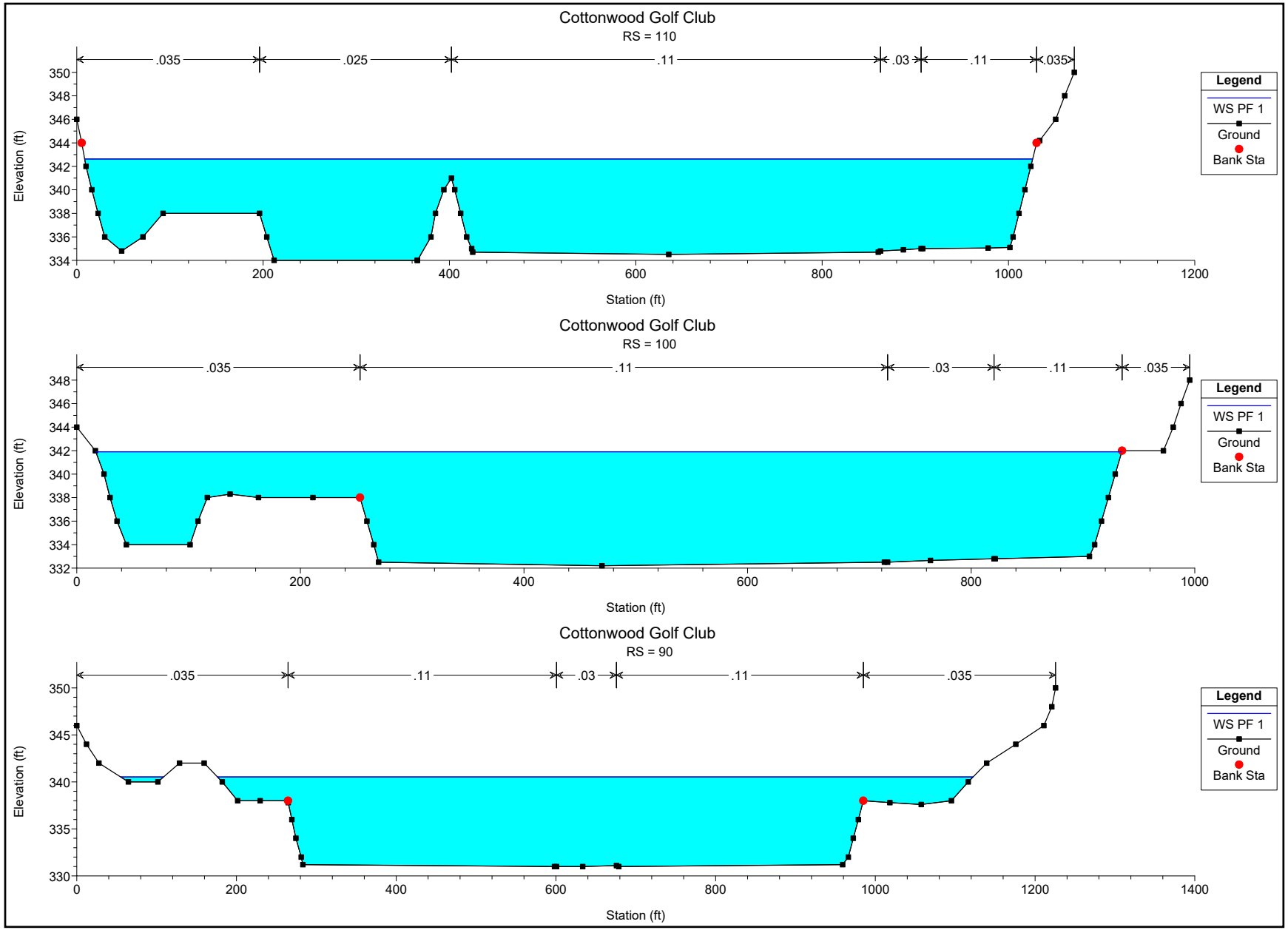
3 - 325


Cottonwood Golf Club
RS = 160
.08
.11
.04
.11
.04
Elevation (ft)
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 150
.08
.035
.11
.03
.11
.04
Elevation (ft)
365
360
355
350
345
340
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 140
.06
.025
.06
.11
.03
.11
.035
Elevation (ft)
360
355
350
345
340
335
0
200
400
600
800
1000
1200
1400
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

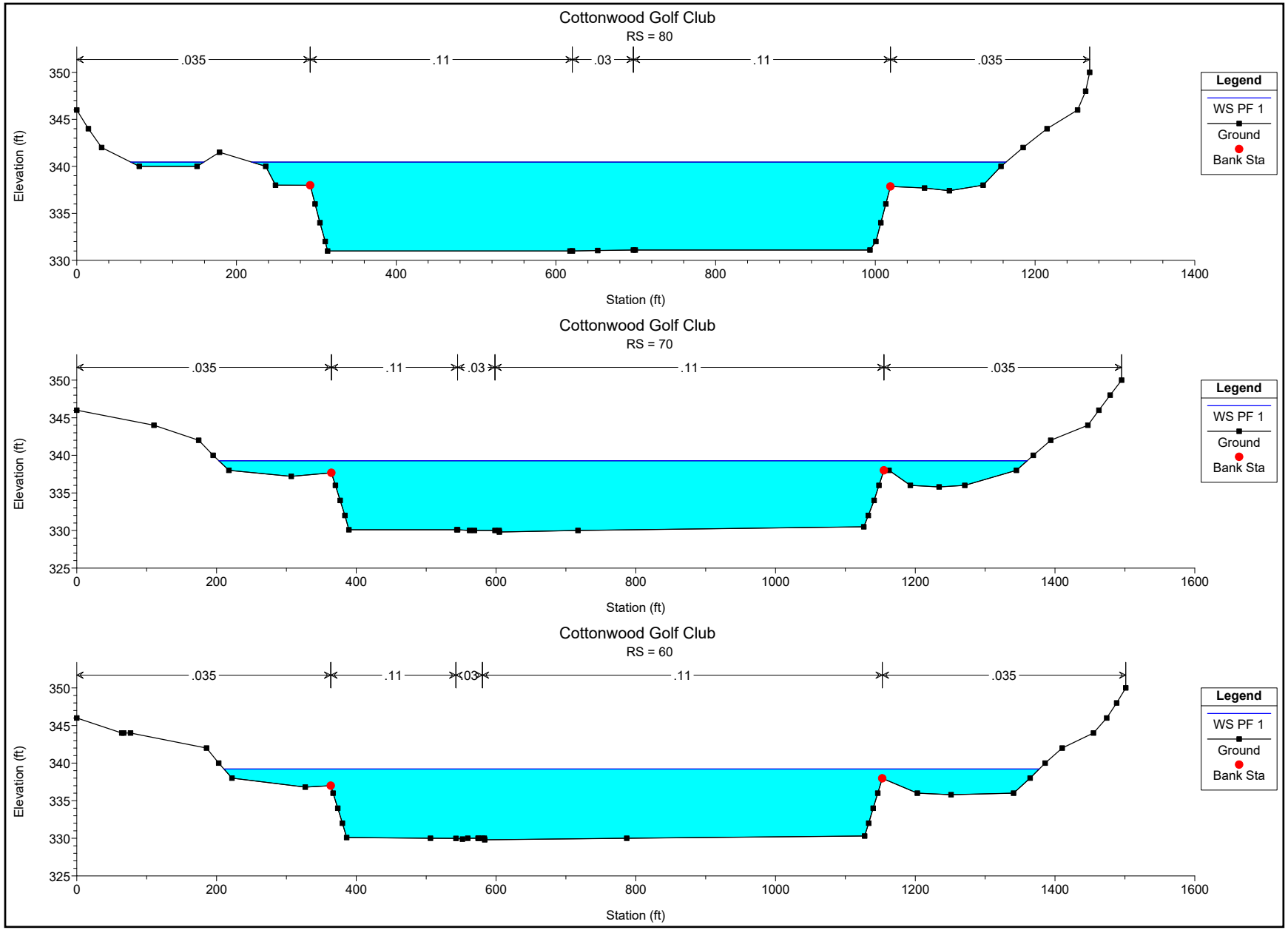
3 - 326

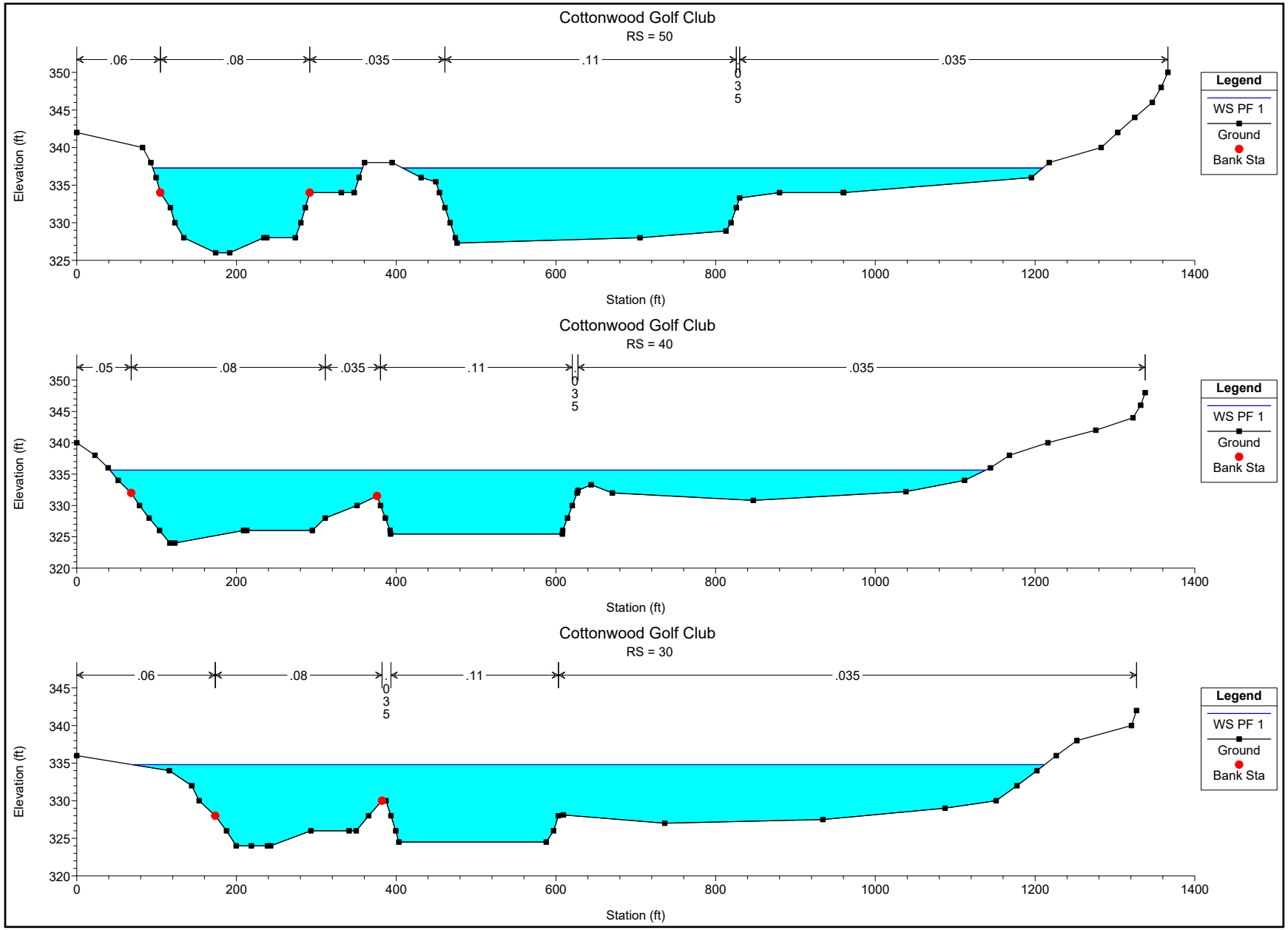

Cottonwood Golf Club
RS = 130
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 125 MO
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta
Cottonwood Golf Club
RS = 120
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Ineff
Bank Sta

3 - 327

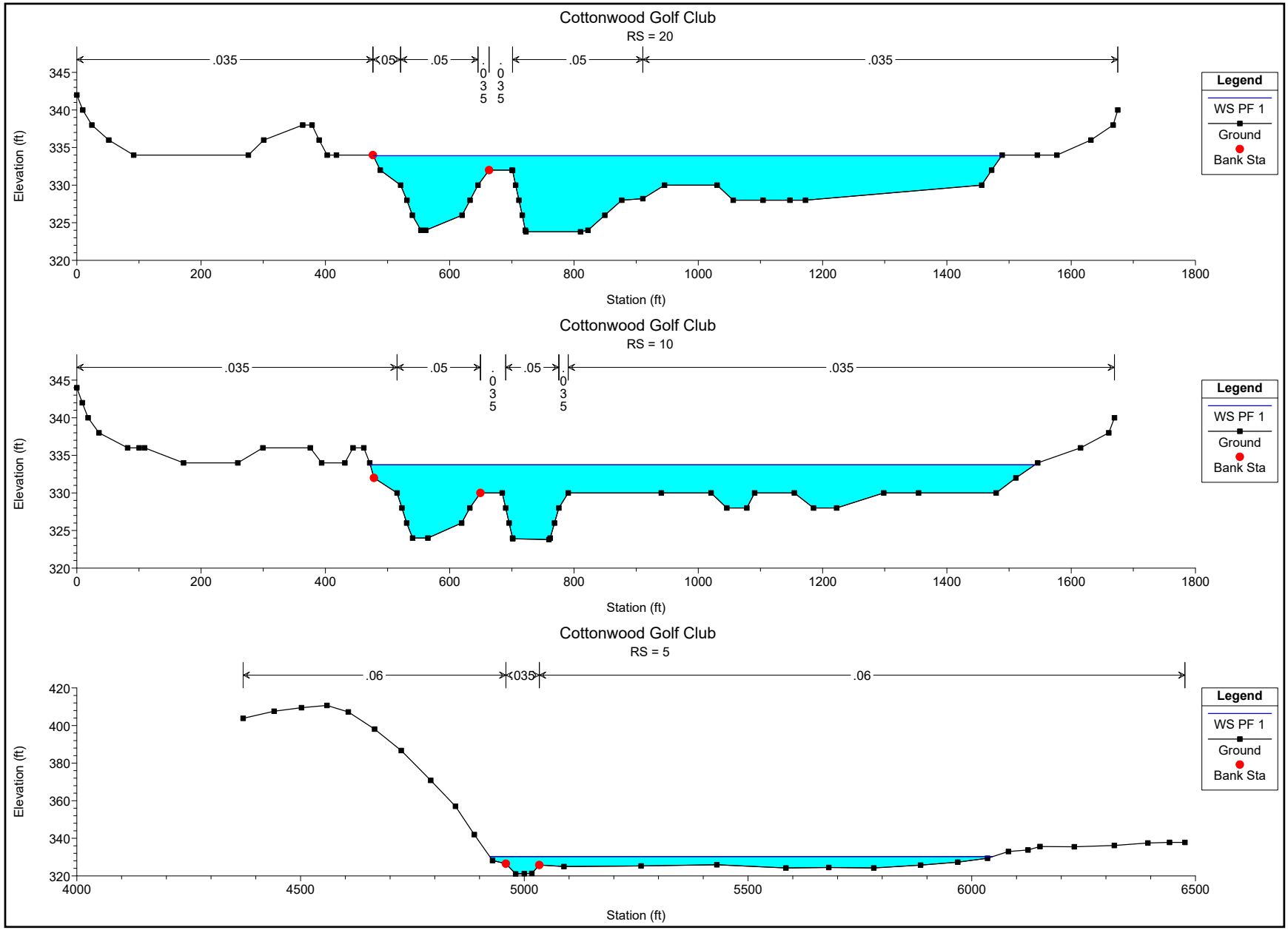

Cottonwood Golf Club
RS = 110
.035
.025
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 100
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 90
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

3 - 328


Cottonwood Golf Club
RS = 80
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 70
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 60
.035
.11
.03
.11
.035
Elevation (ft)
Station (ft)
Legend
WS PF 1
Ground
Bank Sta


Cottonwood Golf Club
RS = 50
.06
.08
.035
.11
.035
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Cottonwood Golf Club
RS = 40
.05
.08
.035
.11
.035
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Cottonwood Golf Club
RS = 30
.06
.08
.11
.035
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

3 - 330


Cottonwood Golf Club
RS = 20
.035
.05
.05
.035
.05
.035
.035
Elevation (ft)
345
340
335
330
325
320
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 10
.035
.05
.05
.035
.035
.035
Elevation (ft)
345
340
335
330
325
320
0
200
400
600
800
1000
1200
1400
1600
1800
Station (ft)
Legend
WS PF 1
Ground
Bank Sta
Cottonwood Golf Club
RS = 5
.06
.035
.06
Elevation (ft)
420
400
380
360
340
320
4000
4500
5000
5500
6000
6500
Station (ft)
Legend
WS PF 1
Ground
Bank Sta

APPENDIX B

WATER TRANSFER DATA

USGS Sweetwater River Stream Gage Records

2010

Discharge, cubic feet per second

TIME	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5	Feb 6	Feb 7	Feb 8	Feb 9	Feb 10	Feb 11	Feb 12	Feb 13	Feb 14	Feb 15	Feb 16	Feb 17	Feb 18
00:00 PST	0.00[A]	49.1[A]	171[A]	333[A]	294[A]	296[A]	272[A]	259[A]	268[A]	72.3[A]	89.8[A]	67.6[A]	73.3[A]	133[A]	63.1[A]	164[A]	268[A]	255[A]	290[A]	14.7[A]	7.86[A]	2.76[A]
00:15 PST	0.00[A]	55.4[A]	176[A]	280[A]	290[A]	255[A]	270[A]	270[A]	278[A]	75.3[A]	79.3[A]	74.3[A]	72.3[A]	119[A]	72.3[A]	167[A]	263[A]	255[A]	268[A]	11.7[A]	6.34[A]	2.76[A]
00:30 PST	0.00[A]	52.2[A]	167[A]	312[A]	318[A]	294[A]	304[A]	265[A]	308[A]	68.5[A]	89.8[A]	73.3[A]	71.4[A]	140[A]	82.3[A]	144[A]	261[A]	270[A]	241[A]	11.7[A]	5.79[A]	2.35[A]
00:45 PST	0.00[A]	62.2[A]	159[A]	290[A]	259[A]	304[A]	312[A]	286[A]	278[A]	77.2[A]	82.3[A]	76.2[A]	75.3[A]	125[A]	69.5[A]	161[A]	280[A]	250[A]	250[A]	12.0[A]	5.53[A]	2.99[A]
01:00 PST	0.00[A]	63.1[A]	164[A]	280[A]	327[A]	282[A]	296[A]	246[A]	292[A]	72.3[A]	81.3[A]	61.3[A]	68.5[A]	121[A]	67.6[A]	128[A]	270[A]	298[A]	278[A]	11.7[A]	5.04[A]	2.55[A]
01:15 PST	0.00[A]	57.1[A]	170[A]	314[A]	288[A]	286[A]	276[A]	267[A]	268[A]	68.5[A]	62.2[A]	69.5[A]	71.4[A]	128[A]	75.3[A]	158[A]	246[A]	250[A]	274[A]	11.7[A]	6.06[A]	2.76[A]
01:30 PST	0.00[A]	44.6[A]	170[A]	323[A]	263[A]	280[A]	270[A]	288[A]	296[A]	67.6[A]	77.2[A]	73.3[A]	69.5[A]	137[A]	69.5[A]	133[A]	252[A]	267[A]	288[A]	11.3[A]	5.28[A]	2.35[A]
01:45 PST	0.00[A]	48.3[A]	168[A]	265[A]	278[A]	320[A]	288[A]	267[A]	298[A]	79.3[A]	82.3[A]	69.5[A]	73.3[A]	123[A]	70.4[A]	151[A]	253[A]	286[A]	253[A]	11.3[A]	5.28[A]	2.35[A]
02:00 PST	0.00[A]	46.1[A]	164[A]	288[A]	296[A]	331[A]	223[A]	255[A]	280[A]	75.3[A]	90.9[A]	65.8[A]	66.7[A]	120[A]	64.0[A]	159[A]	274[A]	235[A]	263[A]	12.8[A]	11.0[A]	2.76[A]
02:15 PST	0.00[A]	47.5[A]	168[A]	255[A]	302[A]	346[A]	333[A]	278[A]	261[A]	81.3[A]	84.4[A]	67.6[A]	70.4[A]	115[A]	70.4[A]	140[A]	280[A]	302[A]	246[A]	11.7[A]	7.22[A]	2.55[A]
02:30 PST	0.00[A]	53.0[A]	165[A]	300[A]	255[A]	292[A]	312[A]	312[A]	255[A]	66.7[A]	86.6[A]	66.7[A]	70.4[A]	116[A]	73.3[A]	142[A]	261[A]	278[A]	286[A]	11.3[A]	4.69[A]	2.76[A]
02:45 PST	0.00[A]	47.5[A]	173[A]	257[A]	272[A]	306[A]	314[A]	257[A]	278[A]	70.4[A]	95.4[A]	73.3[A]	68.5[A]	125[A]	71.4[A]	137[A]	276[A]	278[A]	243[A]	11.7[A]	5.28[A]	2.76[A]
03:00 PST	0.00[A]	57.1[A]	179[A]	353[A]	329[A]	265[A]	298[A]	265[A]	304[A]	72.3[A]	79.3[A]	73.3[A]	68.5[A]	119[A]	79.3[A]	158[A]	222[A]	284[A]	286[A]	11.7[A]	4.69[A]	2.76[A]
03:15 PST	0.00[A]	57.1[A]	162[A]	252[A]	327[A]	296[A]	302[A]	274[A]	298[A]	78.2[A]	78.2[A]	63.1[A]	65.8[A]	110[A]	66.7[A]	164[A]	263[A]	274[A]	250[A]	11.3[A]	4.69[A]	2.55[A]
03:30 PST	0.00[A]	68.5[A]	181[A]	280[A]	296[A]	282[A]	296[A]	294[A]	268[A]	68.5[A]	85.5[A]	69.5[A]	58.7[A]	102[A]	69.5[A]	142[A]	282[A]	232[A]	267[A]	11.0[A]	4.69[A]	2.16[A]
03:45 PST	0.00[A]	61.3[A]	158[A]	318[A]	286[A]	300[A]	302[A]	267[A]	265[A]	76.2[A]	82.3[A]	71.4[A]	74.3[A]	113[A]	78.2[A]	142[A]	261[A]	265[A]	261[A]	11.0[A]	4.37[A]	2.35[A]
04:00 PST	0.00[A]	62.2[A]	173[A]	259[A]	276[A]	288[A]	306[A]	280[A]	290[A]	64.0[A]	80.3[A]	80.3[A]	73.3[A]	110[A]	82.3[A]	144[A]	284[A]	300[A]	294[A]	11.3[A]	4.37[A]	2.55[A]
04:15 PST	0.00[A]	50.6[A]	149[A]	302[A]	306[A]	272[A]	340[A]	267[A]	263[A]	67.6[A]	80.3[A]	70.4[A]	74.3[A]	105[A]	68.5[A]	158[A]	235[A]	278[A]	265[A]	11.3[A]	4.37[A]	2.16[A]
04:30 PST	0.00[A]	55.4[A]	170[A]	278[A]	280[A]	241[A]	331[A]	265[A]	280[A]	74.3[A]	77.2[A]	65.8[A]	75.3[A]	101[A]	80.3[A]	140[A]	265[A]	294[A]	267[A]	9.62[A]	4.06[A]	2.35[A]
04:45 PST	0.00[A]	64.9[A]	193[A]	292[A]	280[A]	292[A]	340[A]	270[A]	284[A]	76.2[A]	72.3[A]	71.4[A]	78.2[A]	107[A]	80.3[A]	148[A]	261[A]	257[A]	282[A]	11.7[A]	5.04[A]	2.35[A]
05:00 PST	0.00[A]	69.5[A]	162[A]	278[A]	268[A]	265[A]	323[A]	270[A]	274[A]	68.5[A]	78.2[A]	67.6[A]	72.3[A]	95.4[A]	73.3[A]	156[A]	280[A]	280[A]	274[A]	10.3[A]	5.28[A]	2.35[A]
05:15 PST	0.00[A]	50.6[A]	181[A]	346[A]	261[A]	308[A]	298[A]	270[A]	270[A]	72.3[A]	79.3[A]	75.3[A]	73.3[A]	87.6[A]	80.3[A]	156[A]	268[A]	265[A]	250[A]	10.3[A]	5.28[A]	2.35[A]
05:30 PST	0.00[A]	43.2[A]	176[A]	261[A]	298[A]	278[A]	292[A]	329[A]	265[A]	72.3[A]	75.3[A]	79.3[A]	73.3[A]	103[A]	67.6[A]	165[A]	274[A]	270[A]	272[A]	11.0[A]	5.28[A]	2.35[A]
05:45 PST	0.00[A]	53.8[A]	189[A]	259[A]	296[A]	265[A]	344[A]	246[A]	282[A]	78.2[A]	68.5[A]	73.3[A]	74.3[A]	85.5[A]	74.3[A]	144[A]	278[A]	267[A]	274[A]	9.62[A]	5.28[A]	2.55[A]
06:00 PST	0.00[A]	48.3[A]	151[A]	290[A]	302[A]	335[A]	342[A]	237[A]	278[A]	70.4[A]	80.3[A]	72.3[A]	69.5[A]	95.4[A]	79.3[A]	144[A]	276[A]	276[A]	290[A]	9.62[A]	5.28[A]	2.35[A]
06:15 PST	0.00[A]	63.1[A]	171[A]	270[A]	265[A]	302[A]	298[A]	276[A]	302[A]	72.3[A]	79.3[A]	74.3[A]	68.5[A]	103[A]	75.3[A]	145[A]	272[A]	274[A]	270[A]	10.3[A]	4.69[A]	2.35[A]
06:30 PST	0.00[A]	63.1[A]	153[A]	268[A]	338[A]	250[A]	314[A]	280[A]	274[A]	73.3[A]	66.7[A]	74.3[A]	63.1[A]	84.4[A]	76.2[A]	153[A]	252[A]	282[A]	263[A]	10.0[A]	5.04[A]	2.55[A]
06:45 PST	0.00[A]	68.5[A]	155[A]	294[A]	270[A]	268[A]	304[A]	286[A]	265[A]	73.3[A]	80.3[A]	72.3[A]	71.4[A]	92.0[A]	67.6[A]	136[A]	280[A]	263[A]	243[A]	9.25[A]	5.04[A]	2.16[A]
07:00 PST	0.00[A]	66.7[A]	182[A]	294[A]	278[A]	252[A]	340[A]	252[A]	292[A]	71.4[A]	75.3[A]	74.3[A]	69.5[A]	85.5[A]	73.3[A]	130[A]	270[A]	274[A]	274[A]	9.62[A]	4.69[A]	2.16[A]
07:15 PST	0.00[A]	68.5[A]	182[A]	282[A]	292[A]	286[A]	327[A]	276[A]	286[A]	68.5[A]	72.3[A]	70.4[A]	74.3[A]	92.0[A]	69.5[A]	153[A]	253[A]	284[A]	248[A]	8.88[A]	5.04[A]	2.35[A]

3 - 333

TIME	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5	Feb 6	Feb 7	Feb 8	Feb 9	Feb 10	Feb 11	Feb 12	Feb 13	Feb 14	Feb 15	Feb 16	Feb 17	Feb 18
07:30 PST	0.00[A]	57.9[A]	167[A]	280[A]	265[A]	288[A]	304[A]	268[A]	284[A]	73.3[A]	75.3[A]	79.3[A]	61.3[A]	81.3[A]	79.3[A]	171[A]	282[A]	230[A]	270[A]	8.53[A]	5.04[A]	2.16[A]
07:45 PST	0.00[A]	54.6[A]	190[A]	280[A]	268[A]	288[A]	300[A]	263[A]	276[A]	73.3[A]	85.5[A]	74.3[A]	73.3[A]	95.4[A]	65.8[A]	145[A]	274[A]	272[A]	267[A]	8.88[A]	4.37[A]	2.16[A]
08:00 PST	0.00[A]	53.0[A]	179[A]	296[A]	268[A]	286[A]	302[A]	270[A]	259[A]	71.4[A]	100[A]	75.3[A]	69.5[A]	86.6[A]	72.3[A]	164[A]	267[A]	276[A]	286[A]	9.62[A]	4.37[A]	2.35[A]
08:15 PST	0.00[A]	49.8[A]	187[A]	248[A]	267[A]	261[A]	316[A]	278[A]	284[A]	73.3[A]	83.4[A]	77.2[A]	69.5[A]	89.8[A]	70.4[A]	140[A]	290[A]	257[A]	280[A]	8.53[A]	4.69[A]	2.16[A]
08:30 PST	0.00[A]	49.1[A]	152[A]	314[A]	314[A]	306[A]	323[A]	259[A]	237[A]	75.3[A]	86.6[A]	71.4[A]	73.3[A]	88.7[A]	60.5[A]	149[A]	268[A]	257[A]	272[A]	9.25[A]	4.69[A]	1.99[A]
08:45 PST	0.00[A]	51.4[A]	170[A]	278[A]	272[A]	286[A]	314[A]	284[A]	259[A]	67.6[A]	67.6[A]	70.4[A]	67.6[A]	84.4[A]	80.3[A]	151[A]	300[A]	276[A]	292[A]	8.53[A]	3.49[A]	1.99[A]
09:00 PST	0.00[A]	49.8[A]	168[A]	292[A]	302[A]	290[A]	310[A]	290[A]	284[A]	71.4[A]	81.3[A]	67.6[A]	73.3[A]	93.1[A]	68.5[A]	148[A]	286[A]	276[A]	263[A]	7.86[A]	4.06[A]	2.16[A]
09:15 PST	0.00[A]	48.3[A]	170[A]	268[A]	278[A]	272[A]	310[A]	270[A]	253[A]	80.3[A]	84.4[A]	74.3[A]	66.7[A]	87.6[A]	73.3[A]	158[A]	239[A]	276[A]	292[A]	7.86[A]	4.37[A]	2.35[A]
09:30 PST	0.00[A]	59.6[A]	153[A]	259[A]	318[A]	282[A]	316[A]	267[A]	288[A]	71.4[A]	90.9[A]	78.2[A]	70.4[A]	87.6[A]	64.0[A]	153[A]	284[A]	272[A]	280[A]	8.53[A]	4.37[A]	2.16[A]
09:45 PST	0.00[A]	63.1[A]	190[A]	290[A]	274[A]	340[A]	278[A]	286[A]	282[A]	69.5[A]	84.4[A]	70.4[A]	73.3[A]	82.3[A]	79.3[A]	133[A]	272[A]	261[A]	265[A]	6.62[A]	4.37[A]	2.16[A]
10:00 PST	0.00[A]	63.1[A]	184[A]	314[A]	276[A]	296[A]	272[A]	276[A]	276[A]	71.4[A]	94.3[A]	73.3[A]	72.3[A]	97.7[A]	64.0[A]	164[A]	294[A]	253[A]	270[A]	7.54[A]	4.06[A]	2.16[A]
10:15 PST	0.00[A]	62.2[A]	152[A]	308[A]	325[A]	292[A]	318[A]	282[A]	284[A]	75.3[A]	95.4[A]	61.3[A]	62.2[A]	85.5[A]	75.3[A]	146[A]	267[A]	286[A]	253[A]	8.19[A]	3.77[A]	1.99[A]
10:30 PST	0.00[A]	62.2[A]	181[A]	316[A]	253[A]	280[A]	288[A]	284[A]	243[A]	72.3[A]	92.0[A]	68.5[A]	71.4[A]	88.7[A]	74.3[A]	133[A]	298[A]	270[A]	272[A]	7.22[A]	4.06[A]	2.16[A]
10:45 PST	0.00[A]	54.6[A]	151[A]	304[A]	304[A]	318[A]	282[A]	270[A]	290[A]	72.3[A]	73.3[A]	70.4[A]	69.5[A]	92.0[A]	73.3[A]	148[A]	252[A]	276[A]	286[A]	7.22[A]	3.77[A]	1.99[A]
11:00 PST	0.00[A]	54.6[A]	155[A]	333[A]	318[A]	320[A]	270[A]	272[A]	314[A]	74.3[A]	82.3[A]	71.4[A]	72.3[A]	81.3[A]	58.7[A]	148[A]	259[A]	252[A]	284[A]	6.34[A]	3.77[A]	2.16[A]
11:15 PST	0.00[A]	52.2[A]	198[A]	272[A]	243[A]	290[A]	259[A]	284[A]	290[A]	77.2[A]	75.3[A]	70.4[A]	69.5[A]	80.3[A]	77.2[A]	133[A]	244[A]	257[A]	222[A]	6.92[A]	3.49[A]	1.99[A]
11:30 PST	0.00[A]	49.1[A]	193[A]	253[A]	270[A]	284[A]	304[A]	278[A]	263[A]	76.2[A]	83.4[A]	65.8[A]	78.2[A]	80.3[A]	77.2[A]	165[A]	286[A]	286[A]	141[A]	6.92[A]	3.77[A]	1.99[A]
11:45 PST	0.00[A]	61.3[A]	215[A]	304[A]	286[A]	306[A]	284[A]	284[A]	308[A]	74.3[A]	73.3[A]	64.9[A]	76.2[A]	73.3[A]	83.4[A]	142[A]	274[A]	270[A]	113[A]	8.19[A]	3.77[A]	1.99[A]
12:00 PST	0.00[A]	73.3[A]	192[A]	338[A]	312[A]	286[A]	274[A]	280[A]	250[A]	84.4[A]	80.3[A]	64.9[A]	70.4[A]	80.3[A]	119[A]	164[A]	255[A]	272[A]	82.3[A]	12.4[A]	3.49[A]	1.99[A]
12:15 PST	0.00[A]	94.3[A]	310[A]	288[A]	288[A]	267[A]	261[A]	282[A]	298[A]	86.6[A]	81.3[A]	71.4[A]	73.3[A]	73.3[A]	121[A]	146[A]	276[A]	272[A]	67.6[A]	8.53[A]	3.49[A]	1.99[A]
12:30 PST	0.00[A]	114[A]	255[A]	298[A]	327[A]	296[A]	265[A]	304[A]	286[A]	95.4[A]	80.3[A]	72.3[A]	82.3[A]	80.3[A]	140[A]	153[A]	286[A]	292[A]	57.1[A]	7.22[A]	3.49[A]	1.99[A]
12:45 PST	0.00[A]	130[A]	306[A]	312[A]	278[A]	268[A]	267[A]	278[A]	298[A]	103[A]	74.3[A]	71.4[A]	63.1[A]	80.3[A]	149[A]	159[A]	292[A]	310[A]	49.1[A]	6.62[A]	3.49[A]	1.99[A]
13:00 PST	0.00[A]	151[A]	241[A]	302[A]	267[A]	280[A]	312[A]	312[A]	265[A]	107[A]	76.2[A]	70.4[A]	75.3[A]	86.6[A]	146[A]	149[A]	272[A]	246[A]	49.1[A]	6.92[A]	4.06[A]	1.99[A]
13:15 PST	0.00[A]	149[A]	278[A]	253[A]	288[A]	302[A]	296[A]	274[A]	304[A]	100[A]	66.7[A]	74.3[A]	74.3[A]	90.9[A]	138[A]	155[A]	259[A]	261[A]	49.1[A]	6.62[A]	3.49[A]	2.16[A]
13:30 PST	0.00[A]	149[A]	280[A]	338[A]	302[A]	294[A]	300[A]	268[A]	294[A]	100[A]	64.9[A]	75.3[A]	63.1[A]	75.3[A]	142[A]	171[A]	292[A]	250[A]	42.5[A]	7.22[A]	3.77[A]	1.99[A]
13:45 PST	0.00[A]	149[A]	338[A]	302[A]	300[A]	268[A]	294[A]	282[A]	243[A]	100[A]	80.3[A]	71.4[A]	70.4[A]	79.3[A]	137[A]	152[A]	250[A]	280[A]	37.7[A]	6.62[A]	3.77[A]	1.83[A]
14:00 PST	0.00[A]	158[A]	284[A]	278[A]	327[A]	276[A]	280[A]	270[A]	255[A]	107[A]	76.2[A]	62.2[A]	71.4[A]	70.4[A]	158[A]	137[A]	263[A]	268[A]	35.2[A]	5.79[A]	4.06[A]	1.83[A]
14:15 PST	0.00[A]	151[A]	308[A]	282[A]	280[A]	312[A]	267[A]	296[A]	268[A]	121[A]	82.3[A]	71.4[A]	66.7[A]	82.3[A]	142[A]	161[A]	263[A]	263[A]	37.1[A]	6.62[A]	3.77[A]	1.83[A]
14:30 PST	0.00[A]	162[A]	261[A]	308[A]	312[A]	267[A]	268[A]	290[A]	267[A]	120[A]	79.3[A]	75.3[A]	79.3[A]	84.4[A]	165[A]	149[A]	261[A]	296[A]	33.3[A]	5.53[A]	3.49[A]	1.99[A]
14:45 PST	0.00[A]	155[A]	278[A]	292[A]	304[A]	270[A]	272[A]	268[A]	257[A]	102[A]	76.2[A]	71.4[A]	69.5[A]	69.5[A]	138[A]	138[A]	259[A]	257[A]	33.9[A]	6.34[A]	3.23[A]	1.83[A]
15:00 PST	0.00[A]	159[A]	280[A]	316[A]	318[A]	292[A]	294[A]	265[A]	267[A]	96.5[A]	73.3[A]	67.6[A]	80.3[A]	77.2[A]	137[A]	171[A]	282[A]	276[A]	30.9[A]	6.06[A]	3.49[A]	1.67[A]

TIME	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5	Feb 6	Feb 7	Feb 8	Feb 9	Feb 10	Feb 11	Feb 12	Feb 13	Feb 14	Feb 15	Feb 16	Feb 17	Feb 18
15:15 PST	0.00[A]	155[A]	308[A]	296[A]	286[A]	282[A]	261[A]	280[A]	267[A]	102[A]	67.6[A]	66.7[A]	70.4[A]	78.2[A]	151[A]	155[A]	263[A]	259[A]	23.8[A]	6.06[A]	3.23[A]	1.67[A]
15:30 PST	0.00[A]	170[A]	235[A]	308[A]	316[A]	323[A]	274[A]	310[A]	278[A]	81.3[A]	70.4[A]	69.5[A]	68.5[A]	66.7[A]	152[A]	149[A]	290[A]	265[A]	27.3[A]	5.79[A]	3.23[A]	1.67[A]
15:45 PST	0.00[A]	165[A]	246[A]	331[A]	267[A]	284[A]	272[A]	259[A]	276[A]	85.5[A]	70.4[A]	74.3[A]	78.2[A]	83.4[A]	146[A]	152[A]	280[A]	288[A]	26.7[A]	6.34[A]	2.99[A]	1.83[A]
16:00 PST	0.00[A]	159[A]	270[A]	316[A]	288[A]	278[A]	270[A]	280[A]	274[A]	90.9[A]	75.3[A]	65.8[A]	72.3[A]	76.2[A]	162[A]	165[A]	263[A]	265[A]	23.8[A]	6.34[A]	3.49[A]	1.67[A]
16:15 PST	32.7[A]	168[A]	300[A]	272[A]	268[A]	252[A]	288[A]	298[A]	268[A]	88.7[A]	63.1[A]	71.4[A]	66.7[A]	75.3[A]	153[A]	144[A]	288[A]	286[A]	24.9[A]	6.34[A]	3.23[A]	1.83[A]
16:30 PST	51.4[A]	156[A]	246[A]	298[A]	276[A]	282[A]	261[A]	267[A]	250[A]	74.3[A]	67.6[A]	60.5[A]	72.3[A]	78.2[A]	142[A]	146[A]	276[A]	292[A]	21.7[A]	6.34[A]	3.49[A]	1.67[A]
16:45 PST	50.6[A]	173[A]	267[A]	261[A]	267[A]	280[A]	298[A]	278[A]	282[A]	86.6[A]	75.3[A]	75.3[A]	71.4[A]	72.3[A]	149[A]	146[A]	288[A]	268[A]	23.3[A]	6.92[A]	2.99[A]	1.99[A]
17:00 PST	57.9[A]	146[A]	267[A]	300[A]	300[A]	296[A]	270[A]	298[A]	237[A]	92.0[A]	69.5[A]	65.8[A]	68.5[A]	69.5[A]	145[A]	165[A]	253[A]	261[A]	22.7[A]	7.22[A]	3.49[A]	1.67[A]
17:15 PST	56.2[A]	161[A]	286[A]	320[A]	274[A]	288[A]	237[A]	304[A]	232[A]	87.6[A]	75.3[A]	75.3[A]	68.5[A]	80.3[A]	152[A]	164[A]	276[A]	282[A]	22.2[A]	6.92[A]	3.23[A]	1.83[A]
17:30 PST	57.1[A]	158[A]	294[A]	265[A]	270[A]	284[A]	265[A]	276[A]	174[A]	78.2[A]	74.3[A]	75.3[A]	63.1[A]	69.5[A]	155[A]	185[A]	278[A]	263[A]	27.3[A]	5.79[A]	2.99[A]	1.83[A]
17:45 PST	63.1[A]	148[A]	235[A]	282[A]	333[A]	282[A]	232[A]	276[A]	126[A]	78.2[A]	68.5[A]	73.3[A]	66.7[A]	73.3[A]	168[A]	213[A]	259[A]	259[A]	28.5[A]	6.34[A]	2.99[A]	1.99[A]
18:00 PST	59.6[A]	167[A]	257[A]	270[A]	290[A]	282[A]	261[A]	268[A]	96.5[A]	88.7[A]	71.4[A]	66.7[A]	77.2[A]	78.2[A]	130[A]	228[A]	290[A]	294[A]	27.3[A]	6.06[A]	2.99[A]	1.83[A]
18:15 PST	63.1[A]	164[A]	280[A]	294[A]	268[A]	304[A]	250[A]	253[A]	100[A]	80.3[A]	75.3[A]	69.5[A]	71.4[A]	71.4[A]	182[A]	252[A]	267[A]	267[A]	25.5[A]	5.28[A]	2.99[A]	1.67[A]
18:30 PST	58.7[A]	161[A]	272[A]	296[A]	316[A]	292[A]	284[A]	304[A]	83.4[A]	78.2[A]	79.3[A]	69.5[A]	73.3[A]	78.2[A]	152[A]	253[A]	255[A]	250[A]	23.8[A]	5.79[A]	2.99[A]	1.67[A]
18:45 PST	49.8[A]	164[A]	263[A]	296[A]	298[A]	282[A]	300[A]	292[A]	77.2[A]	88.7[A]	76.2[A]	70.4[A]	74.3[A]	86.6[A]	168[A]	263[A]	270[A]	248[A]	27.3[A]	5.28[A]	2.99[A]	1.67[A]
19:00 PST	55.4[A]	155[A]	280[A]	292[A]	280[A]	272[A]	318[A]	263[A]	87.6[A]	85.5[A]	84.4[A]	66.7[A]	80.3[A]	74.3[A]	165[A]	276[A]	263[A]	261[A]	22.7[A]	4.69[A]	2.99[A]	1.83[A]
19:15 PST	52.2[A]	165[A]	288[A]	292[A]	288[A]	294[A]	265[A]	270[A]	79.3[A]	73.3[A]	71.4[A]	66.7[A]	92.0[A]	82.3[A]	159[A]	237[A]	255[A]	278[A]	18.7[A]	5.79[A]	3.23[A]	1.67[A]
19:30 PST	65.8[A]	161[A]	263[A]	265[A]	276[A]	250[A]	241[A]	320[A]	78.2[A]	74.3[A]	70.4[A]	73.3[A]	114[A]	75.3[A]	137[A]	276[A]	267[A]	270[A]	17.7[A]	4.69[A]	2.99[A]	1.67[A]
19:45 PST	62.2[A]	168[A]	261[A]	280[A]	257[A]	308[A]	268[A]	286[A]	80.3[A]	88.7[A]	79.3[A]	71.4[A]	115[A]	74.3[A]	128[A]	263[A]	284[A]	265[A]	14.7[A]	5.28[A]	2.99[A]	1.83[A]
20:00 PST	57.9[A]	161[A]	267[A]	312[A]	292[A]	255[A]	306[A]	276[A]	76.2[A]	66.7[A]	82.3[A]	64.9[A]	116[A]	66.7[A]	137[A]	250[A]	270[A]	288[A]	14.7[A]	5.53[A]	2.99[A]	1.99[A]
20:15 PST	49.1[A]	165[A]	270[A]	304[A]	253[A]	265[A]	294[A]	268[A]	74.3[A]	72.3[A]	73.3[A]	72.3[A]	132[A]	77.2[A]	138[A]	265[A]	265[A]	276[A]	16.0[A]	5.28[A]	2.99[A]	1.67[A]
20:30 PST	46.1[A]	168[A]	284[A]	292[A]	270[A]	252[A]	294[A]	284[A]	70.4[A]	70.4[A]	67.6[A]	75.3[A]	113[A]	76.2[A]	162[A]	270[A]	255[A]	265[A]	14.7[A]	5.28[A]	2.99[A]	1.67[A]
20:45 PST	48.3[A]	161[A]	318[A]	308[A]	292[A]	304[A]	270[A]	274[A]	72.3[A]	75.3[A]	66.7[A]	71.4[A]	114[A]	79.3[A]	146[A]	282[A]	246[A]	270[A]	14.3[A]	5.79[A]	2.76[A]	1.53[A]
21:00 PST	46.1[A]	162[A]	248[A]	280[A]	331[A]	276[A]	280[A]	276[A]	78.2[A]	81.3[A]	68.5[A]	66.7[A]	128[A]	74.3[A]	145[A]	253[A]	255[A]	255[A]	15.1[A]	5.53[A]	2.76[A]	1.53[A]
21:15 PST	52.2[A]	170[A]	323[A]	261[A]	296[A]	259[A]	253[A]	280[A]	73.3[A]	73.3[A]	64.0[A]	69.5[A]	141[A]	65.8[A]	140[A]	246[A]	298[A]	282[A]	16.0[A]	6.92[A]	2.76[A]	1.83[A]
21:30 PST	39.0[A]	164[A]	286[A]	284[A]	274[A]	263[A]	276[A]	284[A]	79.3[A]	78.2[A]	79.3[A]	75.3[A]	149[A]	79.3[A]	140[A]	270[A]	294[A]	286[A]	15.5[A]	7.86[A]	2.76[A]	1.67[A]
21:45 PST	47.5[A]	146[A]	280[A]	331[A]	300[A]	274[A]	261[A]	294[A]	79.3[A]	88.7[A]	74.3[A]	70.4[A]	153[A]	76.2[A]	165[A]	274[A]	257[A]	263[A]	14.7[A]	8.88[A]	2.76[A]	1.67[A]
22:00 PST	50.6[A]	176[A]	280[A]	278[A]	280[A]	278[A]	282[A]	272[A]	67.6[A]	81.3[A]	69.5[A]	75.3[A]	155[A]	79.3[A]	145[A]	208[A]	296[A]	276[A]	14.3[A]	6.34[A]	2.99[A]	1.40[A]
22:15 PST	48.3[A]	162[A]	290[A]	274[A]	294[A]	296[A]	323[A]	320[A]	71.4[A]	85.5[A]	83.4[A]	71.4[A]	119[A]	79.3[A]	132[A]	292[A]	276[A]	288[A]	13.5[A]	6.06[A]	2.99[A]	1.53[A]
22:30 PST	60.5[A]	164[A]	325[A]	276[A]	298[A]	312[A]	250[A]	274[A]	70.4[A]	84.4[A]	74.3[A]	66.7[A]	144[A]	82.3[A]	145[A]	268[A]	257[A]	276[A]	14.3[A]	5.53[A]	2.55[A]	1.83[A]
22:45 PST	52.2[A]	165[A]	286[A]	298[A]	294[A]	306[A]	261[A]	272[A]	79.3[A]	92.0[A]	75.3[A]	76.2[A]	141[A]	66.7[A]	144[A]	265[A]	302[A]	286[A]	13.9[A]	7.54[A]	2.76[A]	1.53[A]

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TIME	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5	Feb 6	Feb 7	Feb 8	Feb 9	Feb 10	Feb 11	Feb 12	Feb 13	Feb 14	Feb 15	Feb 16	Feb 17	Feb 18
23:00 PST	64.0[A]	171[A]	308[A]	323[A]	265[A]	267[A]	292[A]	286[A]	79.3[A]	85.5[A]	72.3[A]	67.6[A]	142[A]	71.4[A]	165[A]	263[A]	270[A]	298[A]	12.0[A]	7.86[A]	2.76[A]	1.53[A]
23:15 PST	51.4[A]	173[A]	286[A]	263[A]	310[A]	306[A]	284[A]	288[A]	70.4[A]	92.0[A]	66.7[A]	69.5[A]	126[A]	80.3[A]	145[A]	276[A]	253[A]	288[A]	12.4[A]	11.0[A]	2.55[A]	1.40[A]
23:30 PST	49.1[A]	165[A]	335[A]	284[A]	265[A]	290[A]	276[A]	286[A]	71.4[A]	105[A]	72.3[A]	72.3[A]	153[A]	74.3[A]	142[A]	274[A]	325[A]	270[A]	12.4[A]	5.79[A]	2.76[A]	1.53[A]
23:45 PST	51.4[A]	174[A]	278[A]	288[A]	278[A]	320[A]	270[A]	267[A]	75.3[A]	92.0[A]	73.3[A]	74.3[A]	126[A]	71.4[A]	144[A]	210[A]	263[A]	288[A]	12.8[A]	7.86[A]	2.55[A]	1.53[A]
COUNT	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**
MAX	**65.8**	**176**	**338**	**353**	**338**	**346**	**344**	**329**	**314**	**121**	**100**	**80.3**	**155**	**140**	**182**	**292**	**325**	**310**	**294**	**14.7**	**11.0**	**2.99**
MIN	**0.00**	**43.2**	**149**	**248**	**243**	**241**	**223**	**237**	**67.6**	**64.0**	**62.2**	**60.5**	**58.7**	**65.8**	**58.7**	**128**	**222**	**230**	**12.0**	**4.69**	**2.55**	**1.40**

Explanation

A	Approved for publication -- Processing and review completed.

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2012

Discharge, cubic feet per second

TIME	Jan 24	Jan 25	Jan 26	Jan 27	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5	Feb 6	Feb 7	Feb 8	Feb 9	Feb 10	Feb 11
00:00 PST	10.6[A]	47.5[A]	121[A]	268[A]	325[A]	365[A]	355[A]	344[A]	367[A]	340[A]	358[A]	355[A]	388[A]	381[A]	225[A]	237[A]	381[A]	355[A]	26.7[A]
00:15 PST	10.6[A]	44.6[A]	125[A]	252[A]	335[A]	351[A]	365[A]	338[A]	342[A]	346[A]	367[A]	379[A]	349[A]	355[A]	228[A]	243[A]	333[A]	358[A]	26.1[A]
00:30 PST	11.0[A]	47.5[A]	120[A]	253[A]	376[A]	355[A]	358[A]	344[A]	351[A]	342[A]	346[A]	372[A]	381[A]	395[A]	223[A]	230[A]	346[A]	372[A]	26.1[A]
00:45 PST	10.6[A]	49.1[A]	119[A]	255[A]	335[A]	346[A]	344[A]	342[A]	360[A]	365[A]	372[A]	367[A]	383[A]	381[A]	234[A]	222[A]	365[A]	353[A]	25.5[A]
01:00 PST	11.0[A]	49.1[A]	125[A]	268[A]	344[A]	355[A]	369[A]	362[A]	338[A]	333[A]	358[A]	367[A]	379[A]	390[A]	225[A]	243[A]	353[A]	362[A]	24.4[A]
01:15 PST	12.8[A]	49.1[A]	128[A]	253[A]	349[A]	342[A]	353[A]	329[A]	346[A]	360[A]	346[A]	372[A]	381[A]	398[A]	230[A]	225[A]	369[A]	360[A]	23.3[A]
01:30 PST	12.4[A]	44.6[A]	130[A]	253[A]	358[A]	340[A]	355[A]	340[A]	358[A]	351[A]	376[A]	314[A]	386[A]	388[A]	227[A]	235[A]	353[A]	362[A]	23.3[A]
01:45 PST	12.4[A]	46.8[A]	120[A]	257[A]	349[A]	365[A]	365[A]	327[A]	353[A]	355[A]	355[A]	372[A]	374[A]	376[A]	230[A]	218[A]	365[A]	355[A]	22.7[A]
02:00 PST	12.4[A]	46.8[A]	124[A]	250[A]	346[A]	351[A]	331[A]	351[A]	342[A]	353[A]	355[A]	369[A]	386[A]	390[A]	230[A]	228[A]	353[A]	365[A]	22.2[A]
02:15 PST	12.4[A]	48.3[A]	123[A]	253[A]	353[A]	349[A]	351[A]	338[A]	355[A]	374[A]	369[A]	367[A]	367[A]	342[A]	237[A]	227[A]	362[A]	358[A]	20.6[A]
02:30 PST	12.8[A]	47.5[A]	129[A]	270[A]	312[A]	365[A]	340[A]	338[A]	346[A]	353[A]	358[A]	365[A]	374[A]	386[A]	237[A]	243[A]	360[A]	349[A]	20.6[A]
02:45 PST	13.1[A]	44.6[A]	115[A]	272[A]	333[A]	318[A]	333[A]	353[A]	365[A]	351[A]	360[A]	369[A]	381[A]	362[A]	232[A]	225[A]	369[A]	360[A]	21.1[A]
03:00 PST	13.5[A]	43.9[A]	133[A]	257[A]	329[A]	329[A]	353[A]	340[A]	318[A]	316[A]	360[A]	379[A]	342[A]	398[A]	237[A]	235[A]	365[A]	372[A]	21.7[A]
03:15 PST	13.1[A]	47.5[A]	128[A]	248[A]	342[A]	362[A]	331[A]	351[A]	367[A]	351[A]	346[A]	383[A]	369[A]	374[A]	223[A]	208[A]	360[A]	367[A]	20.1[A]
03:30 PST	13.9[A]	45.3[A]	118[A]	263[A]	327[A]	349[A]	340[A]	351[A]	323[A]	349[A]	344[A]	365[A]	351[A]	365[A]	235[A]	232[A]	365[A]	379[A]	19.6[A]
03:45 PST	13.5[A]	49.1[A]	130[A]	263[A]	333[A]	335[A]	351[A]	338[A]	318[A]	331[A]	379[A]	383[A]	365[A]	374[A]	227[A]	230[A]	372[A]	349[A]	18.7[A]
04:00 PST	15.1[A]	46.8[A]	119[A]	253[A]	360[A]	351[A]	342[A]	369[A]	342[A]	353[A]	362[A]	376[A]	369[A]	386[A]	237[A]	237[A]	374[A]	360[A]	18.7[A]
04:15 PST	14.7[A]	44.6[A]	110[A]	252[A]	346[A]	353[A]	351[A]	355[A]	369[A]	351[A]	353[A]	379[A]	379[A]	383[A]	239[A]	252[A]	353[A]	362[A]	18.7[A]
04:30 PST	14.3[A]	46.8[A]	132[A]	270[A]	358[A]	353[A]	344[A]	349[A]	340[A]	360[A]	367[A]	360[A]	367[A]	374[A]	222[A]	232[A]	369[A]	369[A]	18.2[A]
04:45 PST	15.1[A]	48.3[A]	120[A]	270[A]	342[A]	340[A]	342[A]	372[A]	327[A]	349[A]	358[A]	379[A]	374[A]	379[A]	237[A]	234[A]	346[A]	351[A]	17.7[A]
05:00 PST	15.5[A]	47.5[A]	130[A]	263[A]	346[A]	355[A]	365[A]	323[A]	353[A]	358[A]	367[A]	362[A]	367[A]	374[A]	228[A]	237[A]	344[A]	331[A]	17.3[A]
05:15 PST	17.7[A]	48.3[A]	119[A]	274[A]	358[A]	369[A]	360[A]	331[A]	358[A]	360[A]	360[A]	358[A]	376[A]	390[A]	230[A]	216[A]	372[A]	372[A]	18.2[A]
05:30 PST	15.1[A]	50.6[A]	125[A]	272[A]	335[A]	346[A]	325[A]	360[A]	349[A]	362[A]	360[A]	360[A]	351[A]	388[A]	235[A]	232[A]	362[A]	316[A]	17.3[A]
05:45 PST	14.7[A]	48.3[A]	121[A]	257[A]	344[A]	351[A]	351[A]	327[A]	372[A]	351[A]	358[A]	379[A]	372[A]	400[A]	239[A]	232[A]	369[A]	362[A]	16.4[A]
06:00 PST	16.0[A]	47.5[A]	125[A]	272[A]	351[A]	335[A]	342[A]	340[A]	346[A]	360[A]	355[A]	372[A]	386[A]	388[A]	227[A]	230[A]	349[A]	358[A]	16.4[A]
06:15 PST	16.4[A]	49.1[A]	136[A]	268[A]	346[A]	346[A]	349[A]	342[A]	338[A]	335[A]	365[A]	369[A]	376[A]	374[A]	223[A]	234[A]	376[A]	360[A]	16.0[A]
06:30 PST	15.5[A]	47.5[A]	119[A]	274[A]	360[A]	298[A]	344[A]	346[A]	353[A]	338[A]	369[A]	381[A]	360[A]	393[A]	225[A]	243[A]	325[A]	360[A]	15.5[A]
06:45 PST	16.0[A]	48.3[A]	124[A]	276[A]	369[A]	331[A]	358[A]	355[A]	353[A]	362[A]	327[A]	376[A]	372[A]	367[A]	239[A]	230[A]	362[A]	325[A]	15.5[A]
07:00 PST	14.7[A]	49.1[A]	119[A]	270[A]	331[A]	329[A]	355[A]	355[A]	355[A]	367[A]	358[A]	365[A]	355[A]	360[A]	234[A]	241[A]	381[A]	353[A]	15.1[A]
07:15 PST	16.4[A]	50.6[A]	124[A]	280[A]	340[A]	338[A]	369[A]	358[A]	318[A]	358[A]	365[A]	372[A]	351[A]	358[A]	239[A]	225[A]	360[A]	365[A]	14.3[A]

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TIME	Jan 24	Jan 25	Jan 26	Jan 27	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5	Feb 6	Feb 7	Feb 8	Feb 9	Feb 10	Feb 11
07:30 PST	15.5[A]	50.6[A]	115[A]	286[A]	331[A]	331[A]	383[A]	360[A]	344[A]	355[A]	360[A]	360[A]	374[A]	351[A]	215[A]	216[A]	372[A]	372[A]	15.5[A]
07:45 PST	16.4[A]	45.3[A]	120[A]	278[A]	342[A]	314[A]	360[A]	333[A]	325[A]	358[A]	383[A]	381[A]	376[A]	376[A]	239[A]	235[A]	353[A]	367[A]	15.1[A]
08:00 PST	16.4[A]	46.1[A]	119[A]	284[A]	349[A]	340[A]	338[A]	360[A]	335[A]	362[A]	365[A]	369[A]	365[A]	398[A]	222[A]	235[A]	353[A]	369[A]	14.7[A]
08:15 PST	16.0[A]	46.8[A]	113[A]	284[A]	367[A]	358[A]	338[A]	351[A]	338[A]	349[A]	338[A]	386[A]	369[A]	372[A]	227[A]	227[A]	355[A]	353[A]	14.3[A]
08:30 PST	16.4[A]	47.5[A]	110[A]	274[A]	355[A]	355[A]	365[A]	362[A]	344[A]	360[A]	360[A]	369[A]	379[A]	362[A]	235[A]	241[A]	360[A]	369[A]	12.8[A]
08:45 PST	16.4[A]	52.2[A]	121[A]	268[A]	353[A]	353[A]	351[A]	355[A]	353[A]	346[A]	383[A]	369[A]	379[A]	329[A]	227[A]	237[A]	381[A]	346[A]	12.4[A]
09:00 PST	16.0[A]	49.1[A]	119[A]	278[A]	346[A]	333[A]	333[A]	349[A]	338[A]	369[A]	369[A]	331[A]	355[A]	381[A]	234[A]	239[A]	351[A]	335[A]	12.8[A]
09:15 PST	16.4[A]	46.1[A]	112[A]	280[A]	333[A]	344[A]	374[A]	349[A]	349[A]	369[A]	362[A]	388[A]	379[A]	381[A]	230[A]	234[A]	353[A]	358[A]	14.3[A]
09:30 PST	16.0[A]	49.1[A]	121[A]	286[A]	351[A]	342[A]	333[A]	355[A]	344[A]	351[A]	355[A]	386[A]	365[A]	383[A]	218[A]	243[A]	358[A]	367[A]	13.9[A]
09:45 PST	16.8[A]	51.4[A]	110[A]	284[A]	362[A]	358[A]	340[A]	362[A]	365[A]	362[A]	349[A]	365[A]	358[A]	372[A]	239[A]	241[A]	365[A]	360[A]	13.1[A]
10:00 PST	16.4[A]	51.4[A]	115[A]	282[A]	362[A]	353[A]	362[A]	304[A]	353[A]	351[A]	360[A]	369[A]	383[A]	362[A]	237[A]	239[A]	369[A]	355[A]	13.1[A]
10:15 PST	16.8[A]	50.6[A]	118[A]	282[A]	360[A]	349[A]	365[A]	346[A]	360[A]	353[A]	346[A]	367[A]	379[A]	367[A]	210[A]	222[A]	314[A]	338[A]	12.4[A]
10:30 PST	16.8[A]	51.4[A]	113[A]		355[A]	358[A]	365[A]	358[A]	355[A]	325[A]	362[A]	388[A]	390[A]	393[A]	228[A]	228[A]	369[A]	358[A]	12.8[A]
10:45 PST	16.4[A]	50.6[A]	125[A]	288[A]	360[A]	349[A]	338[A]	338[A]	355[A]	372[A]	355[A]	372[A]	353[A]	365[A]	216[A]	241[A]	367[A]	335[A]	12.0[A]
11:00 PST	16.4[A]	46.1[A]	110[A]	278[A]	344[A]	360[A]	374[A]	358[A]	351[A]	349[A]	360[A]	374[A]	376[A]	376[A]	234[A]	265[A]	376[A]	376[A]	12.4[A]
11:15 PST	16.8[A]	44.6[A]	121[A]	280[A]	353[A]	355[A]	365[A]	360[A]	351[A]	360[A]	349[A]	383[A]	365[A]	388[A]	243[A]	308[A]	358[A]	344[A]	12.8[A]
11:30 PST	17.3[A]	50.6[A]	129[A]	294[A]	360[A]	355[A]	369[A]	367[A]	362[A]	365[A]	367[A]	358[A]	372[A]	365[A]	241[A]	342[A]	365[A]	346[A]	11.7[A]
11:45 PST	16.4[A]	49.1[A]	119[A]	282[A]	349[A]	346[A]	351[A]	346[A]	349[A]	360[A]	365[A]	365[A]	333[A]	381[A]	241[A]	329[A]	346[A]	365[A]	12.0[A]
12:00 PST	16.4[A]	46.1[A]	123[A]	290[A]	355[A]	358[A]	349[A]	362[A]	355[A]	346[A]	372[A]	381[A]	383[A]	376[A]	241[A]	349[A]	353[A]	355[A]	12.0[A]
12:15 PST	17.3[A]	51.4[A]	129[A]	288[A]	362[A]	351[A]	320[A]	358[A]	358[A]	340[A]	331[A]	374[A]	381[A]	388[A]	237[A]	360[A]	369[A]	367[A]	11.3[A]
12:30 PST	16.8[A]	49.8[A]	146[A]	296[A]	335[A]	346[A]	358[A]	360[A]	340[A]	346[A]	355[A]	365[A]	374[A]	379[A]	235[A]	367[A]	369[A]	360[A]	11.7[A]
12:45 PST	17.3[A]	49.8[A]	153[A]	284[A]	351[A]	358[A]	349[A]	365[A]	344[A]	369[A]	372[A]	360[A]	351[A]	367[A]	232[A]	369[A]	360[A]	329[A]	11.7[A]
13:00 PST	16.8[A]	64.0[A]	168[A]	286[A]	344[A]	349[A]	351[A]	331[A]	360[A]	351[A]	381[A]	365[A]	386[A]	381[A]	243[A]	362[A]	351[A]	369[A]	10.6[A]
13:15 PST	17.3[A]	75.3[A]	195[A]	284[A]	358[A]	329[A]	365[A]	323[A]	346[A]	353[A]	338[A]	362[A]	369[A]	374[A]	225[A]	365[A]	358[A]	355[A]	11.3[A]
13:30 PST	16.8[A]		205[A]	284[A]	369[A]	349[A]	367[A]	346[A]	360[A]	327[A]	329[A]	367[A]	346[A]	383[A]	230[A]	367[A]	358[A]	365[A]	11.3[A]
13:45 PST	16.4[A]	95.4[A]	192[A]	274[A]	338[A]	360[A]	340[A]	362[A]	344[A]	367[A]	358[A]	369[A]	379[A]	335[A]	223[A]	355[A]	351[A]	358[A]	10.6[A]
14:00 PST	16.0[A]	106[A]	215[A]	300[A]	362[A]	353[A]	362[A]	367[A]	338[A]	353[A]	367[A]	367[A]	355[A]	381[A]	230[A]	367[A]	374[A]	340[A]	10.6[A]
14:15 PST	16.4[A]		192[A]	270[A]	344[A]	362[A]	323[A]	355[A]	362[A]	353[A]	353[A]	346[A]	360[A]	390[A]	235[A]	365[A]	360[A]	325[A]	10.6[A]
14:30 PST	16.8[A]	125[A]	211[A]	298[A]	344[A]	349[A]	376[A]	353[A]	369[A]	340[A]	369[A]	379[A]	390[A]	338[A]	216[A]	365[A]	372[A]	355[A]	10.0[A]
14:45 PST	20.1[A]		220[A]	292[A]	344[A]	335[A]	349[A]	351[A]	353[A]	365[A]	358[A]	372[A]	386[A]	388[A]	241[A]	365[A]	338[A]	351[A]	10.6[A]
15:00 PST	22.7[A]		218[A]	300[A]	353[A]	338[A]	338[A]	325[A]	355[A]	367[A]	367[A]	374[A]	365[A]	353[A]	228[A]	365[A]	362[A]	344[A]	11.3[A]

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TIME	Jan 24	Jan 25	Jan 26	Jan 27	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5	Feb 6	Feb 7	Feb 8	Feb 9	Feb 10	Feb 11
15:15 PST	28.5[A]	124[A]	215[A]	286[A]	323[A]	360[A]	340[A]	355[A]	351[A]	349[A]	369[A]	376[A]	365[A]	379[A]	227[A]	360[A]	346[A]	358[A]	10.3[A]
15:30 PST	37.1[A]	125[A]	239[A]	272[A]	362[A]	349[A]	365[A]	344[A]	353[A]	353[A]	360[A]	355[A]	365[A]	393[A]	234[A]	338[A]	376[A]	365[A]	10.6[A]
15:45 PST	37.7[A]	128[A]	239[A]	286[A]	349[A]	349[A]	342[A]	349[A]	355[A]	346[A]	320[A]	383[A]	390[A]	376[A]	230[A]	362[A]	365[A]	331[A]	10.6[A]
16:00 PST	41.1[A]	120[A]	220[A]	292[A]	349[A]	360[A]	358[A]	372[A]	365[A]	365[A]	386[A]	372[A]	379[A]	369[A]	220[A]	353[A]	365[A]	333[A]	9.62[A]
16:15 PST	44.6[A]	126[A]	234[A]	298[A]	365[A]	355[A]	340[A]	333[A]	340[A]	362[A]	372[A]	362[A]	372[A]	367[A]	215[A]	386[A]	369[A]	312[A]	9.62[A]
16:30 PST	40.4[A]	126[A]	241[A]	292[A]	358[A]	340[A]	344[A]	333[A]	362[A]	344[A]	353[A]	374[A]	374[A]	367[A]	222[A]	369[A]	331[A]	222[A]	10.6[A]
16:45 PST	45.3[A]	129[A]	250[A]	286[A]	367[A]	362[A]	351[A]	342[A]	346[A]	353[A]	381[A]	340[A]	381[A]	376[A]	227[A]	358[A]	369[A]	144[A]	10.0[A]
17:00 PST	46.8[A]	129[A]	250[A]	261[A]	358[A]	346[A]	353[A]	358[A]	381[A]	342[A]	362[A]	365[A]	383[A]	346[A]	237[A]	372[A]	362[A]	121[A]	10.0[A]
17:15 PST	48.3[A]	126[A]	253[A]	286[A]	344[A]	344[A]	353[A]	355[A]	358[A]	367[A]	376[A]	340[A]	360[A]	369[A]	216[A]	338[A]	355[A]	98.8[A]	9.25[A]
17:30 PST	49.1[A]	133[A]	248[A]	274[A]	365[A]	362[A]	362[A]	346[A]	349[A]	344[A]	365[A]	360[A]	367[A]	335[A]	235[A]	372[A]	362[A]	86.6[A]	8.88[A]
17:45 PST	46.1[A]	134[A]	241[A]	284[A]	355[A]	353[A]	333[A]	349[A]	360[A]	353[A]	379[A]	369[A]	379[A]	302[A]	232[A]	360[A]	362[A]	82.3[A]	9.62[A]
18:00 PST	49.8[A]	145[A]	244[A]	276[A]	329[A]	362[A]	353[A]	333[A]	351[A]	365[A]	367[A]	381[A]	376[A]	272[A]	237[A]	376[A]	360[A]	89.8[A]	10.6[A]
18:15 PST	49.8[A]	142[A]	261[A]	298[A]	353[A]	353[A]	349[A]	308[A]	360[A]	346[A]	360[A]	367[A]	390[A]	257[A]	227[A]	333[A]	369[A]	86.6[A]	9.25[A]
18:30 PST	49.8[A]	140[A]	276[A]	290[A]	351[A]	360[A]	367[A]	338[A]	362[A]	344[A]	374[A]	360[A]	376[A]	255[A]	246[A]	355[A]	367[A]	77.2[A]	8.88[A]
18:45 PST	50.6[A]	133[A]	268[A]	284[A]	355[A]	342[A]	360[A]	365[A]	318[A]	362[A]	367[A]	367[A]	390[A]	234[A]	225[A]	369[A]	367[A]	71.4[A]	8.88[A]
19:00 PST	49.1[A]	138[A]	272[A]	282[A]	349[A]	346[A]	365[A]	340[A]	340[A]	353[A]	367[A]	360[A]	340[A]	244[A]	235[A]	349[A]	355[A]	66.7[A]	8.88[A]
19:15 PST	49.8[A]	130[A]	259[A]	302[A]	360[A]	351[A]	331[A]	374[A]	344[A]	358[A]	365[A]	388[A]	379[A]	234[A]	230[A]	360[A]	349[A]	61.3[A]	8.53[A]
19:30 PST	49.8[A]	118[A]	280[A]	310[A]	340[A]	367[A]	349[A]	342[A]	338[A]	360[A]	369[A]	344[A]	362[A]	239[A]	241[A]	360[A]	372[A]	57.9[A]	9.62[A]
19:45 PST	46.8[A]	118[A]	274[A]	292[A]	344[A]	353[A]	340[A]	344[A]	360[A]	358[A]	365[A]	376[A]	369[A]	239[A]	230[A]	344[A]	360[A]	51.4[A]	8.19[A]
20:00 PST	49.8[A]	129[A]	270[A]	286[A]	312[A]	344[A]	362[A]	320[A]	355[A]	360[A]	367[A]	367[A]	379[A]	227[A]	241[A]	379[A]	358[A]	50.6[A]	8.19[A]
20:15 PST	49.8[A]	128[A]	274[A]	296[A]	344[A]	362[A]	355[A]	360[A]	349[A]	351[A]	383[A]	355[A]	367[A]	227[A]	218[A]	369[A]	372[A]	45.3[A]	8.19[A]
20:30 PST	51.4[A]	125[A]	272[A]	294[A]	342[A]	353[A]	338[A]	335[A]	340[A]	358[A]	369[A]	344[A]	386[A]	237[A]	227[A]	358[A]	342[A]	44.6[A]	8.19[A]
20:45 PST	51.4[A]	125[A]	274[A]	290[A]	360[A]	338[A]	342[A]	342[A]	360[A]	349[A]	362[A]	374[A]	390[A]	235[A]	222[A]	362[A]	358[A]	41.8[A]	8.19[A]
21:00 PST	50.6[A]	132[A]	276[A]	274[A]	362[A]	351[A]	349[A]	349[A]	365[A]	351[A]	355[A]	365[A]	381[A]	252[A]	225[A]	367[A]	353[A]	41.1[A]	8.19[A]
21:15 PST	50.6[A]	128[A]	280[A]	292[A]	340[A]	325[A]	346[A]	353[A]	344[A]	362[A]	349[A]	358[A]	381[A]	241[A]	228[A]	362[A]	369[A]	39.0[A]	8.19[A]
21:30 PST	51.4[A]	125[A]	278[A]	292[A]	362[A]	355[A]	358[A]	338[A]	362[A]	367[A]	367[A]	374[A]	362[A]	230[A]	234[A]	372[A]	372[A]	37.7[A]	7.86[A]
21:45 PST	54.6[A]	123[A]	282[A]	288[A]	358[A]	353[A]	331[A]	362[A]	372[A]	351[A]	349[A]	386[A]	388[A]	239[A]	230[A]	329[A]	362[A]	34.5[A]	8.19[A]
22:00 PST	49.8[A]	129[A]	284[A]	338[A]	340[A]	346[A]	344[A]	342[A]	349[A]	342[A]	351[A]	360[A]	372[A]	228[A]	239[A]	388[A]	358[A]	33.9[A]	8.19[A]
22:15 PST	50.6[A]	130[A]	288[A]	331[A]	349[A]	351[A]	358[A]	362[A]	365[A]	369[A]	383[A]	360[A]	338[A]	239[A]	239[A]	351[A]	349[A]	33.3[A]	6.92[A]
22:30 PST	48.3[A]	128[A]	280[A]	318[A]	367[A]	360[A]	335[A]	346[A]	351[A]	355[A]	369[A]	360[A]	379[A]	230[A]	237[A]	369[A]	367[A]	32.7[A]	8.19[A]
22:45 PST	51.4[A]	121[A]	292[A]	335[A]	351[A]	367[A]	346[A]	365[A]	360[A]	374[A]	358[A]	383[A]	381[A]	223[A]	228[A]	338[A]	360[A]	30.4[A]	7.86[A]

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TIME	Jan 24	Jan 25	Jan 26	Jan 27	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5	Feb 6	Feb 7	Feb 8	Feb 9	Feb 10	Feb 11
23:00 PST	48.3[A]	121[A]	278[A]	353[A]	353[A]	353[A]	346[A]	338[A]	349[A]	338[A]	379[A]	365[A]	381[A]	227[A]	237[A]	372[A]	353[A]	29.8[A]	8.19[A]
23:15 PST	46.8[A]	124[A]	282[A]	358[A]	360[A]	338[A]	320[A]	340[A]	349[A]	349[A]	367[A]	390[A]	367[A]	241[A]	218[A]	372[A]	351[A]	30.4[A]	8.19[A]
23:30 PST	51.4[A]	132[A]	272[A]	335[A]	353[A]	335[A]	344[A]	351[A]	342[A]	367[A]	367[A]	374[A]	374[A]	225[A]	232[A]	365[A]	376[A]	29.2[A]	7.86[A]
23:45 PST	50.6[A]	121[A]	270[A]	362[A]	342[A]	329[A]	342[A]	353[A]	355[A]	360[A]	369[A]	367[A]	351[A]	225[A]	230[A]	353[A]	372[A]	28.5[A]	7.86[A]
COUNT	**96**	**92**	**96**	**95**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**
MAX	**54.6**	**145**	**292**	**362**	**376**	**369**	**383**	**374**	**381**	**374**	**386**	**390**	**390**	**400**	**246**	**388**	**381**	**379**	**26.7**
MIN	**10.6**	**43.9**	**110**	**248**	**312**	**298**	**320**	**304**	**318**	**316**	**320**	**314**	**333**	**223**	**210**	**208**	**314**	**28.5**	**6.92**

Explanation

A	Approved for publication -- Processing and review completed.

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2013

Discharge, cubic feet per second

TIME	Jan 18	Jan 19	Jan 20	Jan 21	Jan 22	Jan 23	Jan 24	Jan 25	Jan 26	Jan 27	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5
00:00 PST	0.00[A]	11.7[A]	134[A]	284[A]	290[A]	261[A]	302[A]	286[A]	170[A]	162[A]	185[A]	300[A]	314[A]	306[A]	304[A]	302[A]	257[A]	280[A]	288[A]
00:15 PST	0.00[A]	15.5[A]	121[A]	272[A]	290[A]	234[A]	296[A]	310[A]	174[A]	168[A]	173[A]	308[A]	316[A]	292[A]	304[A]	312[A]	284[A]	292[A]	263[A]
00:30 PST	0.00[A]	17.7[A]	138[A]	274[A]	278[A]	267[A]	300[A]	318[A]	187[A]	174[A]	182[A]	306[A]	308[A]	312[A]	276[A]	257[A]	276[A]	282[A]	292[A]
00:45 PST	0.00[A]	20.6[A]	144[A]	227[A]	294[A]	261[A]	312[A]	308[A]	177[A]	185[A]	190[A]	316[A]	312[A]	308[A]	306[A]	288[A]	272[A]	288[A]	288[A]
01:00 PST	0.00[A]	20.6[A]	137[A]	272[A]	304[A]	288[A]	284[A]	302[A]	189[A]	184[A]	173[A]	310[A]	306[A]	304[A]	310[A]	308[A]	282[A]	286[A]	292[A]
01:15 PST	0.00[A]	22.7[A]	138[A]	270[A]	280[A]	284[A]	310[A]	310[A]	190[A]	176[A]	185[A]	325[A]	316[A]	310[A]	298[A]	304[A]	282[A]	284[A]	253[A]
01:30 PST	0.00[A]	24.9[A]	142[A]	263[A]	288[A]	288[A]	320[A]	300[A]	182[A]	189[A]	181[A]	312[A]	282[A]	306[A]	280[A]	282[A]	296[A]	294[A]	280[A]
01:45 PST	0.00[A]	27.3[A]	146[A]	268[A]	278[A]	268[A]	308[A]	320[A]	198[A]	173[A]	187[A]	316[A]	312[A]	296[A]	296[A]	290[A]	302[A]	288[A]	268[A]
02:00 PST	0.00[A]	27.9[A]	136[A]	244[A]	286[A]	294[A]	302[A]	312[A]	168[A]	189[A]	177[A]	312[A]	320[A]	292[A]	306[A]	284[A]	286[A]	272[A]	270[A]
02:15 PST	0.00[A]	30.9[A]	140[A]	272[A]	276[A]	292[A]	308[A]	312[A]	185[A]	161[A]	176[A]	310[A]	298[A]	316[A]	302[A]	272[A]	296[A]	276[A]	292[A]
02:30 PST	0.00[A]	30.9[A]	136[A]	268[A]	312[A]	302[A]	308[A]	296[A]	187[A]	171[A]	171[A]	320[A]	314[A]	302[A]	288[A]	267[A]	298[A]	288[A]	270[A]
02:45 PST	0.00[A]	30.4[A]	153[A]	259[A]	286[A]	296[A]	300[A]	302[A]	182[A]	179[A]	185[A]	308[A]	290[A]	294[A]	286[A]	278[A]	284[A]	288[A]	278[A]
03:00 PST	0.00[A]	32.7[A]	141[A]	267[A]	282[A]	276[A]	310[A]	280[A]	170[A]	177[A]	181[A]	320[A]	310[A]	286[A]	300[A]	284[A]	290[A]	286[A]	270[A]
03:15 PST	0.00[A]	33.9[A]	146[A]	270[A]	288[A]	286[A]	300[A]	304[A]	168[A]	179[A]	176[A]	312[A]	298[A]	292[A]	304[A]	298[A]	296[A]	282[A]	284[A]
03:30 PST	0.00[A]	33.3[A]	140[A]	286[A]	296[A]	261[A]	312[A]	335[A]	190[A]	167[A]	168[A]	316[A]	296[A]	314[A]	290[A]	310[A]	292[A]	290[A]	272[A]
03:45 PST	0.00[A]	35.8[A]	138[A]	290[A]	296[A]	268[A]	300[A]	318[A]	185[A]	187[A]	197[A]	316[A]	302[A]	312[A]	284[A]	296[A]	290[A]	296[A]	278[A]
04:00 PST	0.00[A]	36.4[A]	146[A]	274[A]	306[A]	292[A]	306[A]	325[A]	181[A]	161[A]	179[A]	286[A]	294[A]	304[A]	290[A]	261[A]	282[A]	276[A]	288[A]
04:15 PST	0.00[A]	35.8[A]	151[A]	272[A]	286[A]	265[A]	312[A]	310[A]	195[A]	164[A]	182[A]	308[A]	294[A]	304[A]	306[A]	296[A]	280[A]	292[A]	276[A]
04:30 PST	0.00[A]	36.4[A]	146[A]	284[A]	290[A]	286[A]	308[A]	288[A]	164[A]	173[A]	189[A]	280[A]	300[A]	292[A]	298[A]	296[A]	300[A]	282[A]	294[A]
04:45 PST	0.00[A]	34.5[A]	146[A]	257[A]	282[A]	298[A]	312[A]	329[A]	182[A]	176[A]	184[A]	312[A]	308[A]	300[A]	257[A]	298[A]	292[A]	278[A]	296[A]
05:00 PST	0.00[A]	38.4[A]	149[A]	284[A]	304[A]	261[A]	312[A]	306[A]	187[A]	170[A]	197[A]	310[A]	290[A]	290[A]	302[A]	298[A]	286[A]	288[A]	255[A]
05:15 PST	0.00[A]	39.0[A]	146[A]	268[A]	286[A]	300[A]	304[A]	292[A]	179[A]	176[A]	185[A]	314[A]	306[A]	310[A]	278[A]	288[A]	282[A]	274[A]	274[A]
05:30 PST	0.00[A]	36.4[A]	125[A]	288[A]	302[A]	274[A]	290[A]	300[A]	168[A]	181[A]	189[A]	308[A]	298[A]	312[A]	294[A]	288[A]	288[A]	243[A]	274[A]
05:45 PST	0.00[A]	37.1[A]	151[A]	270[A]	296[A]	280[A]	308[A]	308[A]	184[A]	176[A]	179[A]	304[A]	310[A]	327[A]	288[A]	290[A]	298[A]	298[A]	270[A]
06:00 PST	0.00[A]	37.7[A]	148[A]	296[A]	302[A]	284[A]	314[A]	312[A]	168[A]	176[A]	177[A]	304[A]	320[A]	304[A]	298[A]	280[A]	300[A]	284[A]	286[A]
06:15 PST	0.00[A]	37.1[A]	151[A]	270[A]	306[A]	298[A]	304[A]	304[A]	177[A]	185[A]	185[A]	282[A]	294[A]	316[A]	282[A]	292[A]	259[A]	259[A]	274[A]
06:30 PST	0.00[A]	38.4[A]	153[A]	288[A]	302[A]	288[A]	314[A]	327[A]	165[A]	173[A]	179[A]	304[A]	292[A]	310[A]	280[A]	306[A]	302[A]	272[A]	282[A]
06:45 PST	0.00[A]	38.4[A]	144[A]	255[A]	304[A]	274[A]	294[A]	276[A]	184[A]	182[A]	184[A]	314[A]	292[A]	282[A]	290[A]	278[A]	284[A]	292[A]	248[A]
07:00 PST	0.00[A]	41.1[A]	152[A]	282[A]	306[A]	288[A]	306[A]	329[A]	156[A]	167[A]	179[A]	308[A]	316[A]	294[A]	298[A]	298[A]	272[A]	290[A]	276[A]
07:15 PST	0.00[A]	39.7[A]	149[A]	290[A]	290[A]	280[A]	323[A]	304[A]	173[A]	187[A]	182[A]	284[A]	318[A]	306[A]	298[A]	306[A]	290[A]	292[A]	284[A]

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TIME	Jan 18	Jan 19	Jan 20	Jan 21	Jan 22	Jan 23	Jan 24	Jan 25	Jan 26	Jan 27	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5
07:30 PST	0.00[A]	39.7[A]	153[A]	302[A]	282[A]	294[A]	302[A]	320[A]	192[A]	179[A]	181[A]	306[A]	310[A]	294[A]	300[A]	300[A]	296[A]	255[A]	286[A]
07:45 PST	0.00[A]	39.0[A]	146[A]	259[A]	292[A]	263[A]	278[A]	308[A]	174[A]	173[A]	177[A]	310[A]	318[A]	314[A]	310[A]	290[A]	304[A]	268[A]	274[A]
08:00 PST	0.00[A]	40.4[A]	152[A]	276[A]	282[A]	296[A]	298[A]	288[A]	189[A]	168[A]	170[A]	306[A]	318[A]	304[A]	300[A]	304[A]	290[A]	286[A]	290[A]
08:15 PST	0.00[A]	41.1[A]	149[A]	263[A]	310[A]	296[A]	304[A]	314[A]	177[A]	185[A]	174[A]	306[A]	280[A]	288[A]	294[A]	286[A]	268[A]	290[A]	259[A]
08:30 PST	0.00[A]	43.2[A]	140[A]	274[A]	306[A]	296[A]	304[A]	308[A]	173[A]	184[A]	177[A]	290[A]	300[A]	312[A]	312[A]	308[A]	261[A]	286[A]	282[A]
08:45 PST	0.00[A]	42.5[A]	156[A]	284[A]	292[A]	294[A]	296[A]	344[A]	165[A]	165[A]	164[A]	304[A]	318[A]	308[A]	284[A]	270[A]	278[A]	284[A]	265[A]
09:00 PST	0.00[A]	41.8[A]	151[A]	292[A]	298[A]	300[A]	312[A]	304[A]	170[A]	185[A]	190[A]	300[A]	312[A]	304[A]	292[A]	274[A]	294[A]	288[A]	272[A]
09:15 PST	0.00[A]	41.8[A]	151[A]	290[A]	304[A]	282[A]	306[A]	276[A]	168[A]	177[A]	174[A]	312[A]	294[A]	308[A]	306[A]	302[A]	280[A]	284[A]	284[A]
09:30 PST	0.00[A]	42.5[A]	153[A]	280[A]	290[A]	294[A]	312[A]	329[A]	174[A]	173[A]	189[A]	310[A]	320[A]	312[A]	292[A]	292[A]	284[A]	284[A]	278[A]
09:45 PST	0.00[A]	42.5[A]	144[A]	308[A]	294[A]	300[A]	304[A]	314[A]	174[A]	173[A]	161[A]	304[A]	306[A]	292[A]	292[A]	276[A]	292[A]	288[A]	280[A]
10:00 PST	0.00[A]	41.8[A]	146[A]	270[A]	286[A]	296[A]	304[A]	306[A]	176[A]	195[A]	185[A]	306[A]	298[A]	298[A]	290[A]	280[A]	292[A]	276[A]	272[A]
10:15 PST	0.00[A]	43.2[A]	155[A]	265[A]	296[A]	302[A]	296[A]	314[A]	182[A]	176[A]	185[A]	314[A]	288[A]	316[A]	292[A]	304[A]	292[A]	261[A]	263[A]
10:30 PST	0.00[A]	41.1[A]	142[A]	255[A]	308[A]	286[A]	304[A]	312[A]	179[A]	174[A]	184[A]	288[A]	292[A]	294[A]	308[A]	294[A]	286[A]	282[A]	265[A]
10:45 PST	0.00[A]	44.6[A]	149[A]	298[A]	306[A]	259[A]	300[A]	306[A]	168[A]	185[A]	182[A]	320[A]	286[A]	302[A]	288[A]	304[A]	278[A]	292[A]	211[A]
11:00 PST	0.00[A]	43.2[A]	151[A]	268[A]	296[A]	302[A]	329[A]	308[A]	184[A]	181[A]	167[A]	308[A]	318[A]	310[A]	296[A]	294[A]	286[A]	274[A]	142[A]
11:15 PST	0.00[A]	42.5[A]	151[A]	278[A]	284[A]	284[A]	298[A]	296[A]	159[A]	182[A]	193[A]	296[A]	300[A]	316[A]	304[A]	261[A]	286[A]	288[A]	113[A]
11:30 PST	0.00[A]	43.2[A]	145[A]	288[A]	304[A]	302[A]	304[A]	268[A]	174[A]	173[A]	193[A]	308[A]	304[A]	300[A]	296[A]	296[A]	306[A]	284[A]	88.7[A]
11:45 PST	0.00[A]	42.5[A]	153[A]	284[A]	320[A]	284[A]	290[A]	218[A]	156[A]	167[A]	205[A]	302[A]	323[A]	302[A]	294[A]	298[A]	286[A]	265[A]	79.3[A]
12:00 PST	0.00[A]	42.5[A]	158[A]	278[A]	300[A]	288[A]	312[A]	202[A]	189[A]	189[A]	222[A]	304[A]	286[A]	302[A]	294[A]	282[A]	294[A]	284[A]	65.8[A]
12:15 PST	0.00[A]	49.8[A]	161[A]	288[A]	235[A]	274[A]	312[A]	192[A]	190[A]	185[A]	235[A]	316[A]	308[A]	312[A]	308[A]	286[A]	302[A]	276[A]	59.6[A]
12:30 PST	0.00[A]	60.5[A]	206[A]	282[A]	292[A]	276[A]	294[A]	181[A]	176[A]	184[A]	261[A]	304[A]	306[A]	294[A]	274[A]	284[A]	304[A]	276[A]	56.2[A]
12:45 PST	0.00[A]	74.3[A]	216[A]	274[A]	304[A]	294[A]	294[A]	185[A]	177[A]	185[A]	290[A]	310[A]	288[A]	306[A]	278[A]	300[A]	294[A]	278[A]	51.4[A]
13:00 PST	0.00[A]	83.4[A]	228[A]	296[A]	284[A]	292[A]	312[A]	162[A]	177[A]	181[A]	294[A]	292[A]	300[A]	316[A]	300[A]	292[A]	296[A]	282[A]	48.3[A]
13:15 PST	0.00[A]	93.1[A]	239[A]	288[A]	270[A]	292[A]	318[A]	181[A]	177[A]	179[A]	306[A]	316[A]	302[A]	306[A]	306[A]	292[A]	294[A]	282[A]	41.8[A]
13:30 PST	0.00[A]	106[A]	259[A]	270[A]	294[A]	280[A]	314[A]	181[A]	176[A]	189[A]	310[A]	318[A]	294[A]	302[A]	278[A]	292[A]	298[A]	288[A]	41.8[A]
13:45 PST	0.00[A]	101[A]	250[A]	274[A]	280[A]	296[A]	316[A]	176[A]	187[A]	181[A]	316[A]	306[A]	320[A]	290[A]	294[A]	298[A]	282[A]	280[A]	39.0[A]
14:00 PST	0.00[A]	108[A]	263[A]	290[A]	290[A]	298[A]	302[A]	176[A]	173[A]	173[A]	298[A]	310[A]	312[A]	304[A]	288[A]	286[A]	298[A]	280[A]	37.1[A]
14:15 PST	0.00[A]	121[A]	244[A]	294[A]	278[A]	282[A]	323[A]	179[A]	164[A]	173[A]	310[A]	308[A]	304[A]	292[A]	282[A]	296[A]	292[A]	286[A]	36.4[A]
14:30 PST	0.00[A]	120[A]	255[A]	294[A]	298[A]	302[A]	308[A]	187[A]	162[A]	179[A]	298[A]	274[A]	300[A]	278[A]	302[A]	300[A]	274[A]	276[A]	33.9[A]
14:45 PST	0.00[A]	121[A]	257[A]	286[A]	288[A]	298[A]	314[A]	187[A]	173[A]	176[A]	320[A]	296[A]	314[A]	286[A]	290[A]	296[A]	261[A]	298[A]	31.5[A]
15:00 PST	0.00[A]	125[A]	250[A]	296[A]	298[A]	302[A]	327[A]	195[A]	165[A]	173[A]	300[A]	314[A]	265[A]	296[A]	308[A]	290[A]	288[A]	300[A]	30.4[A]

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TIME	Jan 18	Jan 19	Jan 20	Jan 21	Jan 22	Jan 23	Jan 24	Jan 25	Jan 26	Jan 27	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5
15:15 PST	0.00[A]	128[A]	253[A]	302[A]	304[A]	298[A]	306[A]	190[A]	162[A]	176[A]	288[A]	312[A]	300[A]	308[A]	300[A]	292[A]	280[A]	292[A]	29.8[A]
15:30 PST	0.00[A]	130[A]	270[A]	298[A]	265[A]	298[A]	294[A]	177[A]	197[A]	189[A]	316[A]	302[A]	306[A]	284[A]	296[A]	276[A]	300[A]	294[A]	29.8[A]
15:45 PST	0.00[A]	129[A]	265[A]	294[A]	296[A]	306[A]	308[A]	176[A]	182[A]	179[A]	296[A]	304[A]	300[A]	298[A]	298[A]	296[A]	263[A]	265[A]	26.1[A]
16:00 PST	0.00[A]	130[A]	257[A]	272[A]	292[A]	296[A]	325[A]	185[A]	174[A]	167[A]	314[A]	288[A]	290[A]	296[A]	296[A]	308[A]	294[A]	282[A]	26.1[A]
16:15 PST	0.00[A]	133[A]	270[A]	296[A]	290[A]	292[A]	323[A]	189[A]	174[A]	174[A]	316[A]	290[A]	308[A]	296[A]	306[A]	306[A]	288[A]	274[A]	25.5[A]
16:30 PST	0.00[A]	138[A]	255[A]	286[A]	290[A]	300[A]	329[A]	185[A]	152[A]	179[A]	300[A]	318[A]	310[A]	290[A]	304[A]	310[A]	278[A]	263[A]	24.4[A]
16:45 PST	0.00[A]	138[A]	267[A]	284[A]	298[A]	302[A]	316[A]	182[A]	176[A]	182[A]	312[A]	300[A]	304[A]	306[A]	318[A]	304[A]	292[A]	263[A]	23.3[A]
17:00 PST	0.00[A]	137[A]	274[A]	288[A]	304[A]	306[A]	310[A]	177[A]	173[A]	165[A]	312[A]	298[A]	306[A]	304[A]	284[A]	300[A]	286[A]	286[A]	22.7[A]
17:15 PST	0.00[A]	136[A]	272[A]	294[A]	304[A]	304[A]	312[A]	184[A]	187[A]	182[A]	308[A]	300[A]	284[A]	284[A]	312[A]	308[A]	248[A]	286[A]	21.7[A]
17:30 PST	0.00[A]	138[A]	276[A]	274[A]	292[A]	253[A]	306[A]	187[A]	190[A]	182[A]	312[A]	308[A]	300[A]	302[A]	282[A]	274[A]	265[A]	286[A]	21.1[A]
17:45 PST	0.00[A]	137[A]	259[A]	286[A]	288[A]	312[A]	312[A]	159[A]	177[A]	174[A]	316[A]	302[A]	296[A]	294[A]	302[A]	282[A]	282[A]	294[A]	21.1[A]
18:00 PST	0.00[A]	141[A]	268[A]	280[A]	282[A]	298[A]	308[A]	185[A]	167[A]	195[A]	302[A]	320[A]	306[A]	320[A]	302[A]	288[A]	272[A]	288[A]	20.1[A]
18:15 PST	0.00[A]	124[A]	272[A]	265[A]	298[A]	302[A]	300[A]	185[A]	176[A]	179[A]	320[A]	298[A]	316[A]	294[A]	306[A]	284[A]	284[A]	284[A]	20.1[A]
18:30 PST	0.00[A]	134[A]	265[A]	280[A]	294[A]	265[A]	302[A]	173[A]	187[A]	171[A]	314[A]	310[A]	320[A]	302[A]	263[A]	296[A]	261[A]	268[A]	20.1[A]
18:45 PST	0.00[A]	141[A]	257[A]	270[A]	310[A]	312[A]	310[A]	184[A]	179[A]	165[A]	306[A]	312[A]	292[A]	310[A]	282[A]	292[A]	292[A]	294[A]	19.2[A]
19:00 PST	0.00[A]	133[A]	265[A]	304[A]	298[A]	296[A]	331[A]	173[A]	187[A]	182[A]	327[A]	308[A]	280[A]	298[A]	272[A]	286[A]	296[A]	288[A]	18.7[A]
19:15 PST	0.00[A]	140[A]	267[A]	274[A]	288[A]	282[A]	316[A]	173[A]	171[A]	173[A]	306[A]	306[A]	304[A]	294[A]	302[A]	298[A]	274[A]	290[A]	18.7[A]
19:30 PST	0.00[A]	137[A]	268[A]	280[A]	292[A]	312[A]	318[A]	165[A]	181[A]	164[A]	314[A]	294[A]	296[A]	310[A]	282[A]	300[A]	282[A]	278[A]	18.2[A]
19:45 PST	0.00[A]	140[A]	246[A]	296[A]	270[A]	306[A]	292[A]	184[A]	177[A]	174[A]	296[A]	312[A]	294[A]	298[A]	292[A]	304[A]	296[A]	276[A]	17.3[A]
20:00 PST	0.00[A]	132[A]	250[A]	296[A]	253[A]	312[A]	312[A]	162[A]	176[A]	187[A]	298[A]	312[A]	312[A]	306[A]	312[A]	284[A]	284[A]	288[A]	17.3[A]
20:15 PST	0.00[A]	142[A]	252[A]	290[A]	253[A]	298[A]	302[A]	185[A]	170[A]	187[A]	296[A]	304[A]	310[A]	312[A]	294[A]	268[A]	274[A]	288[A]	16.0[A]
20:30 PST	0.00[A]	129[A]	272[A]	270[A]	244[A]	308[A]	308[A]	170[A]	174[A]	174[A]	323[A]	306[A]	306[A]	288[A]	302[A]	290[A]	263[A]	284[A]	16.4[A]
20:45 PST	0.00[A]	129[A]	250[A]	294[A]	215[A]	310[A]	308[A]	182[A]	174[A]	176[A]	274[A]	316[A]	300[A]	304[A]	298[A]	296[A]	248[A]	286[A]	16.0[A]
21:00 PST	0.00[A]	142[A]	268[A]	302[A]	235[A]	308[A]	316[A]	181[A]	184[A]	187[A]	312[A]	314[A]	314[A]	300[A]	292[A]	288[A]	276[A]	286[A]	16.0[A]
21:15 PST	0.00[A]	138[A]	263[A]	280[A]	272[A]	304[A]	306[A]	181[A]	168[A]	162[A]	314[A]	290[A]	304[A]	304[A]	294[A]	288[A]	282[A]	272[A]	15.1[A]
21:30 PST	0.00[A]	141[A]	257[A]	302[A]	276[A]	325[A]	282[A]	173[A]	190[A]	177[A]	296[A]	302[A]	308[A]	294[A]	308[A]	282[A]	292[A]	268[A]	15.1[A]
21:45 PST	0.00[A]	145[A]	259[A]	270[A]	282[A]	300[A]	314[A]	192[A]	176[A]	176[A]	300[A]	302[A]	302[A]	314[A]	282[A]	257[A]	306[A]	274[A]	15.5[A]
22:00 PST	0.00[A]	133[A]	270[A]	286[A]	278[A]	318[A]	308[A]	158[A]	168[A]	190[A]	296[A]	314[A]	310[A]	306[A]	302[A]	284[A]	282[A]	286[A]	15.1[A]
22:15 PST	0.00[A]	136[A]	272[A]	286[A]	259[A]	292[A]	312[A]	156[A]	185[A]	185[A]	310[A]	304[A]	298[A]	310[A]	290[A]	288[A]	278[A]	268[A]	14.3[A]
22:30 PST	0.00[A]	146[A]	257[A]	288[A]	230[A]	318[A]	325[A]	164[A]	162[A]	184[A]	312[A]	300[A]	306[A]	294[A]	298[A]	288[A]	294[A]	282[A]	13.5[A]
22:45 PST	0.00[A]	144[A]	272[A]	300[A]	222[A]	300[A]	318[A]	184[A]	182[A]	176[A]	325[A]	308[A]	298[A]	284[A]	306[A]	298[A]	284[A]	278[A]	14.3[A]

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TIME	Jan 18	Jan 19	Jan 20	Jan 21	Jan 22	Jan 23	Jan 24	Jan 25	Jan 26	Jan 27	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5
23:00 PST	0.00[A]	140[A]	284[A]	265[A]	232[A]	288[A]	304[A]	167[A]	167[A]	187[A]	304[A]	318[A]	312[A]	288[A]	286[A]	296[A]	284[A]	276[A]	12.8[A]
23:15 PST	0.00[A]	144[A]	286[A]	292[A]	276[A]	298[A]	314[A]	198[A]	184[A]	181[A]	325[A]	306[A]	310[A]	263[A]	296[A]	268[A]	288[A]	278[A]	13.5[A]
23:30 PST	0.00[A]	141[A]	280[A]	282[A]	246[A]	314[A]	306[A]	179[A]	179[A]	192[A]	314[A]	316[A]	300[A]	290[A]	298[A]	272[A]	268[A]	280[A]	13.1[A]
23:45 PST	7.86[A]	144[A]	282[A]	300[A]	259[A]	306[A]	304[A]	176[A]	170[A]	179[A]	294[A]	316[A]	300[A]	308[A]	288[A]	288[A]	282[A]	278[A]	12.8[A]
COUNT	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96
MAX	7.86	146	286	308	320	325	331	344	198	195	327	325	323	327	318	312	306	300	296
MIN	0.00	11.7	121	227	215	234	278	156	152	161	161	274	265	263	257	257	248	243	12.8

Explanation

A	Approved for publication -- Processing and review completed.

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2017

Discharge, cubic feet per second

TIME	Feb 28	Mar 1	Mar 2	Mar 3	Mar 4	Mar 5	Mar 6	Mar 7	Mar 8	Mar 9	Mar 10	Mar 11	Mar 12	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Mar 19
00:00 PDT														342[A]	302[A]	324[A]	39.2[A]	12.5[A]	8.50[A]	6.32[A]
00:00 PST	388[A]	209[A]	340[A]	327[A]	325[A]	340[A]	287[A]	344[A]	336[A]	314[A]	338[A]	296[A]	340[A]							
00:15 PDT														334[A]	314[A]	327[A]	38.4[A]	12.5[A]	8.50[A]	6.32[A]
00:15 PST	456[A]	219[A]	375[A]	331[A]	327[A]	298[A]	344[A]	360[A]	325[A]	325[A]	314[A]	310[A]	331[A]							
00:30 PDT														336[A]	320[A]	320[A]	37.6[A]	12.9[A]	8.90[A]	6.32[A]
00:30 PST	463[A]	190[A]	346[A]	362[A]	329[A]	322[A]	310[A]	352[A]	329[A]	327[A]	336[A]	325[A]	331[A]							
00:45 PDT														344[A]	302[A]	316[A]	36.9[A]	12.5[A]	8.90[A]	7.00[A]
00:45 PST	521[A]	207[A]	364[A]	329[A]	356[A]	340[A]	342[A]	346[A]	329[A]	329[A]	331[A]	327[A]	336[A]							
01:00 PDT														334[A]	308[A]	327[A]	36.1[A]	12.5[A]	8.11[A]	6.66[A]
01:00 PST	484[A]	201[A]	358[A]	362[A]	338[A]	327[A]	289[A]	325[A]	331[A]	318[A]	322[A]	318[A]	338[A]							
01:15 PDT														334[A]	308[A]	329[A]	33.9[A]	12.5[A]	8.11[A]	6.66[A]
01:15 PST	482[A]	204[A]	331[A]	322[A]	348[A]	334[A]	348[A]	334[A]	318[A]	340[A]	327[A]	310[A]	346[A]							
01:30 PDT														336[A]	308[A]	320[A]	35.4[A]	12.1[A]	8.90[A]	6.32[A]
01:30 PST	519[A]	186[A]	350[A]	329[A]	338[A]	320[A]	344[A]	329[A]	314[A]	316[A]	320[A]	329[A]	334[A]							
01:45 PDT														331[A]	283[A]	322[A]	34.6[A]	12.1[A]	8.11[A]	6.32[A]
01:45 PST	501[A]	198[A]	364[A]	342[A]	336[A]	318[A]	294[A]	348[A]	306[A]	324[A]	325[A]	322[A]	340[A]							
02:00 PDT														340[A]	296[A]	327[A]	31.8[A]	12.1[A]	8.50[A]	6.66[A]
02:00 PST	562[A]	189[A]	329[A]	336[A]	334[A]	316[A]	310[A]	318[A]	329[A]	314[A]	310[A]	312[A]								
02:15 PDT														327[A]	316[A]	336[A]	32.5[A]	12.1[A]	8.90[A]	6.32[A]
02:15 PST	506[A]	199[A]	358[A]	325[A]	322[A]	325[A]	324[A]	344[A]	334[A]	320[A]	334[A]	312[A]								
02:30 PDT														334[A]	310[A]	320[A]	31.8[A]	12.5[A]	8.11[A]	6.32[A]
02:30 PST	484[A]	177[A]	344[A]	369[A]	324[A]	318[A]	312[A]	314[A]	342[A]	304[A]	312[A]	318[A]								
02:45 PDT														325[A]	294[A]	331[A]	30.4[A]	12.5[A]	8.50[A]	6.66[A]
02:45 PST	575[A]	183[A]	336[A]	302[A]	308[A]	316[A]	316[A]	318[A]	342[A]	302[A]	334[A]	320[A]								
03:00 PDT													340[A]	336[A]	312[A]	331[A]	30.4[A]	12.5[A]	7.73[A]	6.66[A]
03:00 PST	562[A]	193[A]	375[A]	325[A]	316[A]	322[A]	312[A]	318[A]	320[A]	331[A]	338[A]	316[A]								
03:15 PDT													338[A]	325[A]	316[A]	325[A]	29.1[A]	12.5[A]	8.11[A]	6.32[A]
03:15 PST	570[A]	195[A]	381[A]	302[A]	322[A]	344[A]	308[A]	336[A]	331[A]	340[A]	331[A]	308[A]								
03:30 PDT													325[A]	325[A]	314[A]	331[A]	29.1[A]	11.7[A]	8.11[A]	6.66[A]
03:30 PST	591[A]	207[A]	316[A]	364[A]	331[A]	318[A]	294[A]	346[A]	329[A]	334[A]	322[A]	324[A]								

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TIME	Feb 28	Mar 1	Mar 2	Mar 3	Mar 4	Mar 5	Mar 6	Mar 7	Mar 8	Mar 9	Mar 10	Mar 11	Mar 12	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Mar 19
03:45 PDT													338[A]	331[A]	306[A]	331[A]	28.4[A]	11.7[A]	8.50[A]	6.32[A]
03:45 PST	534[A]	206[A]	342[A]	308[A]	320[A]	318[A]	320[A]	350[A]	324[A]	327[A]	329[A]	308[A]								
04:00 PDT													342[A]	324[A]	318[A]	329[A]	27.2[A]	11.7[A]	8.50[A]	6.00[A]
04:00 PST	463[A]	212[A]	342[A]	327[A]	331[A]	324[A]	308[A]	338[A]	334[A]	329[A]	324[A]	322[A]								
04:15 PDT													340[A]	329[A]	289[A]	340[A]	27.2[A]	11.7[A]	8.50[A]	6.00[A]
04:15 PST	526[A]	210[A]	352[A]	348[A]	304[A]	327[A]	281[A]	308[A]	331[A]	316[A]	308[A]	318[A]								
04:30 PDT													340[A]	342[A]	289[A]	325[A]	25.3[A]	11.3[A]	8.50[A]	6.32[A]
04:30 PST	487[A]	199[A]	342[A]	369[A]	338[A]	320[A]	310[A]	346[A]	318[A]	325[A]	331[A]	294[A]								
04:45 PDT													342[A]	325[A]	293[A]	336[A]	25.9[A]	12.1[A]	7.73[A]	6.32[A]
04:45 PST	460[A]	201[A]	320[A]	338[A]	314[A]	342[A]	320[A]	350[A]	356[A]	320[A]	324[A]	336[A]								
05:00 PDT													338[A]	334[A]	304[A]	331[A]	26.5[A]	12.1[A]	8.50[A]	6.66[A]
05:00 PST	451[A]	215[A]	324[A]	269[A]	279[A]	331[A]	312[A]	340[A]	331[A]	336[A]	320[A]	325[A]								
05:15 PDT													336[A]	325[A]	314[A]	336[A]	25.3[A]	11.3[A]	8.11[A]	6.66[A]
05:15 PST	423[A]	212[A]	371[A]	336[A]	320[A]	302[A]	316[A]	324[A]	322[A]	329[A]	320[A]	336[A]								
05:30 PDT													346[A]	327[A]	300[A]	327[A]	24.1[A]	11.7[A]	8.11[A]	6.32[A]
05:30 PST	369[A]	186[A]	348[A]	340[A]	274[A]	312[A]	281[A]	360[A]	325[A]	322[A]	331[A]	336[A]								
05:45 PDT													324[A]	324[A]	310[A]	324[A]	24.7[A]	12.1[A]	8.11[A]	6.00[A]
05:45 PST	399[A]	189[A]	358[A]	346[A]	324[A]	304[A]	310[A]	320[A]	310[A]	329[A]	336[A]	294[A]								
06:00 PDT													342[A]	334[A]	316[A]	338[A]	24.7[A]	11.3[A]	8.11[A]	6.32[A]
06:00 PST	360[A]	219[A]	352[A]	322[A]	279[A]	340[A]	314[A]	325[A]	324[A]	320[A]	331[A]	322[A]								
06:15 PDT													334[A]	327[A]	304[A]	336[A]	24.1[A]	12.1[A]	7.73[A]	6.66[A]
06:15 PST	285[A]	190[A]	346[A]	327[A]	296[A]	340[A]	310[A]	325[A]	314[A]	329[A]	312[A]	318[A]								
06:30 PDT													329[A]	338[A]	318[A]	327[A]	22.9[A]	12.1[A]	7.73[A]	6.00[A]
06:30 PST	316[A]	204[A]	352[A]	327[A]	294[A]	316[A]	300[A]	346[A]	348[A]	324[A]	316[A]	314[A]								
06:45 PDT													336[A]	334[A]	316[A]	327[A]	22.3[A]	11.3[A]	7.73[A]	6.32[A]
06:45 PST	331[A]	204[A]	352[A]	358[A]	352[A]	316[A]	316[A]	302[A]	352[A]	327[A]	324[A]	312[A]								
07:00 PDT													334[A]	318[A]	306[A]	324[A]	22.3[A]	11.3[A]	7.73[A]	6.32[A]
07:00 PST	298[A]	201[A]	342[A]	310[A]	302[A]	293[A]	287[A]	325[A]	344[A]	325[A]	338[A]	318[A]								
07:15 PDT													334[A]	334[A]	320[A]	327[A]	22.3[A]	11.7[A]	8.50[A]	6.00[A]
07:15 PST	314[A]	190[A]	336[A]	334[A]	312[A]	338[A]	312[A]	334[A]	325[A]	338[A]	327[A]	310[A]								
07:30 PDT													331[A]	336[A]	312[A]	344[A]	21.2[A]	11.3[A]	7.73[A]	6.00[A]

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TIME	Feb 28	Mar 1	Mar 2	Mar 3	Mar 4	Mar 5	Mar 6	Mar 7	Mar 8	Mar 9	Mar 10	Mar 11	Mar 12	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Mar 19
07:30 PST	279[A]	169[A]	362[A]	318[A]	312[A]	354[A]	310[A]	325[A]	325[A]	329[A]	325[A]	320[A]								
07:45 PDT													325[A]	329[A]	320[A]	338[A]	21.8[A]	11.7[A]	7.73[A]	6.00[A]
07:45 PST	256[A]	220[A]	340[A]	322[A]	308[A]	336[A]	306[A]	344[A]	340[A]	331[A]	327[A]	320[A]								
08:00 PDT													338[A]	336[A]	329[A]	342[A]	21.2[A]	11.3[A]	8.50[A]	6.00[A]
08:00 PST	235[A]	183[A]	375[A]	322[A]	300[A]	296[A]	287[A]	334[A]	354[A]	325[A]	314[A]	316[A]								
08:15 PDT													342[A]	336[A]	316[A]	327[A]	20.7[A]	10.9[A]	7.73[A]	6.32[A]
08:15 PST	239[A]	192[A]	352[A]	331[A]	310[A]	348[A]	338[A]	318[A]	336[A]	334[A]	346[A]	322[A]								
08:30 PDT													331[A]	325[A]	324[A]	325[A]	21.8[A]	11.3[A]	7.73[A]	6.00[A]
08:30 PST	223[A]	184[A]	340[A]	340[A]	327[A]	316[A]	320[A]	336[A]	346[A]	340[A]	316[A]	329[A]								
08:45 PDT													342[A]	331[A]	316[A]	344[A]	21.2[A]	10.9[A]	8.11[A]	6.00[A]
08:45 PST	210[A]	207[A]	342[A]	342[A]	324[A]	314[A]	310[A]	325[A]	348[A]	314[A]	314[A]	318[A]								
09:00 PDT													334[A]	334[A]	324[A]	336[A]	20.1[A]	11.7[A]	8.11[A]	6.00[A]
09:00 PST	206[A]	190[A]	334[A]	373[A]	294[A]	327[A]	300[A]	334[A]	348[A]	329[A]	325[A]	318[A]								
09:15 PDT													336[A]	340[A]	327[A]	322[A]	20.7[A]	11.7[A]	7.73[A]	6.66[A]
09:15 PST	189[A]	193[A]	310[A]	293[A]	291[A]	312[A]	318[A]	316[A]	329[A]	336[A]	327[A]	310[A]								
09:30 PDT													346[A]	327[A]	325[A]	322[A]	20.1[A]	11.7[A]	7.73[A]	6.32[A]
09:30 PST	204[A]	189[A]	322[A]	369[A]	329[A]	346[A]	304[A]	338[A]	334[A]	320[A]	320[A]	322[A]								
09:45 PDT													318[A]	331[A]	334[A]	329[A]	19.6[A]	11.7[A]	8.11[A]	6.66[A]
09:45 PST	186[A]	204[A]	342[A]	352[A]	331[A]	325[A]	327[A]	338[A]	358[A]	334[A]	308[A]	302[A]								
10:00 PDT													334[A]	334[A]	350[A]	329[A]	19.6[A]	10.9[A]	7.73[A]	6.00[A]
10:00 PST	189[A]	190[A]	356[A]	342[A]	324[A]	356[A]	296[A]	312[A]	334[A]	327[A]	314[A]	308[A]								
10:15 PDT													346[A]	320[A]	336[A]	327[A]	19.1[A]	11.3[A]	7.36[A]	6.00[A]
10:15 PST	164[A]	174[A]	346[A]	344[A]	338[A]	318[A]	314[A]	327[A]	331[A]	324[A]	331[A]	316[A]								
10:30 PDT													320[A]	340[A]	334[A]	324[A]	20.1[A]	11.3[A]	7.36[A]	6.00[A]
10:30 PST	166[A]	193[A]	324[A]	324[A]	310[A]	350[A]	310[A]	338[A]	336[A]	318[A]	304[A]	331[A]								
10:45 PDT													322[A]	334[A]	302[A]	324[A]	18.5[A]	10.9[A]	7.73[A]	6.00[A]
10:45 PST	166[A]	184[A]	356[A]	350[A]	314[A]	312[A]	310[A]	308[A]	338[A]	329[A]	334[A]	298[A]								
11:00 PDT													338[A]	327[A]	314[A]	318[A]	19.6[A]	10.9[A]	8.11[A]	6.66[A]
11:00 PST	162[A]	201[A]	371[A]	308[A]	329[A]	302[A]	310[A]	340[A]	325[A]	331[A]	324[A]	320[A]								
11:15 PDT													340[A]	327[A]	314[A]	331[A]	18.5[A]	10.9[A]	7.36[A]	6.32[A]
11:15 PST	152[A]	209[A]	352[A]	314[A]	324[A]	314[A]	318[A]	334[A]	327[A]	334[A]	310[A]	302[A]								

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TIME	Feb 28	Mar 1	Mar 2	Mar 3	Mar 4	Mar 5	Mar 6	Mar 7	Mar 8	Mar 9	Mar 10	Mar 11	Mar 12	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Mar 19
11:30 PDT													327[A]	334[A]	320[A]	325[A]	18.5[A]	11.3[A]	8.11[A]	6.00[A]
11:30 PST	135[A]	189[A]	358[A]	296[A]	308[A]	329[A]	316[A]	336[A]	348[A]	316[A]	314[A]	302[A]								
11:45 PDT													327[A]	334[A]	296[A]	318[A]	18.0[A]	11.3[A]	8.11[A]	6.66[A]
11:45 PST	139[A]	195[A]	334[A]	318[A]	312[A]	324[A]	318[A]	350[A]	346[A]	338[A]	314[A]	312[A]								
12:00 PDT													344[A]	322[A]	320[A]	338[A]	18.0[A]	10.6[A]	7.36[A]	6.00[A]
12:00 PST	130[A]	198[A]	308[A]	360[A]	320[A]	293[A]	320[A]	324[A]	340[A]	327[A]	312[A]	308[A]								
12:15 PDT													324[A]	324[A]	312[A]	336[A]	18.0[A]	10.6[A]	8.11[A]	6.00[A]
12:15 PST	134[A]	193[A]	318[A]	327[A]	327[A]	338[A]	329[A]	327[A]	322[A]	342[A]	312[A]	304[A]								
12:30 PDT													336[A]	327[A]	308[A]	338[A]	17.5[A]	11.3[A]	7.36[A]	6.66[A]
12:30 PST	130[A]	209[A]	342[A]	322[A]	320[A]	308[A]	310[A]	340[A]	336[A]	316[A]	308[A]	314[A]								
12:45 PDT													340[A]	331[A]	316[A]	342[A]	18.5[A]	10.9[A]	7.73[A]	6.00[A]
12:45 PST	125[A]	199[A]	334[A]	346[A]	293[A]	296[A]	300[A]	334[A]	324[A]	322[A]	325[A]	320[A]								
13:00 PDT													327[A]	320[A]	310[A]	340[A]	18.0[A]	10.9[A]	7.36[A]	6.00[A]
13:00 PST	119[A]	172[A]	360[A]	334[A]	304[A]	322[A]	308[A]	327[A]	338[A]	338[A]	320[A]	318[A]								
13:15 PDT													325[A]	308[A]	320[A]	342[A]	17.0[A]	10.6[A]	7.73[A]	6.00[A]
13:15 PST	114[A]	206[A]	348[A]	320[A]	272[A]	289[A]	338[A]	340[A]	340[A]	306[A]	324[A]	320[A]								
13:30 PDT													331[A]	320[A]	318[A]	331[A]	17.0[A]	10.6[A]	7.36[A]	6.00[A]
13:30 PST	119[A]	193[A]	329[A]	306[A]	348[A]	348[A]	298[A]	329[A]	336[A]	327[A]	334[A]	329[A]								
13:45 PDT													334[A]	324[A]	308[A]	338[A]	17.0[A]	10.2[A]	7.73[A]	6.00[A]
13:45 PST	115[A]	196[A]	346[A]	302[A]	325[A]	318[A]	294[A]	336[A]	320[A]	340[A]	312[A]	327[A]								
14:00 PDT													336[A]	327[A]	310[A]	342[A]	16.6[A]	10.6[A]	7.73[A]	6.00[A]
14:00 PST	109[A]	174[A]	350[A]	300[A]	340[A]	294[A]	312[A]	310[A]	327[A]	338[A]	306[A]	334[A]								
14:15 PDT													329[A]	331[A]	322[A]	334[A]	17.5[A]	10.9[A]	7.36[A]	6.00[A]
14:15 PST	118[A]	175[A]	306[A]	291[A]	325[A]	312[A]	318[A]	320[A]	350[A]	312[A]	340[A]	312[A]								
14:30 PDT													334[A]	325[A]	312[A]	338[A]	16.6[A]	10.6[A]	7.36[A]	6.00[A]
14:30 PST	109[A]	210[A]	358[A]	324[A]	340[A]	304[A]	287[A]	364[A]	320[A]	320[A]	312[A]	314[A]								
14:45 PDT													320[A]	327[A]	318[A]	331[A]	17.0[A]	10.6[A]	7.36[A]	5.69[A]
14:45 PST	105[A]	242[A]	362[A]	344[A]	304[A]	327[A]	294[A]	329[A]	331[A]	346[A]	312[A]	316[A]								
15:00 PDT													334[A]	329[A]	327[A]	340[A]	17.0[A]	10.9[A]	7.36[A]	6.32[A]
15:00 PST	95.8[A]	265[A]	342[A]	334[A]	336[A]	312[A]	316[A]	346[A]	344[A]	318[A]	325[A]	322[A]								
15:15 PDT													340[A]	329[A]	306[A]	336[A]	17.0[A]	10.6[A]	7.36[A]	6.32[A]

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TIME	Feb 28	Mar 1	Mar 2	Mar 3	Mar 4	Mar 5	Mar 6	Mar 7	Mar 8	Mar 9	Mar 10	Mar 11	Mar 12	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Mar 19
15:15 PST	101[A]	298[A]	331[A]	362[A]	327[A]	312[A]	312[A]	331[A]	320[A]	324[A]	322[A]	322[A]								
15:30 PDT													327[A]	327[A]	331[A]	338[A]	15.6[A]	10.2[A]	7.00[A]	5.69[A]
15:30 PST	105[A]	314[A]	346[A]	340[A]	324[A]	302[A]	310[A]	316[A]	322[A]	324[A]	310[A]	302[A]								
15:45 PDT													336[A]	327[A]	318[A]	331[A]	15.6[A]	10.2[A]	7.36[A]	5.69[A]
15:45 PST	95.8[A]	312[A]	346[A]	366[A]	324[A]	296[A]	322[A]	306[A]	316[A]	325[A]	320[A]	336[A]								
16:00 PDT													348[A]	329[A]	325[A]	340[A]	16.1[A]	10.2[A]	7.00[A]	6.00[A]
16:00 PST	89.4[A]	348[A]	371[A]	320[A]	346[A]	318[A]	314[A]	336[A]	306[A]	327[A]	325[A]	312[A]								
16:15 PDT													327[A]	334[A]	322[A]	340[A]	15.6[A]	10.2[A]	7.00[A]	5.69[A]
16:15 PST	96.9[A]	369[A]	325[A]	320[A]	344[A]	318[A]	310[A]	327[A]	338[A]	338[A]	312[A]	322[A]								
16:30 PDT													334[A]	320[A]	322[A]	342[A]	15.1[A]	10.2[A]	7.00[A]	5.69[A]
16:30 PST	90.5[A]	336[A]	348[A]	331[A]	325[A]	324[A]	340[A]	336[A]	316[A]	340[A]	316[A]	331[A]								
16:45 PDT													338[A]	331[A]	325[A]	336[A]	15.6[A]	9.74[A]	7.36[A]	5.69[A]
16:45 PST	95.8[A]	322[A]	362[A]	318[A]	336[A]	324[A]	318[A]	342[A]	325[A]	325[A]	334[A]	314[A]								
17:00 PDT													342[A]	334[A]	322[A]	338[A]	15.1[A]	9.74[A]	6.66[A]	5.69[A]
17:00 PST	94.8[A]	388[A]	348[A]	344[A]	364[A]	310[A]	320[A]	312[A]	314[A]	342[A]	300[A]	316[A]								
17:15 PDT													327[A]	316[A]	324[A]	338[A]	15.1[A]	10.2[A]	7.36[A]	5.69[A]
17:15 PST	98.0[A]	350[A]	312[A]	334[A]	318[A]	329[A]	352[A]	338[A]	327[A]	316[A]	304[A]	310[A]								
17:30 PDT													331[A]	331[A]	320[A]	340[A]	15.1[A]	9.74[A]	7.00[A]	5.69[A]
17:30 PST	92.6[A]	358[A]	348[A]	325[A]	336[A]	308[A]	352[A]	320[A]	336[A]	325[A]	320[A]	316[A]								
17:45 PDT													340[A]	325[A]	316[A]	338[A]	15.1[A]	9.74[A]	7.00[A]	5.69[A]
17:45 PST	84.2[A]	322[A]	336[A]	334[A]	336[A]	308[A]	327[A]	324[A]	342[A]	350[A]	322[A]	327[A]								
18:00 PDT													334[A]	344[A]	316[A]	342[A]	15.1[A]	10.2[A]	6.66[A]	5.69[A]
18:00 PST	90.5[A]	340[A]	338[A]	314[A]	336[A]	308[A]	300[A]	336[A]	318[A]	322[A]	310[A]	308[A]								
18:15 PDT													331[A]	344[A]	322[A]	338[A]	14.7[A]	9.74[A]	6.66[A]	5.39[A]
18:15 PST	88.4[A]	350[A]	348[A]	322[A]	334[A]	334[A]	318[A]	338[A]	329[A]	322[A]	338[A]	322[A]								
18:30 PDT													336[A]	312[A]	304[A]	338[A]	14.7[A]	10.2[A]	6.66[A]	5.69[A]
18:30 PST	82.2[A]	344[A]	340[A]	346[A]	366[A]	298[A]	329[A]	329[A]	336[A]	316[A]	310[A]	340[A]								
18:45 PDT													329[A]	338[A]	316[A]	331[A]	14.2[A]	9.32[A]	7.00[A]	5.39[A]
18:45 PST	82.2[A]	348[A]	325[A]	334[A]	324[A]	342[A]	329[A]	318[A]	322[A]	336[A]	310[A]	310[A]								
19:00 PDT													324[A]	324[A]	325[A]	312[A]	14.2[A]	10.2[A]	7.00[A]	6.00[A]
19:00 PST	83.2[A]	362[A]	354[A]	350[A]	346[A]	312[A]	348[A]	338[A]	314[A]	336[A]	324[A]	314[A]								

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TIME	Feb 28	Mar 1	Mar 2	Mar 3	Mar 4	Mar 5	Mar 6	Mar 7	Mar 8	Mar 9	Mar 10	Mar 11	Mar 12	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Mar 19
19:15 PDT													336[A]	314[A]	325[A]	230[A]	14.2[A]	10.2[A]	7.00[A]	5.69[A]
19:15 PST	76.2[A]	338[A]	340[A]	348[A]	334[A]	314[A]	336[A]	344[A]	340[A]	327[A]	324[A]	312[A]								
19:30 PDT													325[A]	293[A]	331[A]	162[A]	14.2[A]	9.32[A]	7.36[A]	5.39[A]
19:30 PST	105[A]	324[A]	352[A]	327[A]	312[A]	316[A]	331[A]	325[A]	291[A]	318[A]	346[A]	314[A]								
19:45 PDT													331[A]	296[A]	329[A]	131[A]	14.7[A]	9.32[A]	6.66[A]	6.00[A]
19:45 PST	134[A]	348[A]	346[A]	338[A]	308[A]	324[A]	320[A]	322[A]	327[A]	320[A]	316[A]	314[A]								
20:00 PDT													342[A]	285[A]	331[A]	109[A]	14.2[A]	9.74[A]	6.66[A]	5.69[A]
20:00 PST	174[A]	327[A]	298[A]	331[A]	340[A]	310[A]	306[A]	334[A]	308[A]	336[A]	320[A]	314[A]								
20:15 PDT													334[A]	314[A]	322[A]	98.0[A]	13.8[A]	9.74[A]	7.00[A]	5.09[A]
20:15 PST	181[A]	329[A]	356[A]	310[A]	334[A]	298[A]	314[A]	322[A]	320[A]	324[A]	306[A]	314[A]								
20:30 PDT													329[A]	302[A]	320[A]	86.3[A]	14.2[A]	8.90[A]	7.00[A]	5.39[A]
20:30 PST	186[A]	358[A]	306[A]	336[A]	336[A]	322[A]	327[A]	340[A]	338[A]	314[A]	312[A]	314[A]								
20:45 PDT													325[A]	318[A]	336[A]	80.2[A]	13.8[A]	9.32[A]	6.66[A]	5.69[A]
20:45 PST	203[A]	362[A]	324[A]	324[A]	329[A]	300[A]	348[A]	322[A]	324[A]	308[A]	322[A]	310[A]								
21:00 PDT													336[A]	278[A]	331[A]	72.4[A]	14.2[A]	9.74[A]	6.66[A]	5.69[A]
21:00 PST	201[A]	354[A]	329[A]	338[A]	318[A]	304[A]	329[A]	320[A]	304[A]	327[A]	327[A]	322[A]								
21:15 PDT													327[A]	320[A]	324[A]	65.9[A]	13.4[A]	8.90[A]	7.00[A]	5.39[A]
21:15 PST	210[A]	358[A]	289[A]	325[A]	329[A]	324[A]	344[A]	340[A]	344[A]	324[A]	310[A]	325[A]								
21:30 PDT													329[A]	304[A]	322[A]	63.2[A]	13.4[A]	9.32[A]	6.66[A]	5.39[A]
21:30 PST	207[A]	362[A]	344[A]	324[A]	312[A]	310[A]	322[A]	338[A]	320[A]	322[A]	329[A]	340[A]								
21:45 PDT													322[A]	306[A]	322[A]	63.2[A]	13.4[A]	8.90[A]	6.66[A]	5.09[A]
21:45 PST	230[A]	329[A]	340[A]	346[A]	324[A]	310[A]	346[A]	342[A]	318[A]	322[A]	327[A]	324[A]								
22:00 PDT													338[A]	293[A]	329[A]	57.4[A]	12.9[A]	8.90[A]	6.32[A]	5.39[A]
22:00 PST	196[A]	381[A]	322[A]	320[A]	340[A]	304[A]	344[A]	314[A]	325[A]	322[A]	320[A]	334[A]								
22:15 PDT													324[A]	308[A]	324[A]	53.6[A]	13.4[A]	9.32[A]	6.66[A]	5.39[A]
22:15 PST	207[A]	336[A]	334[A]	293[A]	308[A]	316[A]	325[A]	314[A]	352[A]	316[A]	316[A]	327[A]								
22:30 PDT													331[A]	298[A]	322[A]	52.7[A]	12.9[A]	8.90[A]	6.32[A]	5.39[A]
22:30 PST	203[A]	364[A]	342[A]	318[A]	329[A]	329[A]	338[A]	318[A]	322[A]	334[A]	325[A]	346[A]								
22:45 PDT													329[A]	314[A]	331[A]	47.4[A]	13.8[A]	8.50[A]	6.32[A]	5.09[A]
22:45 PST	225[A]	331[A]	334[A]	350[A]	306[A]	296[A]	329[A]	331[A]	324[A]	329[A]	320[A]	336[A]								
23:00 PDT													342[A]	300[A]	325[A]	46.5[A]	13.4[A]	8.50[A]	6.66[A]	5.39[A]

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TIME	Feb 28	Mar 1	Mar 2	Mar 3	Mar 4	Mar 5	Mar 6	Mar 7	Mar 8	Mar 9	Mar 10	Mar 11	Mar 12	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Mar 19
23:00 PST	207[A]	346[A]	322[A]	331[A]	348[A]	294[A]	325[A]	322[A]	316[A]	320[A]	314[A]	325[A]								
23:15 PDT													334[A]	314[A]	325[A]	44.0[A]	12.9[A]	8.50[A]	6.66[A]	5.69[A]
23:15 PST	232[A]	334[A]	342[A]	320[A]	348[A]	318[A]	314[A]	312[A]	329[A]	310[A]	329[A]	327[A]								
23:30 PDT													334[A]	296[A]	327[A]	42.3[A]	12.9[A]	8.50[A]	6.32[A]	5.09[A]
23:30 PST	222[A]	352[A]	344[A]	325[A]	342[A]	322[A]	331[A]	327[A]	327[A]	316[A]	310[A]	340[A]								
23:45 PDT													344[A]	310[A]	325[A]	41.5[A]	12.9[A]	8.50[A]	6.32[A]	5.69[A]
23:45 PST	212[A]	362[A]	312[A]	334[A]	294[A]	291[A]	338[A]	316[A]	329[A]	336[A]	314[A]	344[A]								
COUNT	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**92**	**96**	**96**	**96**	**96**	**96**	**96**	**96**
MAX	**591**	**388**	**381**	**373**	**366**	**356**	**352**	**364**	**358**	**350**	**346**	**346**	**348**	**344**	**350**	**344**	**39.2**	**12.9**	**8.90**	**7.00**
MIN	**76.2**	**169**	**289**	**269**	**272**	**289**	**281**	**302**	**291**	**302**	**300**	**294**	**318**	**278**	**283**	**41.5**	**12.9**	**8.50**	**6.32**	**5.09**

Explanation

A	Approved for publication -- Processing and review completed.

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2019

Discharge, cubic feet per second

TIME	Feb 15	Feb 16	Feb 17	Feb 18	Feb 19	Feb 20	Feb 21	Feb 22	Feb 23	Feb 24	Feb 25	Feb 26	Feb 27	Feb 28	Mar 1	Mar 2	Mar 3	Mar 4	Mar 5	Mar 6	Mar 7	Mar 8	Mar 9	Mar 10
00:00 PST	128[A]	310[A]	325[A]	344[A]	310[A]	329[A]	340[A]	369[A]	336[A]	338[A]	316[A]	296[A]	314[A]	312[A]	296[A]	294[A]	293[A]	289[A]	296[A]	289[A]	274[A]	19.6[A]	10.9[A]	7.00[A]
00:15 PST	136[A]	329[A]	325[A]	334[A]	325[A]	314[A]	325[A]	392[A]	350[A]	316[A]	329[A]	274[A]	312[A]	322[A]	276[A]	306[A]	296[A]	304[A]	298[A]	261[A]	296[A]	20.7[A]	10.6[A]	7.36[A]
00:30 PST	123[A]	338[A]	316[A]	346[A]	320[A]	331[A]	342[A]	360[A]	308[A]	329[A]	310[A]	320[A]	304[A]	312[A]	304[A]	294[A]	283[A]	274[A]	287[A]	283[A]	289[A]	20.1[A]	10.2[A]	7.36[A]
00:45 PST	116[A]	325[A]	338[A]	324[A]	327[A]	322[A]	322[A]	386[A]	325[A]	340[A]	320[A]	320[A]	302[A]	318[A]	314[A]	298[A]	298[A]	300[A]	302[A]	278[A]	294[A]	20.7[A]	9.74[A]	7.73[A]
01:00 PST	119[A]	327[A]	308[A]	350[A]	348[A]	329[A]	364[A]	379[A]	316[A]	336[A]	314[A]	298[A]	322[A]	320[A]	298[A]	296[A]	294[A]	283[A]	296[A]	267[A]	270[A]	19.6[A]	10.2[A]	7.00[A]
01:15 PST	108[A]	329[A]	336[A]	344[A]	325[A]	338[A]	360[A]	364[A]	346[A]	318[A]	324[A]	322[A]	306[A]	312[A]	289[A]	289[A]	294[A]	287[A]	287[A]	296[A]	270[A]	19.1[A]	10.2[A]	7.00[A]
01:30 PST	106[A]	348[A]	314[A]	285[A]	342[A]	308[A]	350[A]	392[A]	308[A]	318[A]	310[A]	314[A]	308[A]	308[A]	322[A]	281[A]	314[A]	300[A]	298[A]	304[A]	287[A]	19.1[A]	9.32[A]	7.00[A]
01:45 PST	105[A]	356[A]	334[A]	346[A]	306[A]	318[A]	344[A]	371[A]	327[A]	329[A]	310[A]	296[A]	281[A]	276[A]	296[A]	296[A]	285[A]	296[A]	300[A]	276[A]	276[A]	19.1[A]	9.32[A]	7.73[A]
02:00 PST	91.5[A]	352[A]	320[A]	318[A]	322[A]	325[A]	379[A]	384[A]	312[A]	314[A]	336[A]	306[A]	310[A]	331[A]	278[A]	302[A]	281[A]	308[A]	287[A]	287[A]	265[A]	18.5[A]	10.2[A]	
02:15 PST	91.5[A]	364[A]	344[A]	350[A]	336[A]	324[A]	358[A]	350[A]	312[A]	334[A]	324[A]	316[A]	306[A]	285[A]	308[A]	302[A]	276[A]	279[A]	287[A]	289[A]	274[A]	18.5[A]	10.2[A]	
02:30 PST	92.6[A]	327[A]	329[A]	324[A]	324[A]	324[A]	346[A]	377[A]	338[A]	346[A]	318[A]	304[A]	336[A]	293[A]	304[A]	304[A]	294[A]	300[A]	300[A]	289[A]	274[A]	19.1[A]	10.2[A]	
02:45 PST	89.4[A]	362[A]	310[A]	340[A]	334[A]	344[A]	388[A]	346[A]	336[A]	340[A]	302[A]	308[A]	316[A]	308[A]	294[A]	312[A]	300[A]	285[A]	294[A]	281[A]	270[A]	17.5[A]	9.74[A]	
03:00 PDT																								6.66[A]
03:00 PST	87.3[A]	360[A]	287[A]	293[A]	329[A]	316[A]	346[A]	364[A]	324[A]	325[A]	324[A]	291[A]	306[A]	293[A]	287[A]	291[A]	279[A]	310[A]	291[A]	291[A]	267[A]	17.0[A]	8.90[A]	
03:15 PDT																								7.36[A]
03:15 PST	75.3[A]	356[A]	289[A]	344[A]	334[A]	322[A]	360[A]	356[A]	329[A]	344[A]	322[A]	304[A]	302[A]	304[A]	293[A]	298[A]	269[A]	296[A]	294[A]	272[A]	265[A]	17.0[A]	10.2[A]	
03:30 PDT																								7.73[A]
03:30 PST	76.2[A]	362[A]	325[A]	364[A]	306[A]	331[A]	369[A]	364[A]	324[A]	302[A]	306[A]	302[A]	320[A]	308[A]	310[A]	316[A]	289[A]	310[A]	293[A]	285[A]	279[A]	18.5[A]	9.74[A]	
03:45 PDT																								7.00[A]
03:45 PST	84.2[A]	352[A]	336[A]	362[A]	318[A]	320[A]	377[A]	369[A]	314[A]	331[A]	310[A]	304[A]	312[A]	298[A]	291[A]	304[A]	293[A]	283[A]	287[A]	283[A]	279[A]	17.0[A]	8.50[A]	
04:00 PDT																								7.00[A]
04:00 PST	80.2[A]	381[A]	318[A]	346[A]	320[A]	327[A]	356[A]	344[A]	327[A]	350[A]	310[A]	320[A]	300[A]	308[A]	322[A]	304[A]	306[A]	296[A]	285[A]	283[A]	272[A]	16.1[A]	10.2[A]	
04:15 PDT																								7.00[A]
04:15 PST	75.3[A]	362[A]	329[A]	320[A]	354[A]	331[A]	366[A]	331[A]	342[A]	342[A]	312[A]	306[A]	314[A]	308[A]	312[A]	310[A]	296[A]	308[A]	302[A]	294[A]	279[A]	17.0[A]	9.74[A]	
04:30 PDT																								7.36[A]
04:30 PST	79.2[A]	354[A]	314[A]	358[A]	308[A]	318[A]	377[A]	348[A]	352[A]	314[A]	338[A]	310[A]	314[A]	276[A]	298[A]	294[A]	251[A]	285[A]	283[A]	267[A]	279[A]	16.6[A]	8.90[A]	
04:45 PDT																								6.66[A]
04:45 PST	77.2[A]	346[A]	318[A]	369[A]	312[A]	316[A]	373[A]	350[A]	324[A]	327[A]	304[A]	308[A]	306[A]	312[A]	304[A]	293[A]	281[A]	298[A]	289[A]	252[A]	285[A]	17.0[A]	8.50[A]	
05:00 PDT																								7.73[A]
05:00 PST	73.3[A]	289[A]	356[A]	340[A]	327[A]	318[A]	360[A]	294[A]	346[A]	329[A]	312[A]	287[A]	304[A]	306[A]	274[A]	304[A]	274[A]	298[A]	304[A]	278[A]	285[A]	16.6[A]	9.32[A]	
05:15 PDT																								7.36[A]

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TIME	Feb 15	Feb 16	Feb 17	Feb 18	Feb 19	Feb 20	Feb 21	Feb 22	Feb 23	Feb 24	Feb 25	Feb 26	Feb 27	Feb 28	Mar 1	Mar 2	Mar 3	Mar 4	Mar 5	Mar 6	Mar 7	Mar 8	Mar 9	Mar 10
05:15 PST	69.6[A]	352[A]	308[A]	362[A]	291[A]	342[A]	371[A]	329[A]	306[A]	331[A]	308[A]	300[A]	291[A]	302[A]	281[A]	298[A]	314[A]	291[A]	278[A]	293[A]	276[A]	16.6[A]	9.74[A]	
05:30 PDT																								7.36[A]
05:30 PST	64.1[A]	362[A]	310[A]	331[A]	318[A]	342[A]	369[A]	344[A]	342[A]	329[A]	304[A]	306[A]	293[A]	291[A]	302[A]	304[A]	296[A]	304[A]	272[A]	289[A]	279[A]	16.6[A]	8.90[A]	
05:45 PDT																								6.66[A]
05:45 PST	69.6[A]	338[A]	350[A]	377[A]	324[A]	329[A]	394[A]	322[A]	302[A]	312[A]	318[A]	322[A]	298[A]	302[A]	298[A]	294[A]	289[A]	306[A]	267[A]	291[A]	272[A]	16.6[A]	8.90[A]	
06:00 PDT																								6.32[A]
06:00 PST	65.9[A]	352[A]	329[A]	316[A]	331[A]	302[A]	379[A]	327[A]	334[A]	310[A]	329[A]	334[A]	329[A]	293[A]	258[A]	293[A]	298[A]	289[A]	298[A]	289[A]	272[A]	16.6[A]	8.90[A]	
06:15 PDT																								7.00[A]
06:15 PST	64.1[A]	362[A]	306[A]	344[A]	329[A]	338[A]	377[A]	331[A]	318[A]	322[A]	329[A]	298[A]	304[A]	314[A]	312[A]	296[A]	298[A]	304[A]	278[A]	287[A]	281[A]	16.1[A]	8.90[A]	
06:30 PDT																								7.00[A]
06:30 PST	58.4[A]	322[A]	340[A]	366[A]	298[A]	316[A]	362[A]	318[A]	331[A]	302[A]	327[A]	300[A]	306[A]	306[A]	281[A]	278[A]	289[A]	287[A]	279[A]	294[A]	287[A]	16.6[A]	8.50[A]	
06:45 PDT																								6.66[A]
06:45 PST	66.8[A]	331[A]	336[A]	316[A]	306[A]	350[A]	379[A]	329[A]	348[A]	329[A]	314[A]	325[A]	314[A]	270[A]	316[A]	289[A]	296[A]	291[A]	306[A]	274[A]	296[A]	15.6[A]	8.50[A]	
07:00 PDT																								7.36[A]
07:00 PST	58.4[A]	308[A]	320[A]	340[A]	316[A]	325[A]	384[A]	310[A]	350[A]	320[A]	320[A]	308[A]	314[A]	314[A]	294[A]	312[A]	308[A]	294[A]	291[A]	285[A]	283[A]	15.6[A]	8.50[A]	
07:15 PDT																								6.66[A]
07:15 PST	57.4[A]	314[A]	342[A]	352[A]	325[A]	296[A]	392[A]	336[A]	334[A]	320[A]	322[A]	320[A]	318[A]	312[A]	298[A]	294[A]	320[A]	287[A]	293[A]	245[A]	279[A]	16.1[A]	8.90[A]	
07:30 PDT																								7.00[A]
07:30 PST	61.3[A]	331[A]	344[A]	325[A]	325[A]	320[A]	381[A]	329[A]	346[A]	294[A]	304[A]	312[A]	318[A]	302[A]	291[A]	312[A]	302[A]	300[A]	278[A]	281[A]	298[A]	15.1[A]	7.73[A]	
07:45 PDT																								6.66[A]
07:45 PST	53.6[A]	327[A]	336[A]	350[A]	310[A]	285[A]	344[A]	348[A]	331[A]	327[A]	310[A]	316[A]	316[A]	302[A]	294[A]	287[A]	304[A]	279[A]	287[A]	289[A]	272[A]	15.6[A]	8.90[A]	
08:00 PDT																								6.66[A]
08:00 PST	57.4[A]	306[A]	340[A]	331[A]	320[A]	331[A]	377[A]	306[A]	331[A]	334[A]	310[A]	308[A]	304[A]	287[A]	316[A]	291[A]	281[A]	294[A]	272[A]	278[A]	289[A]	15.1[A]	9.32[A]	
08:15 PDT																								6.66[A]
08:15 PST	60.3[A]	344[A]	327[A]	375[A]	324[A]	322[A]	386[A]	366[A]	348[A]	320[A]	334[A]	298[A]	310[A]	312[A]	294[A]	314[A]	293[A]	302[A]	296[A]	281[A]	289[A]	16.1[A]	8.50[A]	
08:30 PDT																								6.66[A]
08:30 PST	55.5[A]	331[A]	322[A]	314[A]	344[A]	308[A]	384[A]	327[A]	325[A]	322[A]	300[A]	324[A]	306[A]	308[A]	287[A]	314[A]	283[A]	285[A]	300[A]	298[A]	294[A]	15.1[A]	8.50[A]	
08:45 PDT																								7.00[A]
08:45 PST	52.7[A]	325[A]	322[A]	325[A]	318[A]	318[A]	390[A]	352[A]	310[A]	308[A]	322[A]	304[A]	306[A]	310[A]	294[A]	314[A]	279[A]	306[A]	289[A]	272[A]	260[A]	14.2[A]	8.50[A]	
09:00 PDT																								6.66[A]
09:00 PST	54.5[A]	352[A]	294[A]	375[A]	298[A]	325[A]	381[A]	344[A]	329[A]	302[A]	318[A]	276[A]	294[A]	314[A]	298[A]	302[A]	296[A]	308[A]	296[A]	263[A]	274[A]	14.7[A]	8.11[A]	
09:15 PDT																								6.66[A]

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TIME	Feb 15	Feb 16	Feb 17	Feb 18	Feb 19	Feb 20	Feb 21	Feb 22	Feb 23	Feb 24	Feb 25	Feb 26	Feb 27	Feb 28	Mar 1	Mar 2	Mar 3	Mar 4	Mar 5	Mar 6	Mar 7	Mar 8	Mar 9	Mar 10
09:15 PST	46.5[A]	312[A]	312[A]	320[A]	338[A]	320[A]	399[A]	322[A]	338[A]	312[A]	312[A]	298[A]	312[A]	304[A]	308[A]	304[A]	289[A]	283[A]	285[A]	279[A]	276[A]	15.6[A]	8.90[A]	
09:30 PDT																								6.32[A]
09:30 PST	52.7[A]	329[A]	322[A]	338[A]	329[A]	324[A]	375[A]	352[A]	314[A]	331[A]	308[A]	324[A]	310[A]	312[A]	306[A]	293[A]	296[A]	312[A]	285[A]	291[A]	287[A]	14.7[A]	8.90[A]	
09:45 PDT																								6.32[A]
09:45 PST	47.4[A]	371[A]	342[A]	340[A]	336[A]	314[A]	373[A]	327[A]	324[A]	306[A]	310[A]	296[A]	306[A]	296[A]	298[A]	314[A]	300[A]	294[A]	278[A]	289[A]	285[A]	14.2[A]	7.00[A]	
10:00 PDT																								7.00[A]
10:00 PST	44.0[A]	340[A]	298[A]	325[A]	270[A]	327[A]	381[A]	360[A]	336[A]	304[A]	298[A]	294[A]	308[A]	300[A]	294[A]	312[A]	294[A]	285[A]	298[A]	278[A]	270[A]	13.8[A]	8.90[A]	
10:15 PDT																								6.32[A]
10:15 PST	44.8[A]	334[A]	350[A]	331[A]	327[A]	298[A]	342[A]	322[A]	314[A]	327[A]	314[A]	304[A]	306[A]	314[A]	291[A]	296[A]	304[A]	279[A]	289[A]	274[A]	274[A]	14.7[A]	8.90[A]	
10:30 PDT																								7.00[A]
10:30 PST	48.2[A]	348[A]	325[A]	306[A]	346[A]	300[A]	373[A]	348[A]	340[A]	310[A]	296[A]	302[A]	300[A]	316[A]	310[A]	306[A]	293[A]	308[A]	285[A]	291[A]	267[A]	13.8[A]	8.11[A]	
10:45 PDT																								6.66[A]
10:45 PST	43.1[A]	356[A]	329[A]	346[A]	320[A]	296[A]	379[A]	350[A]	293[A]	312[A]	322[A]	312[A]	294[A]	308[A]	296[A]	318[A]	287[A]	291[A]	289[A]	269[A]	265[A]	14.2[A]	8.11[A]	
11:00 PDT																								6.32[A]
11:00 PST	41.5[A]	316[A]	294[A]	291[A]	316[A]	318[A]	388[A]	329[A]	340[A]	331[A]	325[A]	310[A]	294[A]	314[A]	312[A]	308[A]	308[A]	304[A]	283[A]	298[A]	263[A]	14.2[A]	7.73[A]	
11:15 PDT																								7.00[A]
11:15 PST	44.0[A]	356[A]	346[A]	354[A]	329[A]	325[A]	362[A]	269[A]	344[A]	318[A]	320[A]	310[A]	294[A]	285[A]	283[A]	322[A]	279[A]	289[A]	276[A]	276[A]	263[A]	14.2[A]	8.50[A]	
11:30 PDT																								6.66[A]
11:30 PST	37.6[A]	314[A]	306[A]	306[A]	354[A]	320[A]	350[A]	356[A]	340[A]	320[A]	312[A]	316[A]	312[A]	314[A]	291[A]	304[A]	291[A]	291[A]	289[A]	281[A]	279[A]	13.4[A]	8.11[A]	
11:45 PDT																								6.32[A]
11:45 PST	40.7[A]	322[A]	352[A]	348[A]	325[A]	331[A]	369[A]	331[A]	340[A]	310[A]	325[A]	318[A]	304[A]	279[A]	306[A]	276[A]	304[A]	289[A]	285[A]	258[A]	289[A]	14.2[A]	8.11[A]	
12:00 PDT																								6.32[A]
12:00 PST	43.1[A]	316[A]	296[A]	344[A]	354[A]	336[A]	340[A]	325[A]	325[A]	325[A]	336[A]	302[A]	304[A]	298[A]	300[A]	291[A]	279[A]	310[A]	278[A]	270[A]	279[A]	13.8[A]	7.73[A]	
12:15 PDT																								6.66[A]
12:15 PST	36.9[A]	302[A]	306[A]	310[A]	336[A]	329[A]	379[A]	340[A]	327[A]	325[A]	331[A]	334[A]	308[A]	314[A]	314[A]	281[A]	304[A]	298[A]	287[A]	293[A]	291[A]	14.2[A]	7.36[A]	
12:30 PDT																								6.66[A]
12:30 PST	39.9[A]	362[A]	329[A]	312[A]	320[A]	324[A]	358[A]	350[A]	327[A]	320[A]	318[A]	285[A]	306[A]	304[A]	285[A]	300[A]	300[A]	285[A]	289[A]	278[A]	279[A]	13.4[A]	7.73[A]	
12:45 PDT																								6.66[A]
12:45 PST	39.9[A]	331[A]	294[A]	338[A]	310[A]	310[A]	346[A]	306[A]	331[A]	314[A]	304[A]	300[A]	312[A]	320[A]	312[A]	300[A]	276[A]	287[A]	291[A]	274[A]	237[A]	12.9[A]	8.90[A]	
13:00 PDT																								6.32[A]
13:00 PST	37.6[A]	362[A]	342[A]	316[A]	281[A]	312[A]	354[A]	334[A]	340[A]	308[A]	312[A]	325[A]	314[A]	294[A]	291[A]	294[A]	279[A]	302[A]	281[A]	291[A]	181[A]	13.8[A]	7.73[A]	
13:15 PDT																								6.66[A]

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TIME	Feb 15	Feb 16	Feb 17	Feb 18	Feb 19	Feb 20	Feb 21	Feb 22	Feb 23	Feb 24	Feb 25	Feb 26	Feb 27	Feb 28	Mar 1	Mar 2	Mar 3	Mar 4	Mar 5	Mar 6	Mar 7	Mar 8	Mar 9	Mar 10
13:15 PST	43.1[A]	308[A]	336[A]	331[A]	331[A]	322[A]	352[A]	322[A]	331[A]	320[A]	314[A]	331[A]	316[A]	296[A]	300[A]	302[A]	302[A]	283[A]	293[A]	272[A]	140[A]	13.4[A]	8.11[A]	
13:30 PDT																								6.32[A]
13:30 PST	47.4[A]	334[A]	334[A]	314[A]	340[A]	331[A]	324[A]	358[A]	338[A]	327[A]	324[A]	331[A]	320[A]	312[A]	302[A]	279[A]	306[A]	302[A]	298[A]	276[A]	114[A]	14.2[A]	7.36[A]	
13:45 PDT																								6.66[A]
13:45 PST	124[A]	329[A]	327[A]	331[A]	318[A]	279[A]	366[A]	348[A]	322[A]	314[A]	312[A]	320[A]	310[A]	306[A]	302[A]	302[A]	298[A]	304[A]	274[A]	272[A]	94.8[A]	13.4[A]	7.36[A]	
14:00 PDT																								6.32[A]
14:00 PST	181[A]	334[A]	325[A]	324[A]	308[A]	308[A]	375[A]	344[A]	344[A]	308[A]	302[A]	304[A]	302[A]	312[A]	294[A]	279[A]	279[A]	310[A]	285[A]	289[A]	87.3[A]	13.8[A]	7.00[A]	
14:15 PDT																								6.32[A]
14:15 PST	223[A]	354[A]	312[A]	324[A]	294[A]	314[A]	366[A]	324[A]	324[A]	331[A]	278[A]	314[A]	316[A]	306[A]	302[A]	294[A]	281[A]	308[A]	291[A]	281[A]	80.2[A]	12.9[A]	7.73[A]	
14:30 PDT																								7.00[A]
14:30 PST	283[A]	324[A]	336[A]	291[A]	312[A]	310[A]	354[A]	342[A]	320[A]	320[A]	324[A]	320[A]	308[A]	314[A]	302[A]	289[A]	278[A]	306[A]	281[A]	281[A]	72.4[A]	13.4[A]	8.50[A]	
14:45 PDT																								6.00[A]
14:45 PST	296[A]	334[A]	329[A]	336[A]	298[A]	310[A]	384[A]	342[A]	287[A]	327[A]	312[A]	287[A]	296[A]	308[A]	308[A]	308[A]	298[A]	302[A]	283[A]	281[A]	61.3[A]	12.1[A]	7.73[A]	
15:00 PDT																								7.00[A]
15:00 PST	300[A]	329[A]	304[A]	325[A]	322[A]	338[A]	342[A]	334[A]	314[A]	310[A]	318[A]	300[A]	314[A]	300[A]	302[A]	304[A]	308[A]	267[A]	285[A]	291[A]	65.0[A]	12.1[A]	7.00[A]	
15:15 PDT																								6.32[A]
15:15 PST	302[A]	294[A]	272[A]	354[A]	314[A]	310[A]	331[A]	354[A]	294[A]	324[A]	342[A]	304[A]	306[A]	296[A]	283[A]	283[A]	278[A]	291[A]	293[A]	276[A]	59.3[A]	12.5[A]	8.11[A]	
15:30 PDT																								6.66[A]
15:30 PST	285[A]	334[A]	304[A]	276[A]	312[A]	331[A]	336[A]	364[A]	318[A]	316[A]	314[A]	329[A]	324[A]	312[A]	276[A]	306[A]	304[A]	298[A]	289[A]	283[A]	55.5[A]	12.9[A]	7.73[A]	
15:45 PDT																								6.00[A]
15:45 PST	302[A]	325[A]	291[A]	366[A]	287[A]	336[A]	348[A]	334[A]	348[A]	316[A]	312[A]	298[A]	294[A]	300[A]	308[A]	300[A]	293[A]	276[A]	274[A]	293[A]	52.7[A]	12.5[A]	7.73[A]	
16:00 PDT																								6.32[A]
16:00 PST	308[A]	316[A]	320[A]	334[A]	308[A]	320[A]	352[A]	346[A]	296[A]	310[A]	327[A]	285[A]	325[A]	289[A]	296[A]	287[A]	298[A]	302[A]	285[A]	289[A]	49.1[A]	12.9[A]	7.73[A]	
16:15 PDT																								6.32[A]
16:15 PST	329[A]	296[A]	340[A]	296[A]	302[A]	316[A]	360[A]	327[A]	342[A]	281[A]	306[A]	324[A]	300[A]	294[A]	289[A]	312[A]	298[A]	283[A]	283[A]	281[A]	49.1[A]	12.5[A]	7.36[A]	
16:30 PDT																								6.00[A]
16:30 PST	304[A]	342[A]	336[A]	356[A]	331[A]	285[A]	369[A]	327[A]	314[A]	308[A]	331[A]	304[A]	298[A]	318[A]	291[A]	291[A]	293[A]	254[A]	281[A]	285[A]	46.5[A]	12.9[A]	7.73[A]	
16:45 PDT																								6.66[A]
16:45 PST	348[A]	298[A]	320[A]	304[A]	318[A]	308[A]	364[A]	348[A]	342[A]	318[A]	318[A]	325[A]	318[A]	308[A]	302[A]	312[A]	294[A]	285[A]	279[A]	274[A]	42.3[A]	13.4[A]	8.50[A]	
17:00 PDT																								6.00[A]
17:00 PST	300[A]	325[A]	340[A]	322[A]	325[A]	329[A]	344[A]	310[A]	329[A]	302[A]	306[A]	274[A]	324[A]	270[A]	285[A]	300[A]	310[A]	293[A]	291[A]	278[A]	40.7[A]	13.4[A]	7.73[A]	
17:15 PDT																								6.66[A]

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TIME	Feb 15	Feb 16	Feb 17	Feb 18	Feb 19	Feb 20	Feb 21	Feb 22	Feb 23	Feb 24	Feb 25	Feb 26	Feb 27	Feb 28	Mar 1	Mar 2	Mar 3	Mar 4	Mar 5	Mar 6	Mar 7	Mar 8	Mar 9	Mar 10
17:15 PST	327[A]	344[A]	294[A]	344[A]	289[A]	310[A]	344[A]	331[A]	325[A]	320[A]	293[A]	310[A]	314[A]	300[A]	294[A]	314[A]	287[A]	300[A]	283[A]	294[A]	42.3[A]	12.5[A]	7.73[A]	
17:30 PDT																								6.32[A]
17:30 PST	281[A]	306[A]	334[A]	342[A]	329[A]	336[A]	329[A]	329[A]	322[A]	298[A]	310[A]	320[A]	283[A]	296[A]	291[A]	300[A]	285[A]	302[A]	272[A]	258[A]	38.4[A]	13.4[A]	7.73[A]	
17:45 PDT																								6.32[A]
17:45 PST	314[A]	346[A]	348[A]	314[A]	293[A]	320[A]	371[A]	336[A]	340[A]	293[A]	310[A]	293[A]	287[A]	302[A]	304[A]	274[A]	312[A]	293[A]	279[A]	279[A]	35.4[A]	12.1[A]	7.00[A]	
18:00 PDT																								6.00[A]
18:00 PST	331[A]	308[A]	310[A]	318[A]	294[A]	327[A]	371[A]	340[A]	334[A]	291[A]	310[A]	318[A]	302[A]	298[A]	296[A]	285[A]	296[A]	281[A]	289[A]	263[A]	33.9[A]	11.7[A]	7.73[A]	
18:15 PDT																								6.32[A]
18:15 PST	340[A]	320[A]	308[A]	318[A]	316[A]	304[A]	360[A]	320[A]	327[A]	310[A]	334[A]	308[A]	308[A]	294[A]	287[A]	272[A]	312[A]	293[A]	291[A]	287[A]	36.9[A]	12.5[A]	8.50[A]	
18:30 PDT																								6.00[A]
18:30 PST	294[A]	358[A]	308[A]	331[A]	316[A]	334[A]	369[A]	334[A]	314[A]	314[A]	318[A]	329[A]	300[A]	293[A]	300[A]	302[A]	308[A]	298[A]	281[A]	287[A]	32.5[A]	11.7[A]	7.73[A]	
18:45 PDT																								6.00[A]
18:45 PST	346[A]	298[A]	291[A]	296[A]	329[A]	312[A]	381[A]	340[A]	316[A]	314[A]	320[A]	293[A]	324[A]	306[A]	274[A]	285[A]	298[A]	287[A]	281[A]	267[A]	33.9[A]	10.9[A]	8.50[A]	
19:00 PDT																								6.66[A]
19:00 PST	274[A]	310[A]	296[A]	272[A]	352[A]	334[A]	381[A]	336[A]	329[A]	318[A]	289[A]	287[A]	302[A]	298[A]	285[A]	302[A]	293[A]	291[A]	285[A]	279[A]	31.8[A]	11.7[A]	8.11[A]	
19:15 PDT																								5.39[A]
19:15 PST	352[A]	304[A]	312[A]	360[A]	338[A]	342[A]	369[A]	324[A]	329[A]	318[A]	322[A]	310[A]	318[A]	289[A]	283[A]	302[A]	308[A]	279[A]	278[A]	270[A]	31.1[A]	11.3[A]	8.11[A]	
19:30 PDT																								6.00[A]
19:30 PST	324[A]	338[A]	278[A]	352[A]	316[A]	325[A]	371[A]	350[A]	331[A]	308[A]	298[A]	314[A]	310[A]	304[A]	281[A]	283[A]	310[A]	294[A]	281[A]	279[A]	31.1[A]	11.7[A]	8.11[A]	
19:45 PDT																								5.69[A]
19:45 PST	329[A]	316[A]	281[A]	289[A]	302[A]	310[A]	375[A]	329[A]	300[A]	285[A]	350[A]	302[A]	316[A]	310[A]	308[A]	298[A]	300[A]	279[A]	300[A]	256[A]	29.8[A]	11.7[A]	7.73[A]	
20:00 PDT																								6.00[A]
20:00 PST	331[A]	312[A]	329[A]	329[A]	336[A]	338[A]	381[A]	336[A]	334[A]	324[A]	314[A]	293[A]	314[A]	300[A]	265[A]	293[A]	296[A]	291[A]	267[A]	274[A]	27.8[A]	12.1[A]	8.11[A]	
20:15 PDT																								5.39[A]
20:15 PST	287[A]	336[A]	312[A]	329[A]	302[A]	304[A]	403[A]	322[A]	304[A]	302[A]	279[A]	306[A]	304[A]	265[A]	291[A]	312[A]	302[A]	281[A]	279[A]	272[A]	27.2[A]	11.7[A]	7.73[A]	
20:30 PDT																								6.66[A]
20:30 PST	279[A]	312[A]	356[A]	340[A]	302[A]	310[A]	375[A]	340[A]	320[A]	302[A]	291[A]	294[A]	300[A]	278[A]	308[A]	294[A]	304[A]	278[A]	287[A]	289[A]	26.5[A]	11.3[A]	8.11[A]	
20:45 PDT																								5.69[A]
20:45 PST	260[A]	329[A]	356[A]	342[A]	346[A]	327[A]	340[A]	316[A]	296[A]	318[A]	302[A]	306[A]	287[A]	310[A]	314[A]	285[A]	285[A]	289[A]	261[A]	278[A]	25.3[A]	10.9[A]	8.11[A]	
21:00 PDT																								5.39[A]
21:00 PST	308[A]	354[A]	340[A]	320[A]	302[A]	304[A]	397[A]	346[A]	318[A]	296[A]	314[A]	300[A]	291[A]	308[A]	279[A]	298[A]	289[A]	289[A]	289[A]	283[A]	25.9[A]	11.3[A]	7.00[A]	
21:15 PDT																								6.00[A]

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TIME	Feb 15	Feb 16	Feb 17	Feb 18	Feb 19	Feb 20	Feb 21	Feb 22	Feb 23	Feb 24	Feb 25	Feb 26	Feb 27	Feb 28	Mar 1	Mar 2	Mar 3	Mar 4	Mar 5	Mar 6	Mar 7	Mar 8	Mar 9	Mar 10
21:15 PST	265[A]	289[A]	390[A]	278[A]	322[A]	329[A]	379[A]	354[A]	338[A]	314[A]	325[A]	310[A]	296[A]	312[A]	302[A]	316[A]	296[A]	300[A]	274[A]	269[A]	22.9[A]	11.7[A]	7.36[A]	
21:30 PDT																								6.00[A]
21:30 PST	325[A]	354[A]	334[A]	338[A]	318[A]	322[A]	401[A]	316[A]	324[A]	314[A]	320[A]	322[A]	302[A]	298[A]	291[A]	272[A]	294[A]	276[A]	289[A]	267[A]	24.1[A]	10.9[A]	7.36[A]	
21:45 PDT																								5.69[A]
21:45 PST	316[A]	318[A]	358[A]	325[A]	302[A]	334[A]	394[A]	342[A]	331[A]	310[A]	320[A]	318[A]	302[A]	310[A]	283[A]	285[A]	302[A]	294[A]	283[A]	278[A]	24.1[A]	10.6[A]	7.73[A]	
22:00 PDT																								6.00[A]
22:00 PST	344[A]	314[A]	386[A]	312[A]	325[A]	325[A]	366[A]	334[A]	298[A]	304[A]	304[A]	320[A]	310[A]	302[A]	291[A]	289[A]	276[A]	291[A]	283[A]	270[A]	22.3[A]	11.7[A]	7.36[A]	
22:15 PDT																								5.39[A]
22:15 PST	296[A]	338[A]	329[A]	342[A]	331[A]	308[A]	419[A]	336[A]	325[A]	314[A]	329[A]	298[A]	300[A]	320[A]	304[A]	291[A]	294[A]	296[A]	278[A]	272[A]	22.3[A]	10.9[A]	7.73[A]	
22:30 PDT																								6.00[A]
22:30 PST	358[A]	344[A]	338[A]	338[A]	336[A]	320[A]	421[A]	336[A]	336[A]	281[A]	320[A]	312[A]	300[A]	293[A]	300[A]	281[A]	293[A]	300[A]	279[A]	278[A]	22.9[A]	10.6[A]	7.36[A]	
22:45 PDT																								6.00[A]
22:45 PST	314[A]	327[A]	366[A]	348[A]	306[A]	327[A]	384[A]	344[A]	312[A]	306[A]	324[A]	314[A]	296[A]	287[A]	308[A]	308[A]	308[A]	291[A]	287[A]	289[A]	22.9[A]	11.7[A]	7.73[A]	
23:00 PDT																								6.00[A]
23:00 PST	348[A]	283[A]	344[A]	329[A]	310[A]	356[A]	403[A]	348[A]	331[A]	314[A]	320[A]	318[A]	316[A]	310[A]	289[A]	249[A]	304[A]	300[A]	274[A]	260[A]	20.7[A]	10.6[A]	7.73[A]	
23:15 PDT																								6.00[A]
23:15 PST	306[A]	308[A]	316[A]	346[A]	308[A]	336[A]	405[A]	331[A]	314[A]	304[A]	331[A]	324[A]	304[A]	306[A]	285[A]	300[A]	300[A]	281[A]	296[A]	287[A]	21.8[A]	10.6[A]	7.73[A]	
23:30 PDT																								5.69[A]
23:30 PST	348[A]	318[A]	364[A]	322[A]	291[A]	329[A]	384[A]	336[A]	306[A]	320[A]	316[A]	285[A]	281[A]	298[A]	274[A]	310[A]	267[A]	287[A]	274[A]	276[A]	20.1[A]	10.9[A]	7.73[A]	
23:45 PDT																								5.69[A]
23:45 PST	322[A]	304[A]	352[A]	306[A]	296[A]	340[A]	340[A]	356[A]	336[A]	304[A]	327[A]	291[A]	324[A]	314[A]	308[A]	287[A]	302[A]	310[A]	281[A]	285[A]	20.7[A]	10.9[A]	7.36[A]	
COUNT	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**96**	**92**
MAX	**358**	**381**	**390**	**377**	**354**	**356**	**421**	**392**	**352**	**350**	**350**	**334**	**336**	**331**	**322**	**322**	**320**	**312**	**306**	**304**	**298**	**20.7**	**10.9**	**7.73**
MIN	**36.9**	**283**	**272**	**272**	**270**	**279**	**322**	**269**	**287**	**281**	**278**	**274**	**281**	**265**	**258**	**249**	**251**	**254**	**261**	**245**	**20.1**	**10.6**	**7.00**	**5.39**

Explanation

A	Approved for publication -- Processing and review completed.

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Discharge, cubic feet per second

TIME	Jan 11	Jan 12	Jan 13	Jan 14	Jan 15	Jan 16	Jan 17	Jan 18	Jan 19	Jan 20	Jan 21	Jan 22	Jan 23	Jan 24	Jan 25	Jan 26	Jan 27	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5	Feb 6	Feb 7	Feb 8	Feb 9
00:00 PST	0.00[A]	279[A]	288[A]	283[A]	307[A]	310[A]	309[A]	312[A]	310[A]	310[A]	334[A]	310[A]	256[A]	309[A]	266[A]	265[A]	259[A]	130[A]	123[A]	111[A]	102[A]	97.2[A]	97.2[A]	96.1[A]	97.2[A]	94.0[A]	9.37[A]	3.73[A]	1.60[A]	0.78[A]
00:15 PST	0.00[A]	265[A]	281[A]	288[A]	292[A]	292[A]	318[A]	309[A]	316[A]	314[A]	314[A]	318[A]	252[A]	307[A]	261[A]	266[A]	261[A]	129[A]	126[A]	108[A]	99.4[A]	96.1[A]	98.3[A]	96.1[A]	94.0[A]	98.3[A]	9.73[A]	3.73[A]	1.60[A]	0.78[A]
00:30 PST	0.00[A]	284[A]	297[A]	290[A]	292[A]	301[A]	316[A]	312[A]	307[A]	303[A]	326[A]	330[A]	251[A]	299[A]	263[A]	261[A]	266[A]	130[A]	120[A]	105[A]	101[A]	99.4[A]	102[A]	99.4[A]	96.1[A]	94.0[A]	9.01[A]	3.50[A]	1.60[A]	0.78[A]
00:45 PST	0.00[A]	284[A]	288[A]	288[A]	295[A]	307[A]	301[A]	312[A]	318[A]	301[A]	307[A]	318[A]	249[A]	301[A]	265[A]	263[A]	256[A]	130[A]	126[A]	108[A]	103[A]	97.2[A]	101[A]	99.4[A]	98.3[A]	99.4[A]	9.01[A]	3.50[A]	1.60[A]	0.78[A]
01:00 PST	0.00[A]	263[A]	305[A]	295[A]	301[A]	299[A]	310[A]	310[A]	318[A]	314[A]	330[A]	324[A]	261[A]	297[A]	263[A]	266[A]	259[A]	128[A]	125[A]	107[A]	98.3[A]	101[A]	101[A]	99.4[A]	97.2[A]	94.0[A]	9.01[A]	3.50[A]	1.60[A]	0.78[A]
01:15 PST	0.00[A]	286[A]	274[A]	284[A]	307[A]	294[A]	305[A]	307[A]	301[A]	312[A]	328[A]	310[A]	261[A]	312[A]	261[A]	258[A]	258[A]	124[A]	124[A]	107[A]	103[A]	102[A]	99.4[A]	98.3[A]	92.9[A]	96.1[A]	9.01[A]	3.50[A]	1.60[A]	0.78[A]
01:30 PST	0.00[A]	288[A]	283[A]	290[A]	303[A]	303[A]	309[A]	312[A]	322[A]	307[A]	326[A]	328[A]	263[A]	299[A]	265[A]	268[A]	265[A]	126[A]	124[A]	107[A]	101[A]	98.3[A]	98.3[A]	98.3[A]	98.3[A]	99.4[A]	9.01[A]	3.50[A]	1.60[A]	0.78[A]
01:45 PST	0.00[A]	279[A]	294[A]	288[A]	299[A]	305[A]	312[A]	309[A]	314[A]	322[A]	324[A]	322[A]	258[A]	303[A]	268[A]	259[A]	266[A]	125[A]	126[A]	107[A]	101[A]	99.4[A]	97.2[A]	95.1[A]	101[A]	99.4[A]	9.01[A]	3.29[A]	1.48[A]	0.78[A]
02:00 PST	0.00[A]	274[A]	279[A]	295[A]	295[A]	283[A]	303[A]	309[A]	307[A]	318[A]	328[A]	324[A]	254[A]	305[A]	266[A]	254[A]	265[A]	128[A]	125[A]	104[A]	99.4[A]	97.2[A]	98.3[A]	98.3[A]	98.3[A]	99.4[A]	8.32[A]	3.50[A]	1.60[A]	0.78[A]
02:15 PST	0.00[A]	286[A]	292[A]	310[A]	274[A]	310[A]	303[A]	312[A]	299[A]	322[A]	320[A]	330[A]	254[A]	316[A]	261[A]	256[A]	259[A]	129[A]	126[A]	105[A]	98.3[A]	101[A]	97.2[A]	97.2[A]	101[A]	96.1[A]	8.67[A]	3.50[A]	1.48[A]	0.78[A]
02:30 PST	0.00[A]	297[A]	279[A]	307[A]	301[A]	295[A]	297[A]	310[A]	318[A]	310[A]	326[A]	324[A]	256[A]	301[A]	268[A]	266[A]	254[A]	131[A]	128[A]	104[A]	99.4[A]	98.3[A]	99.4[A]	99.4[A]	97.2[A]	95.1[A]	8.32[A]	3.29[A]	1.48[A]	0.78[A]
02:45 PST	0.00[A]	297[A]	294[A]	294[A]	299[A]	297[A]	307[A]	318[A]	324[A]	320[A]	320[A]	309[A]	259[A]	299[A]	268[A]	268[A]	261[A]	128[A]	129[A]	103[A]	99.4[A]	97.2[A]	97.2[A]	97.2[A]	101[A]	98.3[A]	8.32[A]	3.29[A]	1.48[A]	0.70[A]
03:00 PST	0.00[A]	290[A]	272[A]	295[A]	286[A]	303[A]	316[A]	309[A]	316[A]	312[A]	334[A]	322[A]	261[A]	305[A]	263[A]	261[A]	261[A]	125[A]	133[A]	106[A]	102[A]	101[A]	97.2[A]	97.2[A]	99.4[A]	96.1[A]	7.99[A]	3.29[A]	1.48[A]	0.70[A]
03:15 PST	0.00[A]	279[A]	290[A]	297[A]	301[A]	307[A]	292[A]	307[A]	318[A]	312[A]	326[A]	316[A]	258[A]	310[A]	266[A]	270[A]	265[A]	121[A]	129[A]	103[A]	96.1[A]	101[A]	98.3[A]	97.2[A]	95.1[A]	98.3[A]	7.99[A]	3.29[A]	1.48[A]	0.70[A]
03:30 PST	0.00[A]	292[A]	286[A]	303[A]	299[A]	290[A]	307[A]	301[A]	307[A]	310[A]	324[A]	324[A]	259[A]	307[A]	256[A]	258[A]	259[A]	129[A]	134[A]	105[A]	101[A]	99.4[A]	98.3[A]	102[A]	99.4[A]	99.4[A]	7.99[A]	3.29[A]	1.48[A]	0.70[A]
03:45 PST	0.00[A]	286[A]	288[A]	303[A]	301[A]	290[A]	307[A]	324[A]	312[A]	316[A]	328[A]	334[A]	261[A]	297[A]	266[A]	259[A]	268[A]	129[A]	128[A]	103[A]	99.4[A]	101[A]	99.4[A]	99.4[A]	96.1[A]	96.1[A]	7.99[A]	3.29[A]	1.48[A]	0.70[A]
04:00 PST	0.00[A]	288[A]	281[A]	303[A]	297[A]	303[A]	301[A]	297[A]	310[A]	318[A]	336[A]	310[A]	251[A]	303[A]	261[A]	259[A]	266[A]	126[A]	130[A]	99.4[A]	98.3[A]	98.3[A]	96.1[A]	99.4[A]	101[A]	97.2[A]	7.99[A]	3.29[A]	1.36[A]	0.70[A]
04:15 PST	0.00[A]	294[A]	284[A]	290[A]	294[A]	303[A]	314[A]	303[A]	312[A]	305[A]	324[A]	332[A]	261[A]	309[A]	272[A]	259[A]	259[A]	126[A]	133[A]	102[A]	103[A]	102[A]	99.4[A]	98.3[A]	92.9[A]	94.0[A]	7.99[A]	3.08[A]	1.48[A]	0.70[A]
04:30 PST	0.00[A]	297[A]	284[A]	295[A]	283[A]	292[A]	303[A]	316[A]	314[A]	320[A]	310[A]	320[A]	274[A]	295[A]	265[A]	261[A]	261[A]	125[A]	130[A]	102[A]	99.4[A]	98.3[A]	98.3[A]	97.2[A]	99.4[A]	97.2[A]	7.66[A]	3.29[A]	1.36[A]	0.70[A]
04:45 PST	0.00[A]	294[A]	301[A]	297[A]	277[A]	309[A]	312[A]	310[A]	303[A]	312[A]	324[A]	324[A]	277[A]	299[A]	274[A]	265[A]	263[A]	123[A]	130[A]	104[A]	101[A]	99.4[A]	101[A]	96.1[A]	95.1[A]	97.2[A]	7.34[A]	3.08[A]	1.48[A]	0.70[A]
05:00 PST	0.00[A]	281[A]	277[A]	294[A]	307[A]	305[A]	295[A]	309[A]	314[A]	309[A]	334[A]	322[A]	288[A]	312[A]	258[A]	270[A]	258[A]	121[A]	136[A]	99.4[A]	103[A]	97.2[A]	97.2[A]	101[A]	97.2[A]	99.4[A]	7.66[A]	3.08[A]	1.48[A]	0.70[A]
05:15 PST	0.00[A]	290[A]	301[A]	290[A]	284[A]	297[A]	312[A]	322[A]	309[A]	314[A]	328[A]	320[A]	290[A]	307[A]	263[A]	266[A]	263[A]	125[A]	130[A]	104[A]	101[A]	101[A]	99.4[A]	98.3[A]	98.3[A]	96.1[A]	7.34[A]	3.08[A]	1.36[A]	0.70[A]
05:30 PST	0.00[A]	301[A]	299[A]	303[A]	292[A]	307[A]	294[A]	299[A]	314[A]	316[A]	328[A]	318[A]	290[A]	310[A]	263[A]	263[A]	263[A]	125[A]	131[A]	103[A]	99.4[A]	97.2[A]	97.2[A]	101[A]	94.0[A]	101[A]	7.34[A]	3.08[A]	1.36[A]	0.70[A]
05:45 PST	0.00[A]	301[A]	274[A]	294[A]	299[A]	290[A]	314[A]	307[A]	309[A]	318[A]	320[A]	328[A]	301[A]	309[A]	259[A]	259[A]	259[A]	126[A]	135[A]	103[A]	99.4[A]	102[A]	98.3[A]	97.2[A]	97.2[A]	96.1[A]	7.02[A]	3.08[A]	1.36[A]	0.70[A]
06:00 PST	0.00[A]	294[A]	303[A]	295[A]	297[A]	295[A]	320[A]	310[A]	312[A]	307[A]	332[A]	332[A]	312[A]	318[A]	261[A]	258[A]	270[A]	126[A]	128[A]	102[A]	102[A]	101[A]	97.2[A]	96.1[A]	97.2[A]	97.2[A]	7.02[A]	3.08[A]	1.36[A]	0.70[A]
06:15 PST	0.00[A]	307[A]	283[A]	292[A]	301[A]	309[A]	305[A]	307[A]	310[A]	314[A]	322[A]	332[A]	305[A]	307[A]	270[A]	265[A]	266[A]	128[A]	130[A]	103[A]	99.4[A]	99.4[A]	98.3[A]	95.1[A]	97.2[A]	94.0[A]	7.02[A]	3.08[A]	1.36[A]	0.70[A]
06:30 PST	0.00[A]	297[A]	299[A]	301[A]	290[A]	294[A]	307[A]	303[A]	314[A]	301[A]	318[A]	318[A]	316[A]	307[A]	272[A]	261[A]	268[A]	124[A]	128[A]	102[A]	99.4[A]	101[A]	101[A]	101[A]	97.2[A]	97.2[A]	7.02[A]	3.08[A]	1.36[A]	0.70[A]
06:45 PST	0.00[A]	301[A]	297[A]	299[A]	305[A]	312[A]	299[A]	310[A]	320[A]	328[A]	318[A]	318[A]	312[A]	312[A]	281[A]	263[A]	268[A]	121[A]	131[A]	101[A]	98.3[A]	98.3[A]	99.4[A]	101[A]	96.1[A]	97.2[A]	7.02[A]	2.88[A]	1.36[A]	0.70[A]
07:00 PST	0.00[A]	303[A]	292[A]	292[A]	309[A]	307[A]	305[A]	316[A]	303[A]	307[A]	328[A]	320[A]	316[A]	309[A]	274[A]	259[A]	258[A]	125[A]	128[A]	99.4[A]	99.4[A]	99.4[A]	99.4[A]	98.3[A]	97.2[A]	97.2[A]	7.02[A]	2.88[A]	1.25[A]	0.70[A]
07:15 PST	0.00[A]	314[A]	299[A]	288[A]	286[A]	301[A]	297[A]	312[A]	316[A]	318[A]	328[A]	322[A]	312[A]	299[A]	266[A]	256[A]	256[A]	123[A]	128[A]	101[A]	97.2[A]	98.3[A]	99.4[A]	102[A]	96.1[A]	97.2[A]	7.02[A]	2.88[A]	1.25[A]	0.63[A]
07:30 PST	0.00[A]	301[A]	290[A]	297[A]	295[A]	295[A]	301[A]	312[A]	312[A]	322[A]	332[A]	332[A]	316[A]	299[A]	270[A]	261[A]	261[A]	124[A]	128[A]	103[A]	102[A]	99.4[A]	99.4[A]	97.2[A]	99.4[A]	98.3[A]	6.71[A]	2.88[A]	1.25[A]	0.70[A]
07:45 PST	0.00[A]	303[A]	286[A]	295[A]	299[A]	309[A]	309[A]	316[A]	307[A]	312[A]	316[A]	318[A]	316[A]	307[A]	268[A]	261[A]	261[A]	126[A]	126[A]	103[A]	102[A]	99.4[A]	99.4[A]	98.3[A]	97.2[A]	99.4[A]	6.71[A]	2.88[A]	1.25[A]	0.63[A]
08:00 PST	0.00[A]	299[A]	284[A]	301[A]	292[A]	314[A]	312[A]	305[A]	318[A]	310[A]	334[A]	310[A]	316[A]	314[A]	277[A]	270[A]	258[A]	124[A]	131[A]	102[A]	99.4[A]	98.3[A]	101[A]	99.4[A]	99.4[A]	98.3[A]	6.71[A]	2.88[A]	1.25[A]	0.63[A]
08:15 PST	0.00[A]	307[A]	290[A]	295[A]	292[A]	303[A]	305[A]	318[A]	305[A]	310[A]	330[A]	324[A]	326[A]	318[A]	274[A]	254[A]	259[A]	124[A]	125[A]	98.3[A]	98.3[A]	99.4[A]	101[A]	96.1[A]	97.2[A]	97.2[A]	6.71[A]	2.69[A]	1.25[A]	0.63[A]
08:30 PST	0.00[A]	292[A]	294[A]	288[A]	292[A]	301[A]	297[A]	309[A]	314[A]	322[A]	326[A]	328[A]	312[A]	305[A]	258[A]	263[A]	259[A]	129[A]	126[A]	107[A]	101[A]	102[A]	101[A]	97.2[A]	101[A]	99.4[A]	6.41[A]	2.88[A]	1.25[A]	0.63[A]
08:45 PST	0.00[A]	303[A]	275[A]	288[A]	297[A]	297[A]	297[A]	310[A]	312[A]	310[A]	330[A]	326[A]	309[A]	297[A]	268[A]	263[A]	261[A]	129[A]	125[A]	102[A]	99.4[A]	98.3[A]	96.1[A]	96.1[A]	99.4[A]	97.2[A]	6.41[A]	2.69[A]	1.25[A]	0.63[A]
09:00 PST	0.00[A]	303[A]	281[A]	301[A]	309[A]	295[A]	309[A]	312[A]	314[A]	299[A]	332[A]	322[A]	320[A]	309[A]	263[A]	256[A]	261[A]	124[A]	126[A]	103[A]	101[A]	101[A]	99.4[A]	98.3[A]	99.4[A]	98.3[A]	6.41[A]	2.69[A]	1.25[A]	0.57[A]
09:15 PST	0.00[A]	292[A]	288[A]	284[A]	288[A]	305[A]	297[A]	320[A]	314[A]	316[A]	338[A]	320[A]	314[A]	314[A]	270[A]	263[A]	265[A]	126[A]	123[A]	104[A]	101[A]	99.4[A]	97.2[A]	97.2[A]	98.3[A]	97.2[A]	6.41[A]	2.69[A]	1.25[A]	0.57[A]
09:30 PST	0.00[A]	290[A]	279[A]	294[A]	299[A]	294[A]	310[A]	320[A]	316[A]	314[A]	326[A]	316[A]	310[A]	299[A]	263[A]	258[A]	261[A]	125[A]	130[A]	103[A]	102[A]	98.3[A]	101[A]	94.0[A]	98.3[A]	97.2[A]	6.12[A]	2.69[A]	1.25[A]	0.57[A]

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TIME	Jan 11	Jan 12	Jan 13	Jan 14	Jan 15	Jan 16	Jan 17	Jan 18	Jan 19	Jan 20	Jan 21	Jan 22	Jan 23	Jan 24	Jan 25	Jan 26	Jan 27	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5	Feb 6	Feb 7	Feb 8	Feb 9
09:45 PST	0.00[A]	307[A]	299[A]	295[A]	277[A]	312[A]	303[A]	312[A]	310[A]	314[A]	330[A]	322[A]	312[A]	309[A]	263[A]	259[A]	252[A]	123[A]	128[A]	101[A]	101[A]	101[A]	98.3[A]	97.2[A]	95.1[A]	95.1[A]	6.41[A]	2.69[A]	1.25[A]	0.57[A]
10:00 PST	0.00[A]	307[A]	274[A]	307[A]	297[A]	297[A]	301[A]	318[A]	312[A]	310[A]	324[A]	314[A]	314[A]	309[A]	254[A]	274[A]	258[A]	128[A]	125[A]	104[A]	101[A]	99.4[A]	102[A]	96.1[A]	99.4[A]	92.9[A]	6.12[A]	2.69[A]	1.14[A]	0.63[A]
10:15 PST	0.00[A]	314[A]	292[A]	299[A]	288[A]	290[A]	307[A]	307[A]	312[A]	314[A]	326[A]	322[A]	309[A]	312[A]	258[A]	259[A]	265[A]	128[A]	130[A]	103[A]	99.4[A]	97.2[A]	98.3[A]	99.4[A]	95.1[A]	91.8[A]	6.12[A]	2.69[A]	1.14[A]	0.57[A]
10:30 PST	0.00[A]	294[A]	288[A]	301[A]	288[A]	297[A]	309[A]	316[A]	318[A]	324[A]	328[A]	320[A]	301[A]	299[A]	256[A]	254[A]	265[A]	128[A]	130[A]	101[A]	97.2[A]	98.3[A]	99.4[A]	99.4[A]	99.4[A]	80.5[A]	6.12[A]	2.69[A]	1.14[A]	0.57[A]
10:45 PST	0.00[A]	320[A]	275[A]	292[A]	303[A]	301[A]	303[A]	307[A]	314[A]	322[A]	328[A]	303[A]	301[A]	297[A]	270[A]	259[A]	254[A]	126[A]	131[A]	105[A]	98.3[A]	97.2[A]	102[A]	98.3[A]	98.3[A]	70.8[A]	6.12[A]	2.51[A]	1.14[A]	0.57[A]
11:00 PST	0.00[A]	310[A]	288[A]	286[A]	301[A]	286[A]	294[A]	309[A]	310[A]	310[A]	318[A]	275[A]	309[A]	295[A]	265[A]	266[A]	266[A]	125[A]	128[A]	104[A]	99.4[A]	101[A]	102[A]	98.3[A]	96.1[A]	62.6[A]	5.83[A]	2.51[A]	1.14[A]	0.57[A]
11:15 PST	0.00[A]	312[A]	303[A]	288[A]	303[A]	299[A]	316[A]	307[A]	303[A]	316[A]	330[A]	281[A]	305[A]	303[A]	265[A]	258[A]	254[A]	128[A]	130[A]	98.3[A]	98.3[A]	98.3[A]	99.4[A]	97.2[A]	98.3[A]	57.4[A]	5.83[A]	2.51[A]	1.14[A]	0.57[A]
11:30 PST	0.00[A]	305[A]	281[A]	288[A]	295[A]	303[A]	314[A]	307[A]	318[A]	314[A]	322[A]	254[A]	318[A]	297[A]	263[A]	268[A]	258[A]	128[A]	129[A]	103[A]	101[A]	102[A]	101[A]	96.1[A]	95.1[A]	51.6[A]	5.54[A]	2.51[A]	1.14[A]	0.63[A]
11:45 PST	0.00[A]	314[A]	288[A]	305[A]	290[A]	299[A]	301[A]	326[A]	309[A]	316[A]	326[A]	259[A]	309[A]	284[A]	272[A]	252[A]	261[A]	124[A]	130[A]	103[A]	101[A]	96.1[A]	99.4[A]	97.2[A]	95.1[A]	44.5[A]	5.54[A]	2.51[A]	1.14[A]	0.57[A]
12:00 PST	0.00[A]	297[A]	292[A]	297[A]	303[A]	297[A]	312[A]	322[A]	316[A]	314[A]	314[A]	263[A]	314[A]	279[A]	265[A]	265[A]	261[A]	125[A]	129[A]	102[A]	101[A]	102[A]	95.1[A]	99.4[A]	95.1[A]	41.6[A]	5.83[A]	2.51[A]	1.14[A]	0.63[A]
12:15 PST	0.00[A]	312[A]	297[A]	283[A]	294[A]	295[A]	288[A]	318[A]	303[A]	324[A]	330[A]	266[A]	307[A]	265[A]	275[A]	263[A]	275[A]	125[A]	126[A]	102[A]	101[A]	97.2[A]	97.2[A]	97.2[A]	96.1[A]	38.0[A]	5.83[A]	2.51[A]	1.14[A]	0.63[A]
12:30 PST	0.00[A]	305[A]	295[A]	297[A]	303[A]	307[A]	318[A]	316[A]	307[A]	326[A]	324[A]	265[A]	295[A]	284[A]	275[A]	259[A]	268[A]	125[A]	128[A]	103[A]	98.3[A]	102[A]	98.3[A]	98.3[A]	99.4[A]	35.9[A]	5.54[A]	2.51[A]	1.14[A]	0.63[A]
12:45 PST	0.00[A]	312[A]	286[A]	275[A]	299[A]	303[A]	305[A]	310[A]	312[A]	309[A]	336[A]	259[A]	309[A]	265[A]	277[A]	254[A]	268[A]	125[A]	125[A]	102[A]	97.2[A]	101[A]	101[A]	101[A]	96.1[A]	32.6[A]	5.54[A]	2.34[A]	1.14[A]	0.63[A]
13:00 PST	0.00[A]	314[A]	294[A]	286[A]	303[A]	297[A]	305[A]	314[A]	316[A]	318[A]	324[A]	258[A]	299[A]	261[A]	274[A]	258[A]	266[A]	125[A]	126[A]	103[A]	102[A]	98.3[A]	97.2[A]	99.4[A]	98.3[A]	32.0[A]	5.54[A]	2.34[A]	1.14[A]	0.63[A]
13:15 PST	0.00[A]	303[A]	283[A]	294[A]	310[A]	297[A]	288[A]	312[A]	305[A]	307[A]	328[A]	254[A]	320[A]	268[A]	275[A]	261[A]	268[A]	128[A]	131[A]	102[A]	99.4[A]	101[A]	97.2[A]	98.3[A]	99.4[A]	30.1[A]	5.54[A]	2.34[A]	1.14[A]	0.63[A]
13:30 PST	0.00[A]	312[A]	305[A]	297[A]	292[A]	305[A]	312[A]	305[A]	309[A]	320[A]	322[A]	265[A]	301[A]	266[A]	274[A]	256[A]	268[A]	128[A]	128[A]	105[A]	95.1[A]	99.4[A]	97.2[A]	92.9[A]	97.2[A]	28.2[A]	5.27[A]	2.34[A]	1.14[A]	0.63[A]
13:45 PST	0.00[A]	307[A]	299[A]	294[A]	288[A]	292[A]	314[A]	312[A]	309[A]	314[A]	326[A]	251[A]	316[A]	268[A]	272[A]	259[A]	272[A]	125[A]	128[A]	99.4[A]	99.4[A]	98.3[A]	99.4[A]	98.3[A]	95.1[A]	26.4[A]	5.27[A]	2.34[A]	1.25[A]	0.63[A]
14:00 PST	0.00[A]	309[A]	281[A]	288[A]	299[A]	299[A]	305[A]	301[A]	314[A]	312[A]	322[A]	259[A]	312[A]	275[A]	274[A]	261[A]	265[A]	121[A]	129[A]	102[A]	103[A]	99.4[A]	101[A]	102[A]	99.4[A]	25.8[A]	5.27[A]	2.34[A]	1.04[A]	0.63[A]
14:15 PST	0.00[A]	303[A]	299[A]	294[A]	307[A]	301[A]	292[A]	310[A]	316[A]	314[A]	322[A]	256[A]	316[A]	266[A]	268[A]	268[A]	256[A]	125[A]	126[A]	103[A]	98.3[A]	98.3[A]	98.3[A]	101[A]	99.4[A]	25.3[A]	5.27[A]	2.18[A]	1.04[A]	0.63[A]
14:30 PST	0.00[A]	301[A]	305[A]	286[A]	303[A]	301[A]	310[A]	318[A]	305[A]	316[A]	318[A]	254[A]	322[A]	272[A]	266[A]	254[A]	266[A]	126[A]	129[A]	102[A]	101[A]	101[A]	98.3[A]	97.2[A]	94.0[A]	24.7[A]	5.00[A]	2.34[A]	1.04[A]	0.63[A]
14:45 PST	0.00[A]	322[A]	281[A]	294[A]	309[A]	316[A]	309[A]	307[A]	307[A]	309[A]	316[A]	254[A]	307[A]	266[A]	266[A]	261[A]	265[A]	121[A]	128[A]	99.4[A]	102[A]	102[A]	96.1[A]	96.1[A]	99.4[A]	22.5[A]	5.27[A]	2.34[A]	1.04[A]	0.63[A]
15:00 PST	0.00[A]	310[A]	295[A]	309[A]	309[A]	305[A]	305[A]	307[A]	312[A]	320[A]	338[A]	258[A]	322[A]	261[A]	268[A]	268[A]	265[A]	126[A]	131[A]	101[A]	102[A]	101[A]	97.2[A]	97.2[A]	99.4[A]	23.0[A]	5.27[A]	2.18[A]	1.04[A]	0.63[A]
15:15 PST	0.00[A]	312[A]	301[A]	305[A]	297[A]	295[A]	303[A]	312[A]	307[A]	312[A]	324[A]	261[A]	318[A]	265[A]	268[A]	265[A]	268[A]	125[A]	133[A]	99.4[A]	101[A]	99.4[A]	97.2[A]	99.4[A]	95.1[A]	21.9[A]	5.00[A]	2.18[A]	1.04[A]	0.57[A]
15:30 PST	0.00[A]	303[A]	295[A]	286[A]	301[A]	297[A]	320[A]	303[A]	310[A]	316[A]	324[A]	249[A]	324[A]	265[A]	263[A]	266[A]	256[A]	125[A]	126[A]	105[A]	102[A]	98.3[A]	97.2[A]	98.3[A]	99.4[A]	20.9[A]	5.00[A]	2.18[A]	1.14[A]	0.57[A]
15:45 PST	0.00[A]	314[A]	292[A]	299[A]	288[A]	297[A]	297[A]	312[A]	316[A]	314[A]	330[A]	254[A]	312[A]	263[A]	268[A]	268[A]	270[A]	123[A]	133[A]	99.4[A]	96.1[A]	97.2[A]	99.4[A]	98.3[A]	95.1[A]	19.8[A]	5.00[A]	2.18[A]	1.14[A]	0.57[A]
16:00 PST	0.00[A]	305[A]	292[A]	297[A]	305[A]	309[A]	316[A]	312[A]	303[A]	316[A]	324[A]	254[A]	310[A]	266[A]	258[A]	265[A]	268[A]	123[A]	136[A]	103[A]	98.3[A]	98.3[A]	96.1[A]	98.3[A]	98.3[A]	19.3[A]	5.00[A]	2.02[A]	1.14[A]	0.57[A]
16:15 PST	0.00[A]	290[A]	290[A]	299[A]	305[A]	301[A]	316[A]	320[A]	305[A]	310[A]	324[A]	256[A]	322[A]	274[A]	270[A]	263[A]	272[A]	125[A]	134[A]	101[A]	101[A]	98.3[A]	95.1[A]	99.4[A]	95.1[A]	18.3[A]	5.00[A]	2.02[A]	1.04[A]	0.57[A]
16:30 PST	0.00[A]	286[A]	297[A]	295[A]	286[A]	292[A]	297[A]	316[A]	307[A]	309[A]	328[A]	252[A]	324[A]	265[A]	266[A]	268[A]	265[A]	125[A]	131[A]	97.2[A]	98.3[A]	102[A]	97.2[A]	101[A]	98.3[A]	18.3[A]	4.72[A]	2.02[A]	0.95[A]	0.50[A]
16:45 PST	0.00[A]	290[A]	294[A]	297[A]	309[A]	303[A]	309[A]	312[A]	320[A]	305[A]	332[A]	263[A]	314[A]	263[A]	263[A]	261[A]	258[A]	126[A]	133[A]	104[A]	99.4[A]	102[A]	99.4[A]	98.3[A]	97.2[A]	17.3[A]	4.72[A]	2.02[A]	0.95[A]	0.57[A]
17:00 PST	48.4[A]	295[A]	281[A]	303[A]	305[A]	299[A]	299[A]	322[A]	314[A]	324[A]	320[A]	251[A]	322[A]	261[A]	265[A]	265[A]	261[A]	125[A]	135[A]	103[A]	102[A]	102[A]	99.4[A]	97.2[A]	98.3[A]	16.9[A]	4.72[A]	2.02[A]	0.95[A]	0.57[A]
17:15 PST	94.0[A]	286[A]	294[A]	312[A]	310[A]	310[A]	314[A]	309[A]	288[A]	322[A]	324[A]	256[A]	326[A]	259[A]	261[A]	266[A]	275[A]	129[A]	130[A]	103[A]	99.4[A]	101[A]	97.2[A]	96.1[A]	97.2[A]	16.9[A]	4.72[A]	2.02[A]	0.95[A]	0.50[A]
17:30 PST	148[A]	275[A]	307[A]	307[A]	288[A]	290[A]	309[A]	318[A]	314[A]	318[A]	322[A]	258[A]	314[A]	254[A]	268[A]	274[A]	268[A]	119[A]	125[A]	102[A]	102[A]	99.4[A]	98.3[A]	97.2[A]	97.2[A]	16.4[A]	4.72[A]	2.02[A]	0.95[A]	0.57[A]
17:45 PST	179[A]	294[A]	286[A]	286[A]	307[A]	286[A]	316[A]	314[A]	309[A]	320[A]	318[A]	259[A]	303[A]	270[A]	259[A]	265[A]	259[A]	125[A]	120[A]	105[A]	101[A]	99.4[A]	99.4[A]	98.3[A]	97.2[A]	15.9[A]	4.46[A]	2.02[A]	0.95[A]	0.50[A]
18:00 PST	200[A]	275[A]	297[A]	297[A]	301[A]	307[A]	310[A]	318[A]	314[A]	316[A]	324[A]	249[A]	301[A]	261[A]	268[A]	263[A]	261[A]	123[A]	114[A]	102[A]	98.3[A]	92.9[A]	99.4[A]	98.3[A]	99.4[A]	15.5[A]	4.46[A]	2.02[A]	0.95[A]	0.50[A]
18:15 PST	210[A]	286[A]	284[A]	295[A]	303[A]	307[A]	316[A]	309[A]	316[A]	320[A]	316[A]	261[A]	312[A]	265[A]	261[A]	265[A]	266[A]	129[A]	117[A]	102[A]	98.3[A]	98.3[A]	99.4[A]	98.3[A]	98.3[A]	15.0[A]	4.46[A]	1.88[A]	0.86[A]	0.50[A]
18:30 PST	232[A]	279[A]	290[A]	309[A]	312[A]	305[A]	305[A]	309[A]	309[A]	309[A]	318[A]	261[A]	322[A]	270[A]	263[A]	263[A]	252[A]	129[A]	115[A]	102[A]	103[A]	101[A]	98.3[A]	96.1[A]	94.0[A]	14.6[A]	4.46[A]	1.88[A]	0.95[A]	0.50[A]
18:45 PST	229[A]	279[A]	299[A]	301[A]	286[A]	301[A]	310[A]	318[A]	301[A]	312[A]	326[A]	251[A]	310[A]	259[A]	266[A]	258[A]	224[A]	128[A]	113[A]	104[A]	101[A]	101[A]	96.1[A]	98.3[A]	92.9[A]	14.6[A]	4.46[A]	1.88[A]	0.95[A]	0.50[A]
19:00 PST	234[A]	295[A]	294[A]	303[A]	297[A]	301[A]	303[A]	295[A]	316[A]	314[A]	322[A]	258[A]	318[A]	270[A]	266[A]	259[A]	182[A]	129[A]	112[A]	99.4[A]	101[A]	96.1[A]	98.3[A]	101[A]	101[A]	13.7[A]	4.46[A]	1.88[A]	0.86[A]	0.50[A]
19:15 PST	246[A]	277[A]	294[A]	297[A]	307[A]	294[A]	316[A]	316[A]	314[A]	297[A]	322[A]	254[A]	305[A]	263[A]	263[A]	261[A]	156[A]	121[A]	112[A]	102[A]	102[A]	98.3[A]	97.2[A]	96.1[A]	97.2[A]	13.7[A]	4.21[A]	1.88[A]	0.86[A]	0.50[A]
19:30 PST	235[A]	274[A]	277[A]	301[A]	294[A]	307[A]	301[A]	303[A]	316[A]	316[A]	326[A]	256[A]	312[A]	261[A]	263[A]	252[A]	150[A]	125[A]	108[A]	102[A]	101[A]	99.4[A]	99.4[A]	98.3[A]	99.4[A]	13.3[A]	4.21[A]	1.88[A]	0.86[A]	0.50[A]

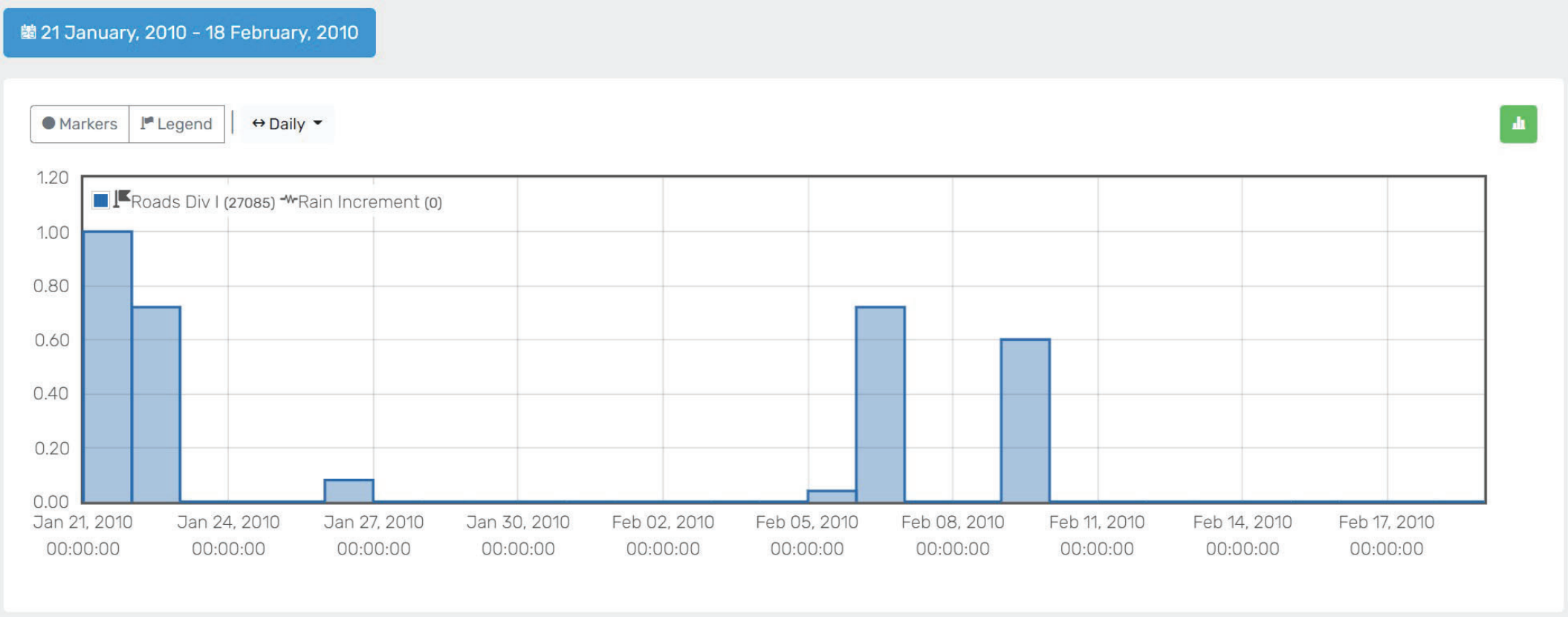
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TIME	Jan 11	Jan 12	Jan 13	Jan 14	Jan 15	Jan 16	Jan 17	Jan 18	Jan 19	Jan 20	Jan 21	Jan 22	Jan 23	Jan 24	Jan 25	Jan 26	Jan 27	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5	Feb 6	Feb 7	Feb 8	Feb 9
19:45 PST	252[A]	288[A]	295[A]	307[A]	297[A]	294[A]	316[A]	318[A]	318[A]	312[A]	318[A]	258[A]	309[A]	258[A]	266[A]	265[A]	138[A]	124[A]	106[A]	104[A]	99.4[A]	99.4[A]	98.3[A]	99.4[A]	97.2[A]	12.9[A]	4.21[A]	1.88[A]	0.86[A]	0.45[A]
20:00 PST	242[A]	272[A]	299[A]	284[A]	274[A]	295[A]	303[A]	310[A]	312[A]	309[A]	324[A]	261[A]	307[A]	263[A]	263[A]	261[A]	136[A]	123[A]	107[A]	99.4[A]	101[A]	98.3[A]	97.2[A]	97.2[A]	96.1[A]	12.9[A]	4.21[A]	1.88[A]	0.86[A]	0.45[A]
20:15 PST	256[A]	297[A]	294[A]	303[A]	284[A]	309[A]	301[A]	318[A]	312[A]	309[A]	322[A]	251[A]	314[A]	266[A]	246[A]	270[A]	134[A]	123[A]	107[A]	104[A]	97.2[A]	98.3[A]	95.1[A]	101[A]	97.2[A]	12.4[A]	3.96[A]	1.74[A]	0.86[A]	0.45[A]
20:30 PST	256[A]	275[A]	294[A]	307[A]	297[A]	301[A]	314[A]	312[A]	318[A]	314[A]	326[A]	259[A]	303[A]	266[A]	258[A]	261[A]	135[A]	125[A]	106[A]	103[A]	102[A]	98.3[A]	99.4[A]	97.2[A]	97.2[A]	12.4[A]	4.21[A]	1.74[A]	0.86[A]	0.45[A]
20:45 PST	252[A]	286[A]	299[A]	297[A]	294[A]	301[A]	292[A]	318[A]	312[A]	312[A]	326[A]	251[A]	307[A]	266[A]	266[A]	263[A]	135[A]	123[A]	110[A]	96.1[A]	95.1[A]	101[A]	99.4[A]	96.1[A]	97.2[A]	12.0[A]	3.96[A]	1.74[A]	0.86[A]	0.45[A]
21:00 PST	247[A]	295[A]	294[A]	294[A]	297[A]	299[A]	316[A]	324[A]	316[A]	310[A]	330[A]	258[A]	307[A]	261[A]	259[A]	263[A]	135[A]	124[A]	113[A]	103[A]	101[A]	98.3[A]	96.1[A]	97.2[A]	96.1[A]	12.0[A]	3.96[A]	1.74[A]	0.86[A]	0.45[A]
21:15 PST	246[A]	286[A]	295[A]	284[A]	295[A]	322[A]	281[A]	307[A]	322[A]	303[A]	326[A]	258[A]	309[A]	268[A]	265[A]	266[A]	136[A]	125[A]	113[A]	95.1[A]	101[A]	98.3[A]	97.2[A]	95.1[A]	97.2[A]	11.2[A]	3.96[A]	1.74[A]	0.86[A]	0.45[A]
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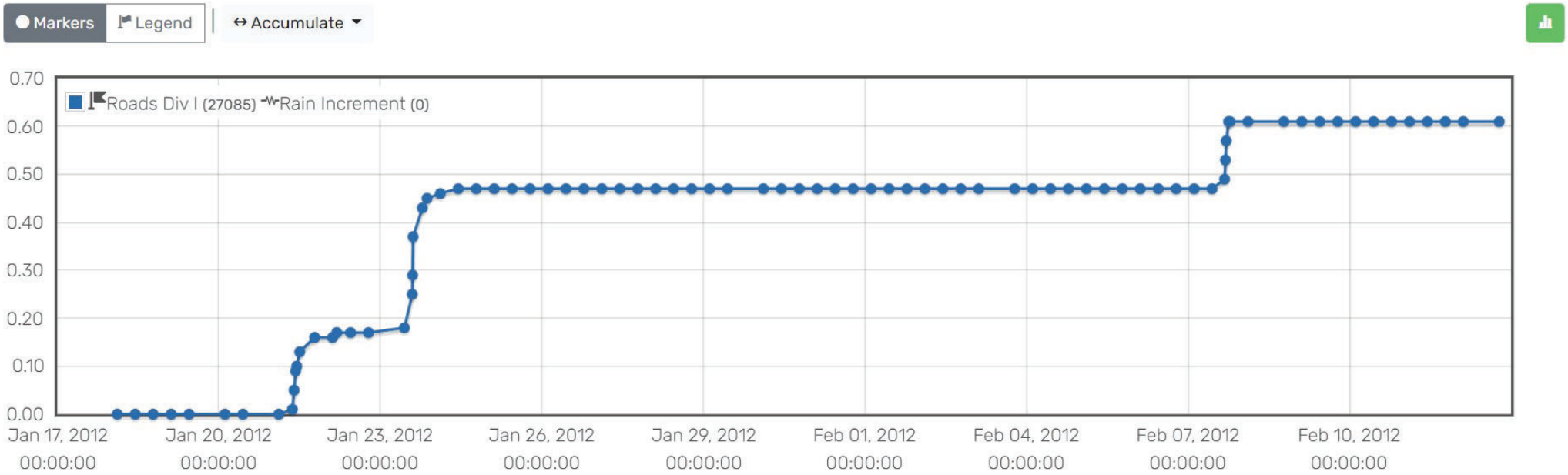
Explanation

A	Approved for publication -- Processing and review completed.

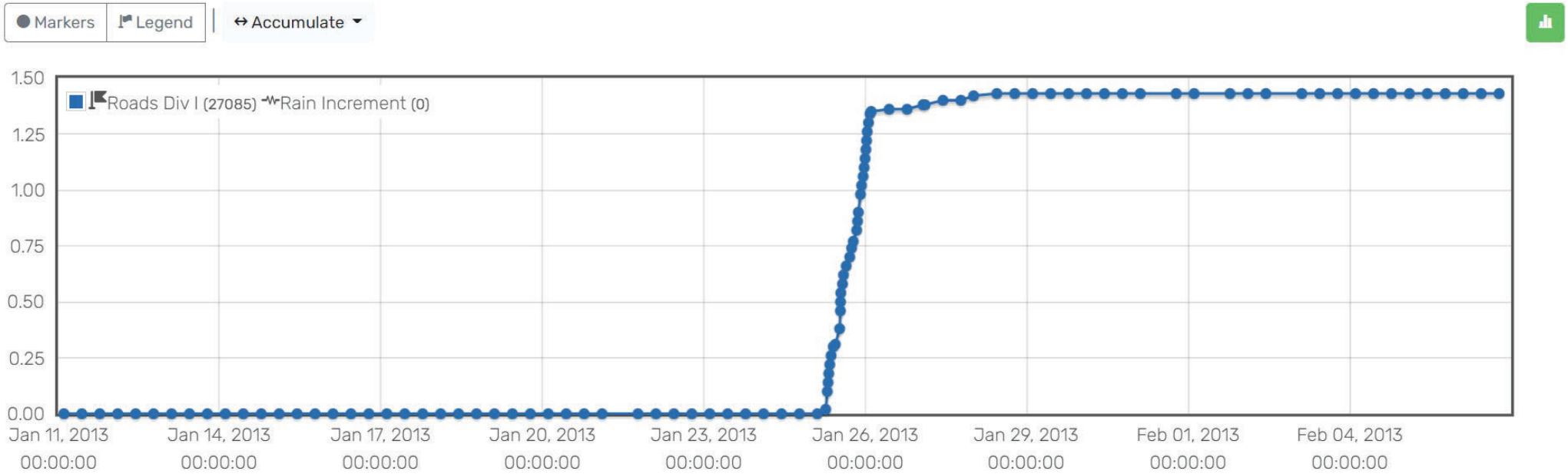
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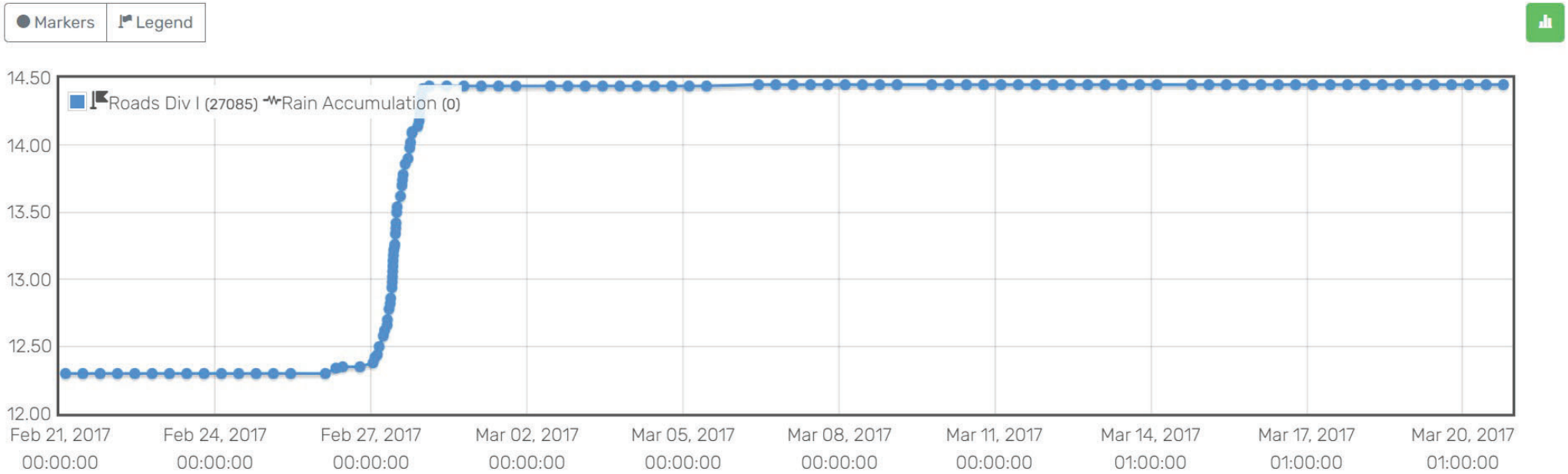
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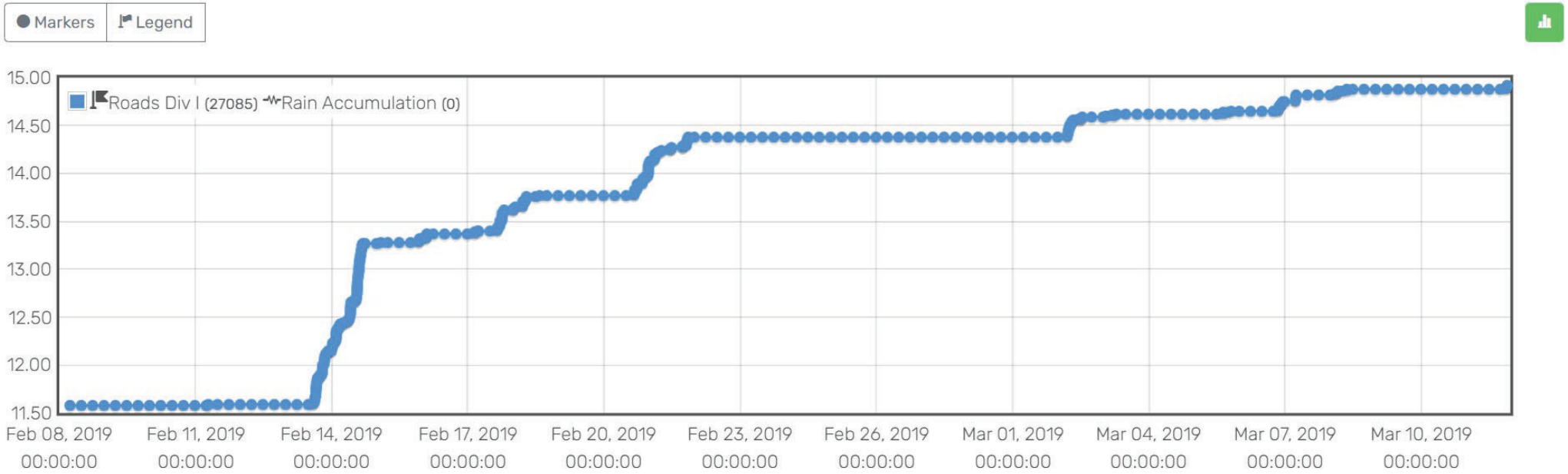
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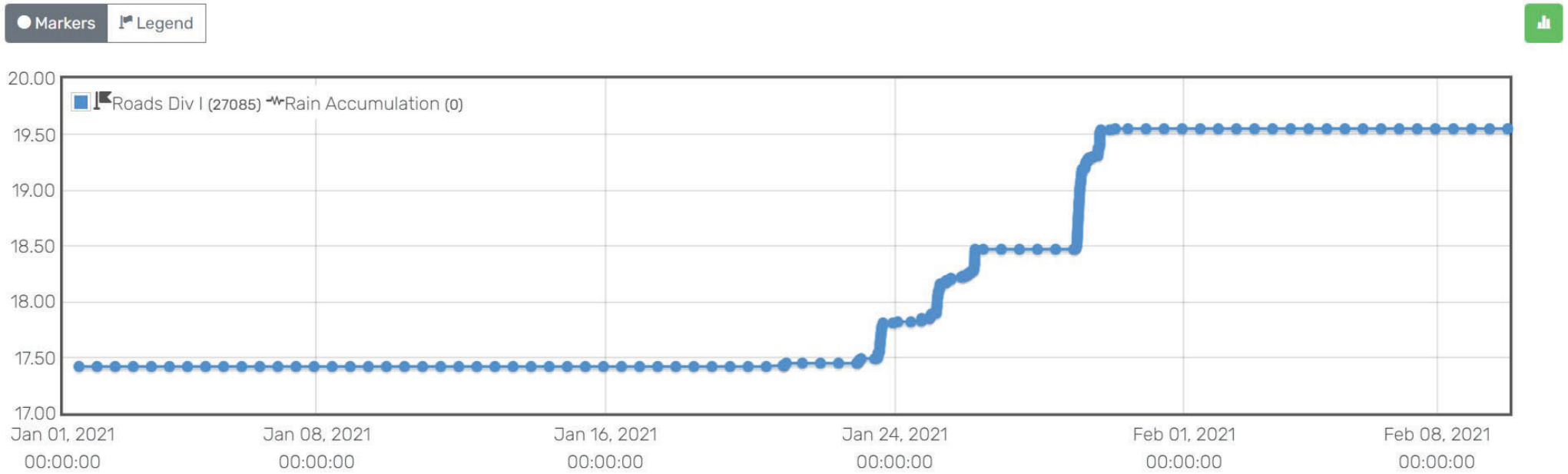


08 February, 2019 - 11 March, 2019



3 - 365

01 January, 2021 - 09 February, 2021



Worksheet for 25' Trapezoidal Channel Capacity

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.040
Channel Slope	0.0053 ft/ft
Normal Depth	3.5 ft
Left Side Slope	3.0 H:V
Right Side Slope	2.0 H:V
Bottom Width	25.00 ft

Results	
Discharge	618.1 cfs
Flow Area	118.1 ft²
Wetted Perimeter	43.9 ft
Hydraulic Radius	2.7 ft
Top Width	42.50 ft
Critical Depth	2.4 ft
Critical Slope	0.0190 ft/ft
Velocity	5.23 ft/s
Velocity Head	0.43 ft
Specific Energy	3.93 ft
Froude Number	0.553
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0 ft
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	3.5 ft
Critical Depth	2.4 ft
Channel Slope	0.0053 ft/ft
Critical Slope	0.0190 ft/ft

Worksheet for 50' Trapezoidal Channel Capacity

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.040
Channel Slope	0.0022 ft/ft
Normal Depth	3.5 ft
Left Side Slope	3.0 H:V
Right Side Slope	3.0 H:V
Bottom Width	50.00 ft

Results	
Discharge	756.4 cfs
Flow Area	211.8 ft²
Wetted Perimeter	72.1 ft
Hydraulic Radius	2.9 ft
Top Width	71.00 ft
Critical Depth	1.9 ft
Critical Slope	0.0199 ft/ft
Velocity	3.57 ft/s
Velocity Head	0.20 ft
Specific Energy	3.70 ft
Froude Number	0.365
Flow Type	Subcritical

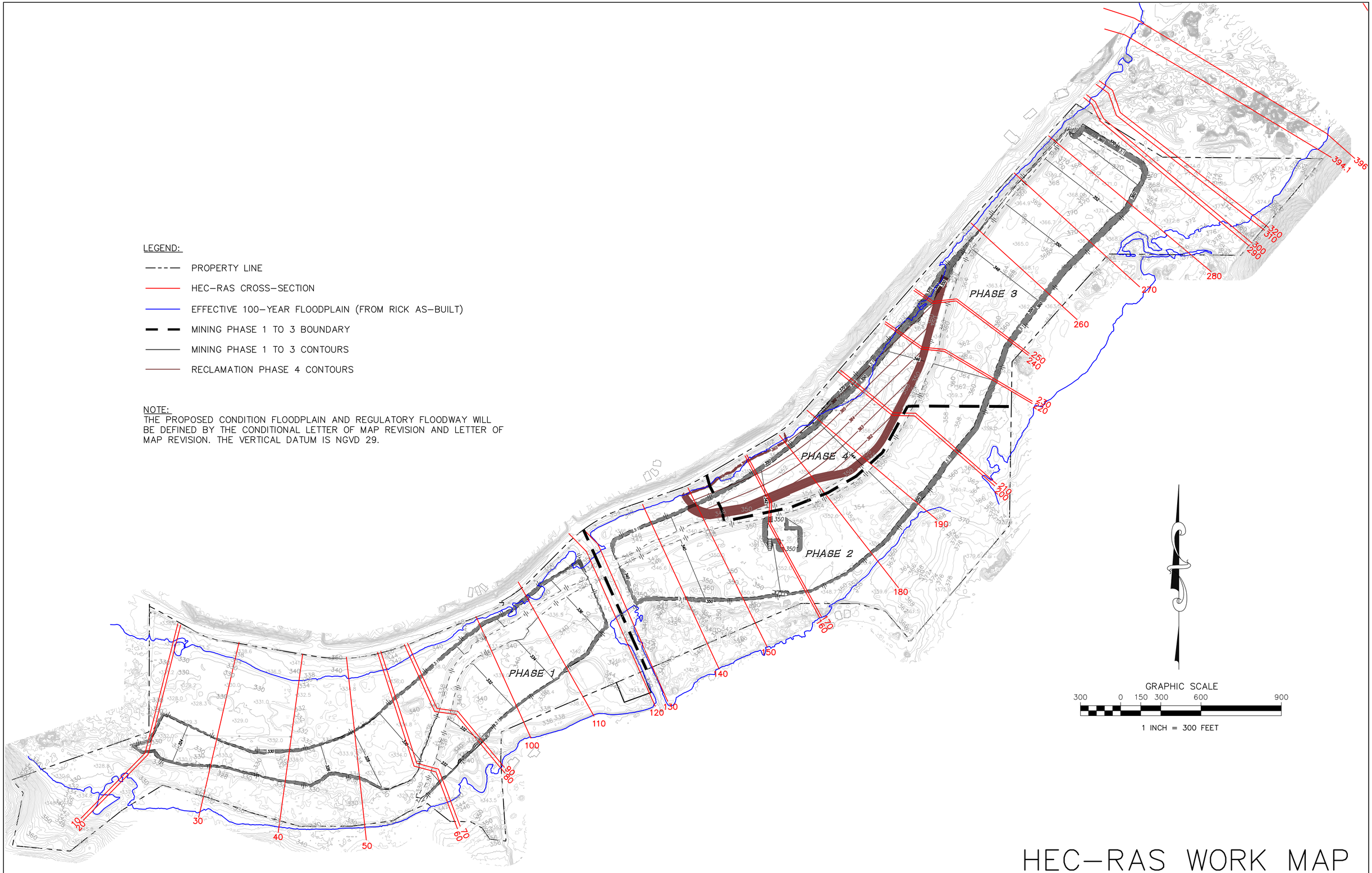
GVF Input Data	
Downstream Depth	0.0 ft
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	3.5 ft
Critical Depth	1.9 ft
Channel Slope	0.0022 ft/ft
Critical Slope	0.0199 ft/ft

LEGEND:

- PROPERTY LINE
- HEC–RAS CROSS–SECTION
- EFFECTIVE 100–YEAR FLOODPLAIN (FROM RICK AS–BUILT)
- MINING PHASE 1 TO 3 BOUNDARY
- MINING PHASE 1 TO 3 CONTOURS
- RECLAMATION PHASE 4 CONTOURS

NOTE:
THE PROPOSED CONDITION FLOODPLAIN AND REGULATORY FLOODWAY WILL BE DEFINED BY THE CONDITIONAL LETTER OF MAP REVISION AND LETTER OF MAP REVISION. THE VERTICAL DATUM IS NGVD 29.



GRAPHIC SCALE

300 0 150 300 600 900

1 INCH = 300 FEET

HEC–RAS WORK MAP

Attachment F

Conditions of Approval & CEQA Mitigation Measures (To Be Included Upon Final Approval)

GRADING NOTES

1. THE ENGINEER OF WORK WILL NOT ENFORCE SAFETY MEASURES OR REGULATIONS. THE OWNER SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.

2. APPROVAL OF THESE PLANS DOES NOT CONSTITUTE APPROVAL OF VERTICAL OR HORIZONTAL ALIGNMENT OF ANY PRIVATE ROAD SHOWN HEREON FOR COUNTY ROAD PURPOSES.

3. A CONSTRUCTION, EXCAVATION OR ENCROACHMENT PERMIT FROM THE DIRECTOR OF PUBLIC WORKS WILL BE REQUIRED FOR ANY WORK IN THE COUNTY RIGHT-OF-WAY.

4. THE CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK. NOTICE OF THE PROPOSED WORK SHALL BE GIVEN TO THE FOLLOWING AGENCIES.

UNDERGROUND SERVICE ALERT:	(800) 422-4133
SAN DIEGO GAS AND ELECTRIC:	(800) 227-2600
COX CABLE TV	(866) 272-5777
OTAY WATER DISTRICT	(619) 670-2222
SEWER	COUNTY OF SAN DIEGO - HHSA

5. PROTECTION OF EXISTING UTILITIES:

   THE OWNER IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. ANY PAVEMENT OR OTHER EXISTING SURFACE IMPROVEMENTS DAMAGED BY THE OWNER SHALL BE REPLACED AS REQUIRED BY THE COUNTY OF SAN DIEGO ENGINEERING DEPARTMENT. EXISTING UTILITIES SHOWN HEREON ARE PLOTTED FROM RECORD DATA AND MAY NOT NECESSARILY BE WHERE SHOWN. IT IS THE OWNER'S RESPONSIBILITY TO DETERMINE LOCATION PRIOR TO CONSTRUCTION.

   CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY.

6. CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY. NO GRADING WITHIN 20' OF EXISTING STEEL LATTICE TOWER FOUNDATIONS & NO GRADING WITHIN 30' OF EXISTING STEEL POLE FOUNDATION.

7. GENERAL UTILITY NOTES EXPLORATORY EXCAVATION REQUIRED: OWNER WILL MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF EXCAVATION TO PREVENT DAMAGE TO SAID UTILITIES. ALL EXISTING UTILITIES WITHIN THE SITE, AND THOSE ADJACENT TO THE SITE WHICH ARE AFFECTED BY THE WORK PROPOSED TO BE DONE ARE SHOWN ON THIS PLAN. THE UTILITY COMPANIES HAVE REVIEWED THESE PLANS AND ARE SATISFIED WITH THE ARRANGEMENTS MADE BY THE PERMITEE TO PROTECT OR RELOCATE THE UTILITIES.

8. EXISTING UTILITIES OR STRUCTURES ARE SHOWN ACCORDING TO THE RECORDS OF THE ABOVE COMPANIES AND HAVE BEEN EXAMINED TO VERIFY THAT THEY OWN NO UTILITIES OR STRUCTURES WHICH WILL BE AFFECTED BY THE PROPOSED GRADING.

9. ALL OPERATIONS CONDUCTED ON THE PREMISES, INCLUDING THE WARMING UP, REPAIR, ARRIVAL, DEPARTURE OR RUNNING OF TRUCKS, EARTHMOVING EQUIPMENT, CONSTRUCTION EQUIPMENT AND ANY OTHER ASSOCIATED GRADING EQUIPMENT SHALL BE ACCORDING TO THE PERIOD SPECIFIED IN THE MAJOR USE PERMIT.

10. ALL MAJOR SLOPES SHALL BE ROUNDED INTO EXISTING TERRAIN TO PRODUCE A CONTOURED TRANSITION FROM CUT OR FILL FACES TO NATURAL GROUND AND ABUTTING CUT OR FILL SURFACES.

11. NOTWITHSTANDING THE MINIMUM STANDARDS SET FORTH IN THE GRADING ORDINANCE AND NOTWITHSTANDING THE APPROVAL OF THESE RECLAMATION PLANS, THE PERMITTEE IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO THE ADJACENT PROPERTY. NO PERSON SHALL EXCAVATE ON LAND SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PUBLIC STREET, SIDEWALK, ALLEY, FUNCTION OF ANY SEWAGE DISPOSAL SYSTEM OR ANY OTHER PUBLIC OR PRIVATE PROPERTY WITHOUT SUPPORTING AND PROTECTING SUCH PROPERTY FROM SETTLING, CRACKING, EROSION, SILTING, SCOUR OR OTHER DAMAGE WHICH MIGHT RESULT FORM THE GRADING DESCRIBED ON THIS PLAN. THE COUNTY WILL HOLD THE PERMITTEE RESPONSIBLE FOR CORRECTION OF NON-DEDICATED IMPROVEMENTS WHICH DAMAGE ADJACENT PROPERTY.

12. SLOPE RATIOS:

    MAXIMUM SLOPE RATIOS TO BE 3:1

13. IF ANY ARCHAEOLOGICAL RESOURCES ARE DISCOVERED ON THE SITE DURING GRADING OPERATIONS, SUCH OPERATIONS WILL CEASE IMMEDIATELY AND THE PERMITTEE WILL NOTIFY THE DIRECTOR OF PUBLIC WORKS OF THE DISCOVERY. GRADING OPERATIONS WILL NOT RECOMMENCE UNTIL THE PERMITTEE HAS RECEIVED WRITTEN AUTHORITY FROM THE DIRECTOR OF PUBLIC WORKS TO DO SO.

14. COMPACTION TESTING AND A COMPACTION REPORT IS REQUIRED FOR ALL FINISH PADS THAT ARE OVER 12" IN DEPTH.

15. AN INDUSTRIAL SWPPP WILL OUTLINE BEST MANAGEMENT PRACTICES REQUIRED DURING MINING AND RECLAMATION.

16. EXISTING TRAFFIC SIGNS ALONG WILLOW GLEN ROAD TO REMAIN. SIGNS WILL BE ADDED TO SITE ENTRANCE AND EXIT AS REQUIRED BY THE COUNTY OF SAN DIEGO. SMALL SAFETY SIGNS REQUIRED BY MSHA WILL BE PLACED ON FENCES AROUND THE PROJECT AREA. NO SIGNS WILL BE ILLUMINATED.

17. CONTRACTOR SHALL REMOVE BOTH ABOVEGROUND STORAGE TANKS AT THE EXISTING GOLF COURSE MAINTENANCE FACILITY. ONE IS A 1,000 GALLON DIESEL AST AND THE OTHER IS A 500 GALLON GASOLINE AST.

DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE COUNTY OF SAN DIEGO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

WAYNE W. CHANG
CHANG CONSULTANTS
P.O. BOX 9496
RANCHO SANTA FE, CA 92067
PHONE: (858) 692-0760

BY: _____ DATE: _____
WAYNE W. CHANG, R.C.E. 46548

PROJECT PHASING

PHASE 1 – 319,200 CY CUT (MINING/BACKFILL OVEREX 971,200 CY CUT)
THE FIRST PHASE (PHASE 1) WILL INCLUDE SITE DEVELOPMENT FOR THE CONSTRUCTION OF THE ACCESS ROAD, PROCESSING AREA PAD, SCREENING BERMS AND INSTALLATION OF THE CONVEYOR LINE AND PROCESSING PLANT. IN ADDITION THE PROJECT WILL WIDEN AND RESTRIPE A PORTION OF WILLOW GLEN DRIVE AND ADD A 5- TO 8-WIDE PATHWAY ALONG A PORTION OF WILLOW GLEN DRIVE. FOLLOWING INITIAL SITE DEVELOPMENT ACTIVITIES, EXTRACTIVE OPERATIONS WILL COMMENCE IN THE AREA WEST OF STEELE CANYON ROAD.

INITIAL EXTRACTIVE OPERATIONS WILL INVOLVE REMOVAL OF ALL MATERIALS FROM THE SURFACE TO APPROXIMATELY 15 TO 40 FEET BELOW GROUND SURFACE (BGS) WITH A COMBINATION OF FRONT END LOADERS AND AN EXCAVATOR. EACH PIECE OF EXCAVATION EQUIPMENT WILL WORK IN SEPARATE AREAS. THIS EQUIPMENT WILL MOVE MATERIAL DIRECTLY TO THE CONVEYOR. APPROXIMATELY, 79 ACRES WILL BE INCLUDED IN PHASE 1 WHICH WILL INCLUDE APPROXIMATELY 10 ACRES OF HABITAT IMPROVEMENT WITHIN THE RIVER CHANNEL ON THE SOUTHWEST END OF THE PROJECT.

PHASE 1 WILL BEGIN EXCAVATION IN THE SUB-PHASE 1A AREA SOUTH OF THE RIVER CHANNEL. ONCE EXCAVATION IS COMPLETE IN SUB-PHASE 1A, THE CONVEYOR LINE AND EXCAVATING EQUIPMENT WILL MOVE TO THE SUB-PHASE 1B AREA ON THE SOUTHWESTERN EDGE OF THE PROJECT. RECLAMATION IN SUB-PHASE 1A WOULD THEN BEGIN WITH FINAL GRADING, INSTALLATION OF IRRIGATION EQUIPMENT AND REVEGETATION. THIS PROCESS WILL CONTINUE IN SUB-PHASES 1B AND 1C. EXCAVATION IN EACH SUB-PHASE IS EXPECTED TO TAKE APPROXIMATELY ONE YEAR.

RECLAMATION OF THE PHASE 1 AREA WILL BEGIN ANNUALLY AS THE FINAL LANDFORMS ARE ESTABLISHED IN EACH SUB-PHASE. RECLAMATION WILL INCLUDE ESTABLISHMENT OF ALL FINAL SLOPES, INCORPORATION OF ANY ACCUMULATED WASH FINES AND TOPSOIL; REVEGETATION USING NATIVE SPECIES COMMON TO RIPARIAN HABITAT AND/OR UPLAND VEGETATION DEPENDING ON THE LOCATION OF THE LANDFORM; ESTABLISHMENT OF PADS SUITABLE FOR FUTURE DEVELOPMENT SEEDED WITH AN EROSION SEED MIX; WEED CONTROL, AND MONITORING.

PHASE 2 – 356,500 CY CUT (MINING/BACKFILL OVEREX 458,200 CY CUT)
PHASE 2 WILL CONTINUE THE IDENTICAL EXTRACTION PROCESS IN A WEST TO EAST DIRECTION ON AN AREA OF APPROXIMATELY 48 ACRES EAST OF THE STEELE CANYON ROAD BRIDGE. THIS PHASE IS ANTICIPATED TO LAST APPROXIMATELY 3 YEARS. EXCAVATION OF THE MATERIALS WILL CONTINUE IN THE WEST AND PROCEED EASTWARD IN THE SAME FASHION AS UTILIZED IN PHASE 1. THE MAXIMUM DEPTH OF THE EXCAVATION IS EXPECTED TO BE APPROXIMATELY 15 TO 40 FEET BELOW GROUND SURFACE OUTSIDE THE CHANNEL.

PHASE 2 WILL ALSO INCLUDE 3 SUB-PHASES OF 14 TO 19 ACRE AREAS THAT WILL BEGIN WITH SUB-PHASE 2A AND PROGRESS TO THE NORTHEAST. EXCAVATION IN EACH SUB-PHASE IS EXPECTED TO BE COMPLETED IN APPROXIMATELY 1 YEAR.

RECLAMATION OF THE PHASE 2 SUB-PHASES WILL BEGIN EACH YEAR AS THE FINAL LANDFORMS ARE ESTABLISHED IN EACH SUB-PHASE. RECLAMATION WILL INCLUDE ESTABLISHMENT OF ALL FINAL SLOPES, INCORPORATION OF ANY ACCUMULATED WASH FINES AND TOPSOIL, REVEGETATION OF THE CHANNEL USING NATIVE SPECIES COMMON TO RIPARIAN HABITAT, UPLAND VEGETATION ON THE UPPER SLOPES AND ESTABLISHMENT OF PADS SUITABLE FOR FUTURE DEVELOPMENT. PADS WILL BE SEEDED WITH AN EROSION CONTROL SEED MIX. SEEDING AND PLANTING WILL GENERALLY OCCUR DURING THE RAINY SEASON.

PHASE 3 – 1,052,200 CY CUT (MINING/BACKFILL OVEREX 863,300 CY CUT)
THE EXCAVATION PROCESS IN PHASE 3 IS A REPEAT OF PHASE 2 ON APPROXIMATELY 79 ACRES OF THE VALLEY, EAST OF THE PHASE 2 AREA. PHASE 3 IS ANTICIPATED TO LAST ABOUT 4 YEARS, WILL INCLUDE 4 SUB-PHASES AND WILL EMPLOY THE SAME PROCEDURE AS THE TWO PREVIOUS PHASES. UPON CONCLUSION OF PHASE 2, THE CONVEYOR LINE WILL BE RELOCATED TO RUN FROM THE PLANT TO THE EAST. SUB-PHASE 3A WILL BE LOCATED AT THE NORTHEAST EDGE OF THE PROPERTY. EXCAVATION OF EACH SUB-PHASE WILL PROCEED WESTWARD

RECLAMATION IN EACH OF THE PHASE 3 SUB-PHASES WILL BEGIN EACH YEAR AS THE FINAL LANDFORMS ARE ESTABLISHED. RECLAMATION WILL INCLUDE ESTABLISHMENT OF ALL FINAL SLOPES, INCORPORATION OF ANY ACCUMULATED WASH FINES AND TOPSOIL, REVEGETATION OF THE CHANNEL USING NATIVE SPECIES COMMON TO RIPARIAN HABITAT, UPLAND VEGETATION ON THE UPPER SLOPES AND ESTABLISHMENT OF PADS SUITABLE FOR POSSIBLE FUTURE DEVELOPMENT. ALL PADS WILL BE PLANTED WITH AN EROSION CONTROL SEED MIX.

PHASE 4 – 246,300 CY CUT
PHASE 4 WILL CONSIST OF EXCAVATION OF MATERIALS BENEATH PLANT, BACKFILLING PLANT AREA, FINAL RECLAMATION EFFORTS, CLEANUP AND EQUIPMENT REMOVAL. REVEGETATION MONITORING WILL CONTINUE AFTER THIS FINAL PHASE. MINE PHASE ACREAGES AND THE ESTIMATED DURATION OF EACH PHASE ARE SUMMARIZED IN TABLE 4 AND ASSUMES A PROJECT START IN 2021.

MINING EARTHWORK QUANTITIES

	0	CY FILL	
EAST	1,655,000	CY CUT	(2,482,500 TONS)
WEST	319,200	CY CUT	(478,800 TONS)
OVEREXCAVATION	2,292,700	CY CUT	(3,439,050 TONS)
TOTAL	4,266,900	CY CUT	(6,400,350 TONS)

MINE PHASE ACREAGES

Mining Phase	Phase Area (acres)	Sub-phase Area (acres)	Mining Duration (years)	Mining Initiation Date (est.)	Mining Completion Date (est.)	Reclamation Completion Date (est.)
1	78.98		3	2025	2028	2030
Sub-phase 1a		22.10	1			
Sub-phase 1b		26.46	1			
Sub-phase 1c		30.42	1			
2	48.18		3	2028	2031	2033
Sub-phase 2a		15.26	1			
Sub-phase 2b		19.08	1			
Sub-phase 2c		13.74	1			
3	78.57		4	2031	2035	2037
Sub-phase 3a		29.42	1			
Sub-phase 3b		16.15	1			
Sub-phase 3c		14.13	1			
Sub-phase 3d		18.87	1			
Phase 4	8.65		1	2035	2035	2037
Total	214.4		10	-	-	

RESOURCE AGENCY PERMITTING

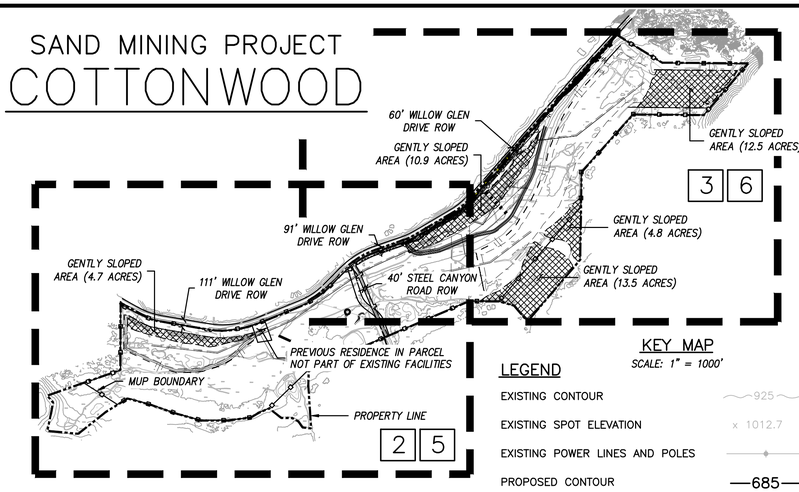
THE SUBJECT PROPERTY CONTAINS WETLANDS, A LAKE, A STREAM, AND/OR WATERS OF THE U.S. AND/OR STATE WHICH MAY BE SUBJECT TO REGULATION BY STATE AND/OR FEDERAL AGENCIES, INCLUDING, BUT NOT LIMITED TO, THE REGIONAL WATER QUALITY CONTROL BOARD, U.S. ARMY CORPS OF ENGINEERS AND THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE. IT IS THE APPLICANT'S RESPONSIBILITY TO CONSULT WITH EACH AGENCY TO DETERMINE IF A PERMIT, AGREEMENT OR OTHER APPROVAL IS REQUIRED AND TO OBTAIN ALL NECESSARY PERMITS, AGREEMENTS OR APPROVALS BEFORE COMMENCING ANY ACTIVITY WHICH COULD IMPACT THE WETLANDS, LAKE, STREAM, AND/OR WATERS OF THE U.S. ON THE SUBJECT PROPERTY. THE AGENCY CONTACT INFORMATION IS PROVIDED BELOW.

U.S. ARMY CORPS OF ENGINEERS:
915 WILSHIRE BLVD., SUITE 1101
LOS ANGELES, CA 90017
(213) 452-3333
HTTP://WWW.USACE.ARMY.MIL/

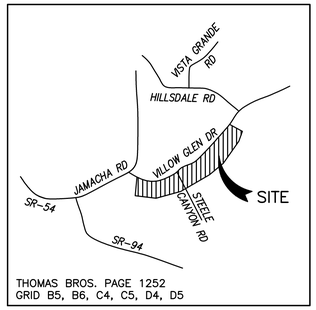
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE:
3883 RUFFIN RD.
SAN DIEGO, CA 92123
(858) 636-3160
ASKR5@WILDLIFE.CA.GOV
HTTP://WWW.DFG.CA.GOV/

REGIONAL WATER QUALITY CONTROL BOARD:
2375 NORTHSIDE DRIVE, SUITE 100
SAN DIEGO, CA 92108
RB9_DREDGEFILL@WATERBOARDS.CA.GOV
HTTP://WWW.WATERBOARDS.CA.GOV/SANDIEGO/

SAND MINING PROJECT
COTTONWOOD

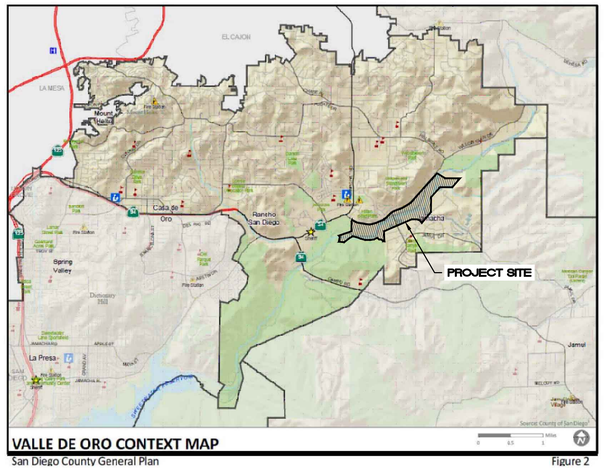


KEY MAP
SCALE: 1" = 1000'



THOMAS BROS. PAGE 1252
GRID B5, B6, C4, C5, D4, D5

VICINITY MAP



VALLE DE ORO CONTEXT MAP
San Diego County General Plan
VALLE DE ORO COMMUNITY PLAN
Figure 2
5

DISCRETIONARY REVIEW APPROVAL

THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.

LEGEND

EXISTING CONTOUR 925
EXISTING SPOT ELEVATION x 1012.7
EXISTING POWER LINES AND POLES
PROPOSED CONTOUR 685
PROPOSED GRADE 1.0%
PUBLIC PATHWAY
PROPERTY LINE
MUP BOUNDARY
DAYLIGHT LINE
PROPOSED SLOPE
PROPOSED PERIMETER FENCE
PROPOSED POWER LINES
EFFECTIVE FEMA FLOODWAY
EFFECTIVE FEMA FLOODWAY
PROPOSED TRAILS (ALL TRAILS ARE MULTIPURPOSE)
PROPOSED STOCKPILES (8' TO 12' HIGH)
PROPOSED GROUTED LIGHT CLASS RIPRAP
PROPOSED FLOW
CROSS-SECTION LINES A A
PROPOSED TREE WELLS
SECURITY LIGHT

SHEET INDEX

SHEET 1	COVER SHEET
SHEET 2	PLOT PLAN
SHEET 3	PLOT PLAN
SHEET 4	PLANT DETAILS
SHEET 5	RECLAMATION PLAN
SHEET 6	RECLAMATION PLAN
SHEET 7	SITE CROSS-SECTIONS
SHEET 8	SITE CROSS-SECTIONS
SHEET 9	FINAL PLAN
SHEET 10	REVEGETATION PLAN
SHEET 11	EASEMENT PLAN

PERMIT NUMBERS

PDS2018-MUP-18-023,
PDS2018-RP-18-001,
PDS2018-ER-18-19-007

LEGAL DESCRIPTION

PARCEL 'E' OF C/C 90-0204 TOGETHER WITH PARCELS 'A' AND 'B' OF B/C 92-0038.

PROJECT DESCRIPTION

THE PROJECT PROPOSES TO MINE SAND SUITABLE FOR PORTLAND CEMENT CONCRETE (PCC) USE OVER AN EXTENDED PERIOD WITHIN DESIGNATED PHASES. RECLAMATION OF THE MINED LANDS WILL FOLLOW AS SOON AS MINING OPERATIONS ARE COMPLETED IN A SPECIFIC AREA. RECLAMATION PROCEDURES WILL BE PHASED WITH MINING OPERATIONS AND WILL BE INITIATED IMMEDIATELY AFTER THE CONCLUSION OF RESOURCE EXTRACTION AND BACKFILLING TO DESIGN ELEVATIONS.

THE MAXIMUM LEVEL OF AGGREGATE PRODUCTION IS ANTICIPATED TO BE 570,000 TONS PER YEAR (TPY). THIS LEVEL OF PRODUCTION WILL BE REALIZED AFTER 1 YEAR OF SITE DEVELOPMENT. ACTUAL PRODUCTION LEVELS AND PROJECT LIFE WILL DEPEND ON MARKET DEMAND BUT WILL NOT EXCEED THE MAXIMUM PERMITTED PRODUCTION LEVEL. THE PROJECT IS EXPECTED TO CONTINUE FOR 12 YEARS. THIS WILL INCLUDE 10 YEARS OF EXTRACTION AND RECLAMATION OF PREVIOUS PHASES. RECLAMATION OF PREVIOUSLY DISTURBED AREAS IS ANTICIPATED TO BEGIN IN YEAR 2. VEGETATION MONITORING WILL CONTINUE FOR 5 YEARS AFTER MINING CEASES.

WORK TO BE DONE

THE IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE IN ACCORDANCE WITH THESE PLANS, THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (2021 EDITION), THE REGIONAL SUPPLEMENT AMENDMENTS (2012 EDITION), THE SAN DIEGO AREA REGIONAL STANDARD DRAWINGS (DATED JULY 2018), SAN DIEGO COUNTY GRADING ORDINANCE, CONSTRUCTION DEMOLITION AND RECYCLING ORDINANCE, LANDSCAPE ORDINANCE, FLOOD DAMAGE AND PREVENTION ORDINANCE, WATERSHED PROTECTION ORDINANCE, HYDROLOGY MANUAL, 2003, HYDRAULIC DESIGN MANUAL, 2014, RESOURCE PROTECTION ORDINANCE, AND BIOLOGICAL MITIGATION ORDINANCE.

OWNER

COTTONWOOD CAJON ES LLC
9255 DOHENY ROAD, #602
WEST HOLLYWOOD, CA 90069

PERMITTEE

GREG BROWN
NEW WEST DEVELOPMENT
565 N. MAGNOLIA AVE.,
EL CAJON, CA 92020

ASSESSOR'S PARCEL NUMBERS

THE PROJECT IS LOCATED ON TWENTY-TWO SEPARATE ASSESSORS PARCELS (APNS) AS PRESENTED IN FOLLOWING TABLE. PORTIONS OF THE PROPERTY WILL NOT BE MINED ALTHOUGH THOSE AREAS MAY BE DISTURBED AS PART OF THE RECLAMATION EFFORT FOR THE PROPERTY.

APN	TOTAL ACRES (APPROX.)	OWNER	ZONING	GENERAL PLAN LAND USE
506-021-1900	8.20	COTTONWOOD CAJON ES, LLC	S88	OS-R
506-020-5200	4.01	COTTONWOOD CAJON ES, LLC	S80	OS-R
518-012-1300	2.97	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-012-1400	46.61	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-0500	2.30	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-0600	5.58	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-0700	2.59	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-0800	0.69	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-1000	7.16	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-1200	6.88	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-1300	10.20	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-1500	4.04	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-2100	56.71	COTTONWOOD CAJON ES, LLC	S90	OS-R
518-030-2200	19.43	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-010-1500	33.72	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-010-1700	14.59	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-010-2000	19.22	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-010-2100	1.10	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-010-3300	1.76	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-010-3400	7.17	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-010-3700	1.06	COTTONWOOD CAJON ES, LLC	S90	OS-R
519-011-0300	23.80	COTTONWOOD CAJON ES, LLC	S88	OS-R
TOTALS:	279.79			

DEFINITIONS

S90	HOLDING AREA
S88	SPECIFIC PLAN AREA
S80	OPEN SPACE
OS-R	OPEN SPACE - RECREATION

FOR REVIEW ONLY

PERMITS
HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

PRIVATE CONTRACT

SHEET 1 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

RECLAMATION PLAN FOR:
COTTONWOOD SAND MINING PROJECT
CALIFORNIA COORDINATE INDEX: 210-1791

Approved COUNTY ENGINEER
BY: _____ Date
Engineer of work: WAYNE W. CHANG R.C.E. 46548
Grading Permit No.

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

BENCHMARK
DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

FILE NO.

7/14/2024

SECTION: SITE ACCESS
NOT TO SCALE

DETAIL: PERIMETER FENCE
NOT TO SCALE

NOTES:
1. DG ROADS TO BE CONSTRUCTED PER SECTION 3.10 OF THE 'SAN DIEGO COUNTY STANDARDS FOR PRIVATE ROADS.'
2. ROADS TO BE TWO-WAY ROADS. IN EVENT OF PASSING, ONE VEHICLE WILL TEMPORARILY MOVE ONTO DIRT SURFACE ADJACENT TO ROAD UNTIL PASSING IS COMPLETE. SURFACE RUNOFF TO SHEET FLOW ACROSS OR ALONG ROADS AT 1% MINIMUM SLOPE. SHEET FLOW TO FOLLOW DRAINAGE PATTERN OF AREAS ADJACENT TO ROADS. THERE SHALL BE NO SURFACE PONDING ON ROADS.
3. ROADS WILL BE PRIVATE, SO EASEMENTS ARE NOT NEEDED.

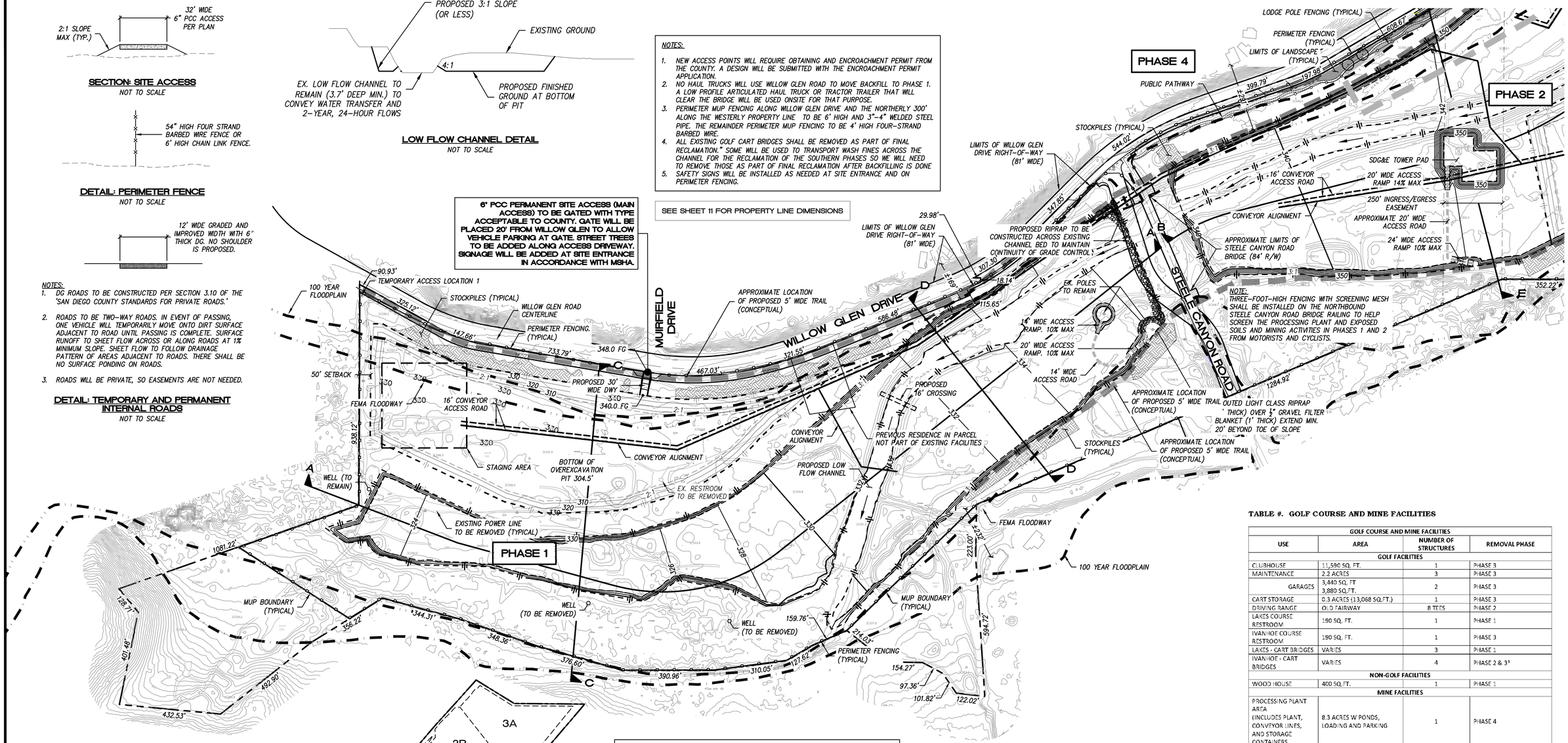
DETAIL: TEMPORARY AND PERMANENT INTERNAL ROADS
NOT TO SCALE

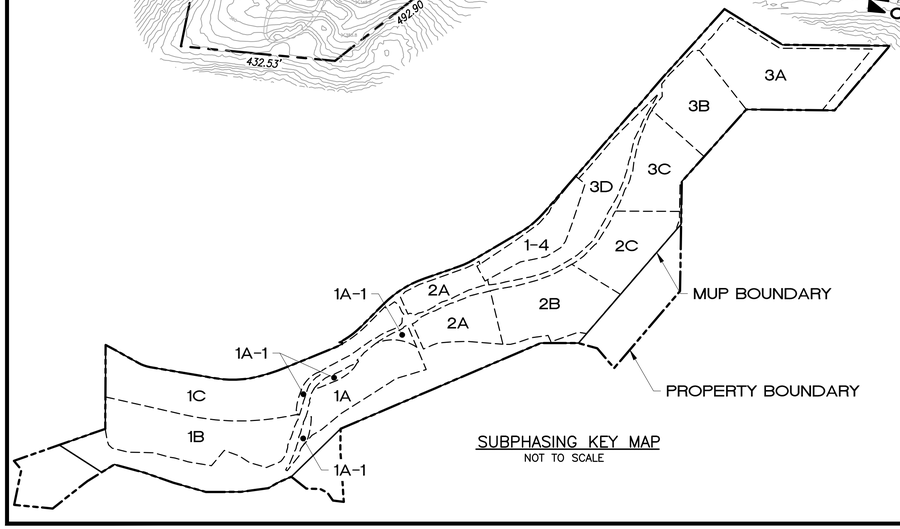
LOW FLOW CHANNEL DETAIL
NOT TO SCALE

NOTES:
1. NEW ACCESS POINTS WILL REQUIRE OBTAINING AND ENCROACHMENT PERMIT FROM THE COUNTY. A DESIGN WILL BE SUBMITTED WITH THE ENCROACHMENT PERMIT APPLICATION.
2. NO HAUL TRUCKS WILL USE WILLOW GLEN ROAD TO MOVE BACKFILL TO PHASE 1. A LOW PROFILE ARTICULATED HAUL TRUCK OR TRACTOR TRAILER THAT WILL CLEAR THE BRIDGE WILL BE USED ONSITE FOR THAT PURPOSE.
3. PERIMETER MUP FENCING ALONG WILLOW GLEN DRIVE AND THE NORTHERLY 300' ALONG THE WESTERLY PROPERTY LINE TO BE 6' HIGH AND 3"-4" WELDED STEEL PIPE. THE REMAINDER PERIMETER MUP FENCING TO BE 4' HIGH FOUR-STRAND BARBED WIRE.
4. ALL EXISTING GOLF CART BRIDGES SHALL BE REMOVED AS PART OF FINAL RECLAMATION." SOME WILL BE USED TO TRANSPORT WASH FINES ACROSS THE CHANNEL FOR THE RECLAMATION OF THE SOUTHERN PHASES SO WE WILL NEED TO REMOVE THOSE AS PART OF FINAL RECLAMATION AFTER BACKFILLING IS DONE
5. SAFETY SIGNS WILL BE INSTALLED AS NEEDED AT SITE ENTRANCE AND ON PERIMETER FENCING.

6' PCC PERMANENT SITE ACCESS (MAIN ACCESS) TO BE GATED WITH TYPE ACCEPTABLE TO COUNTY. GATE WILL BE PLACED 20' FROM WILLOW GLEN TO ALLOW VEHICLE PARKING AT GATE. STREET TREES TO BE ADDED ALONG ACCESS DRIVEWAY. SIGNAGE WILL BE ADDED AT SITE ENTRANCE IN ACCORDANCE WITH MSHA.

SEE SHEET 11 FOR PROPERTY LINE DIMENSIONS





SUBPHASING KEY MAP
NOT TO SCALE

UTILITY NOTES:
1. SDG&E NOTE: A MINIMUM 30' WORKING PAD SHALL BE MAINTAINED AROUND THE SDG&E POWER POLES. THE WEST PAD SHALL SLOPE AT 1% TO THE PAD RAMP. THE EAST PAD SHALL SLOPE 1% TO THE ADJACENT GROUND TO THE SOUTHEAST. EACH SDG&E ACCESS RAMP SHALL HAVE A 2% INWARD CROSS-SLOPE TO PREVENT STORM RUNOFF FROM FLOWING OVER THE RAMP EDGE. THE SDG&E ACCESS ROAD BETWEEN RAMPS SHALL HAVE A 2% CROSS-SLOPE DOWN TOWARDS THE WEST. THE ACCESS ROAD SHALL HAVE A MINIMUM 75' TURN RADIUS.
2. CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY. NO GRADING WITHIN 20' OF EXISTING STEEL LATTICE TOWER FOUNDATIONS & NO GRADING WITHIN 30' OF EXISTING STEEL POLE FOUNDATION.

TABLE #. GOLF COURSE AND MINE FACILITIES

GOLF COURSE AND MINE FACILITIES			
USE	AREA	NUMBER OF STRUCTURES	REMOVAL PHASE
GOLF FACILITIES			
CLUBHOUSE	11,590 SQ. FT.	1	PHASE 3
MAINTENANCE	2.2 ACRES	3	PHASE 3
GARAGES	3,440 SQ. FT 3,880 SQ.FT.	2	PHASE 3
CART STORAGE	0.3 ACRES (13,068 SQ.FT.)	1	PHASE 3
DRIVING RANGE	0.0 FAIRWAY	8 TEES	PHASE 2
LAKES COURSE RESTROOM	190 SQ. FT.	1	PHASE 1
IVANHOE COURSE RESTROOM	190 SQ. FT.	1	PHASE 3
LAKES - CART BRIDGES	VARIES	3	PHASE 1
IVANHOE - CART BRIDGES	VARIES	4	PHASE 2 & 3[1]
NON-GOLF FACILITIES			
WOOD HOUSE	400 SQ.FT.	1	PHASE 1
MINE FACILITIES			
PROCESSING PLANT AREA (INCLUDES PLANT, CONVEYOR LINES, AND STORAGE CONTAINERS	8.3 ACRES W PONDS, LOADING AND PARKING	1	PHASE 4
LOADOUT AREA (INCLUDES SCALES, SCALE HOUSE, OFFICE KIOSK)	1.9 OF 8 ACRES	1	PHASE 4
MINE PARKING	0.15 OF 8 ACRES	15 SPACES	END OF PROJECT
FENCING, GATES AND SIGNS	NA		WILL REMAIN ON PROPERTY

[1] ONE CART BRIDGE WOULD BE REMOVED DURING PHASE 2. THE OTHER 3 BRIDGES ON IVANHOE WILL BE REMOVED AS THEY ARE NO LONGER NEEDED.

SCALE: 1" = 200'
0 100 200 400

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

PERMITS
HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

BENCHMARK
DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

PRIVATE CONTRACT

SHEET 2 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

PLOT PLAN FOR:
COTTONWOOD SAND MINING PROJECT
CALIFORNIA COORDINATE INDEX: 210-1791

Approved COUNTY ENGINEER
BY: Date

Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

FILE NO.

7/14/2024 10:49 PM

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FOR REVIEW ONLY

NOTES:

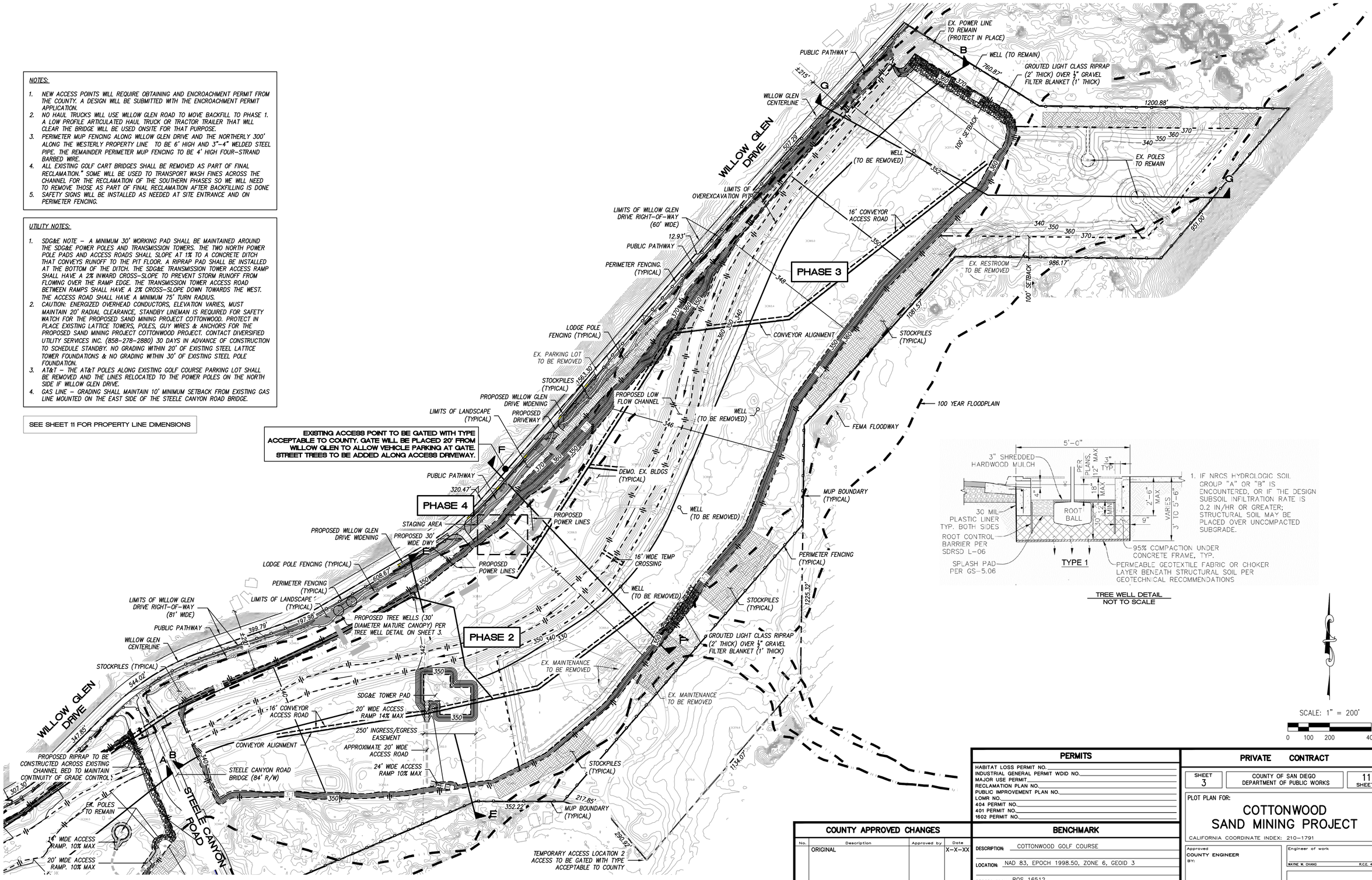
1. NEW ACCESS POINTS WILL REQUIRE OBTAINING AND ENCROACHMENT PERMIT FROM THE COUNTY. A DESIGN WILL BE SUBMITTED WITH THE ENCROACHMENT PERMIT APPLICATION.
2. NO HAUL TRUCKS WILL USE WILLOW GLEN ROAD TO MOVE BACKFILL TO PHASE 1. A LOW PROFILE ARTICULATED HAUL TRUCK OR TRACTOR TRAILER THAT WILL CLEAR THE BRIDGE WILL BE USED ONSITE FOR THAT PURPOSE.
3. PERIMETER MUP FENCING ALONG WILLOW GLEN DRIVE AND THE NORTHERLY 300' ALONG THE WESTERLY PROPERTY LINE TO BE 6' HIGH AND 3"-4" WELDED STEEL PIPE. THE REMAINDER PERIMETER MUP FENCING TO BE 4' HIGH FOUR-STRAND BARBED WIRE.
4. ALL EXISTING GOLF CART BRIDGES SHALL BE REMOVED AS PART OF FINAL RECLAMATION." SOME WILL BE USED TO TRANSPORT WASH FINES ACROSS THE CHANNEL FOR THE RECLAMATION OF THE SOUTHERN PHASES SO WE WILL NEED TO REMOVE THOSE AS PART OF FINAL RECLAMATION AFTER BACKFILLING IS DONE
5. SAFETY SIGNS WILL BE INSTALLED AS NEEDED AT SITE ENTRANCE AND ON PERIMETER FENCING.

UTILITY NOTES:

1. SDG&E NOTE – A MINIMUM 30' WORKING PAD SHALL BE MAINTAINED AROUND THE SDG&E POWER POLES AND TRANSMISSION TOWERS. THE TWO NORTH POWER POLE PADS AND ACCESS ROADS SHALL SLOPE AT 1% TO A CONCRETE DITCH THAT CONVEYS RUNOFF TO THE PIT FLOOR. A RIPRAP PAD SHALL BE INSTALLED AT THE BOTTOM OF THE DITCH. THE SDG&E TRANSMISSION TOWER ACCESS RAMP SHALL HAVE A 2% INWARD CROSS-SLOPE TO PREVENT STORM RUNOFF FROM FLOWING OVER THE RAMP EDGE. THE TRANSMISSION TOWER ACCESS ROAD BETWEEN RAMPS SHALL HAVE A 2% CROSS-SLOPE DOWN TOWARDS THE WEST. THE ACCESS ROAD SHALL HAVE A MINIMUM 75' TURN RADIUS.
2. CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY. NO GRADING WITHIN 20' OF EXISTING STEEL LATTICE TOWER FOUNDATIONS & NO GRADING WITHIN 30' OF EXISTING STEEL POLE FOUNDATION.
3. AT&T – THE AT&T POLES ALONG EXISTING GOLF COURSE PARKING LOT SHALL BE REMOVED AND THE LINES RELOCATED TO THE POWER POLES ON THE NORTH SIDE IF WILLOW GLEN DRIVE.
4. GAS LINE – GRADING SHALL MAINTAIN 10' MINIMUM SETBACK FROM EXISTING GAS LINE MOUNTED ON THE EAST SIDE OF THE STEELE CANYON ROAD BRIDGE.

SEE SHEET 11 FOR PROPERTY LINE DIMENSIONS

EXISTING ACCESS POINT TO BE GATED WITH TYPE ACCEPTABLE TO COUNTY. GATE WILL BE PLACED 20' FROM WILLOW GLEN TO ALLOW VEHICLE PARKING AT GATE. STREET TREES TO BE ADDED ALONG ACCESS DRIVEWAY.



TYPE 1

TREE WELL DETAIL
NOT TO SCALE

SCALE: 1" = 200'

0 100 200 400

FOR REVIEW ONLY

COUNTY APPROVED CHANGES			
No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE

LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3

RECORD FROM: ROS 16512

ELEVATION: 488.50 FEET DATUM: NGVD 29

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

PRIVATE CONTRACT

SHEET 3 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

PLOT PLAN FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210-1791

Approved COUNTY ENGINEER BY: Date

Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FILE NO.

7/15/2024 8:15 PM

8' X 20' Construction Office Floor Plan

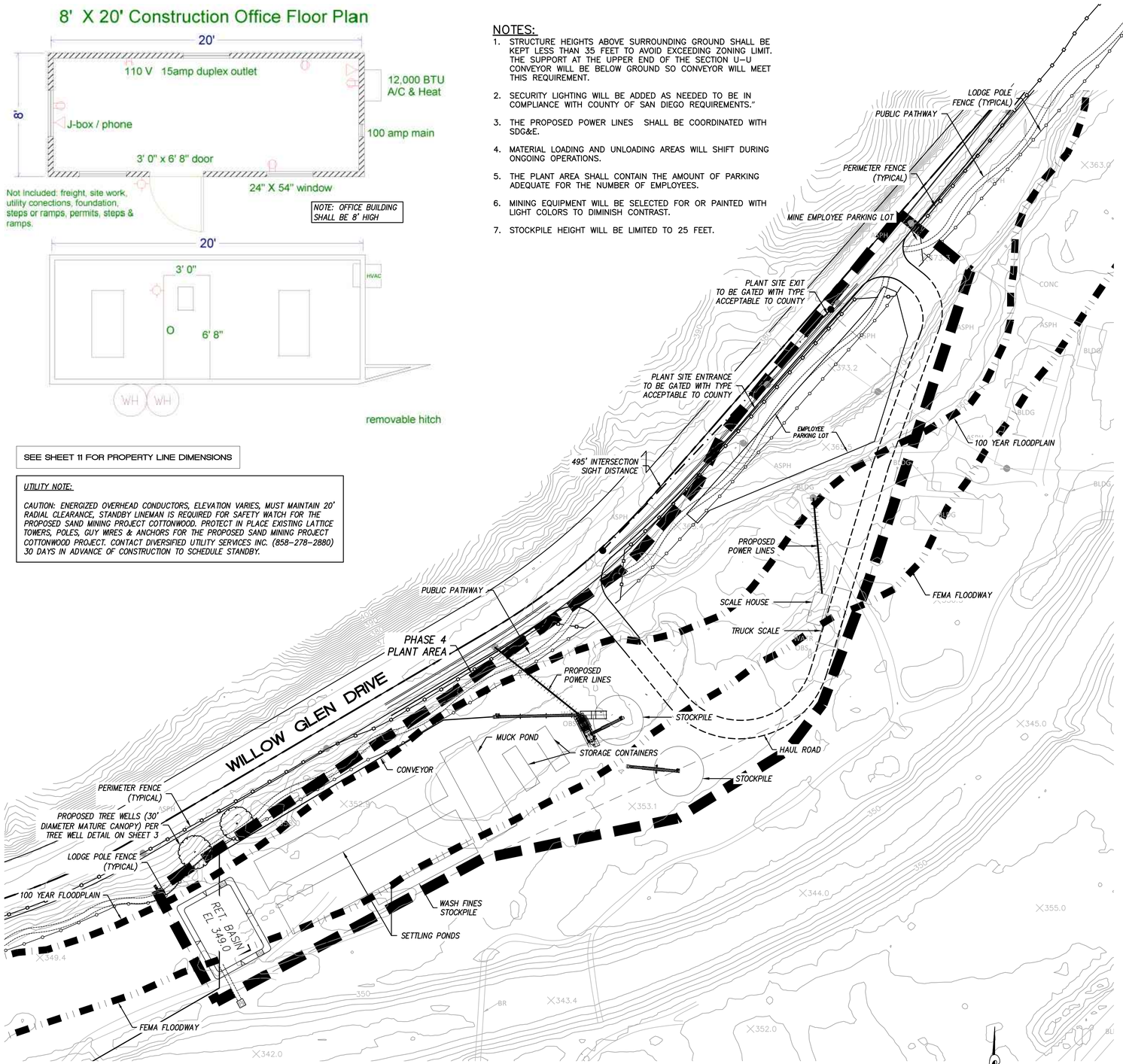
SEE SHEET 11 FOR PROPERTY LINE DIMENSIONS

UTILITY NOTE:

CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY.

NOTES:

1. STRUCTURE HEIGHTS ABOVE SURROUNDING GROUND SHALL BE KEPT LESS THAN 35 FEET TO AVOID EXCEEDING ZONING LIMIT. THE SUPPORT AT THE UPPER END OF THE SECTION U–U CONVEYOR WILL BE BELOW GROUND SO CONVEYOR WILL MEET THIS REQUIREMENT.
2. SECURITY LIGHTING WILL BE ADDED AS NEEDED TO BE IN COMPLIANCE WITH COUNTY OF SAN DIEGO REQUIREMENTS."
3. THE PROPOSED POWER LINES SHALL BE COORDINATED WITH SDG&E.
4. MATERIAL LOADING AND UNLOADING AREAS WILL SHIFT DURING ONGOING OPERATIONS.
5. THE PLANT AREA SHALL CONTAIN THE AMOUNT OF PARKING ADEQUATE FOR THE NUMBER OF EMPLOYEES.
6. MINING EQUIPMENT WILL BE SELECTED FOR OR PAINTED WITH LIGHT COLORS TO DIMINISH CONTRAST.
7. STOCKPILE HEIGHT WILL BE LIMITED TO 25 FEET.

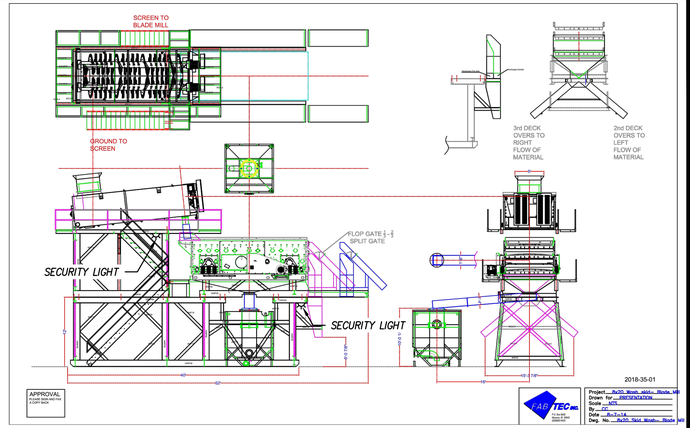


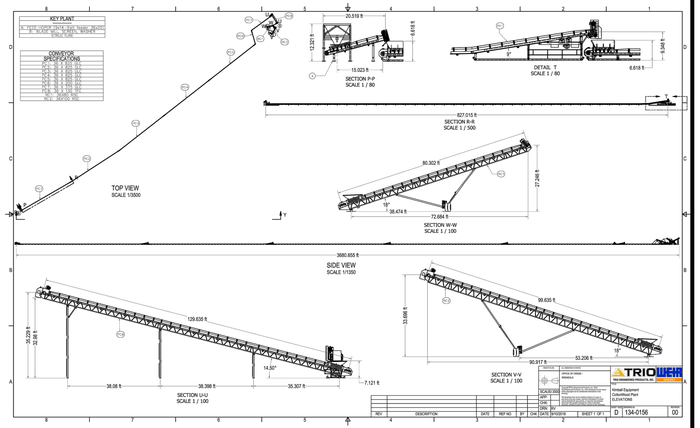
PLANT AREA DETAIL

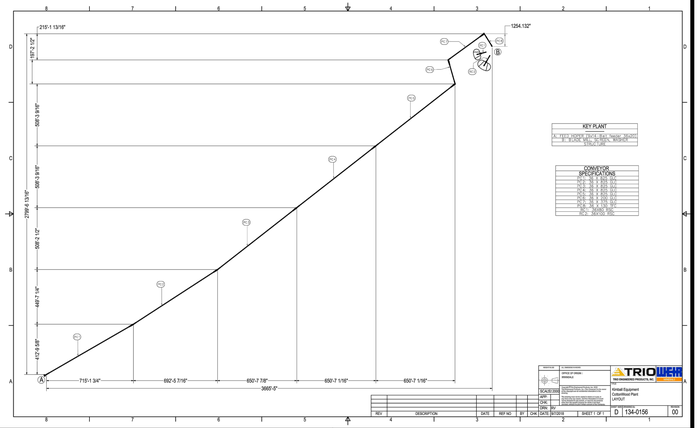
SCALE: 1" = 80'

SCALE: 1" = 60'

0 30 60 120







FOR REVIEW ONLY

PERMITS	PRIVATE CONTRACT
HABITAT LOSS PERMIT NO.	SHEET 4 / COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS / 11 SHEETS
INDUSTRIAL GENERAL PERMIT WDID NO.	PLOT PLAN FOR: COTTONWOOD SAND MINING PROJECT
MAJOR USE PERMIT	CALIFORNIA COORDINATE INDEX: 210–1791
RECLAMATION PLAN NO.	Approved COUNTY ENGINEER BY: Date
PUBLIC IMPROVEMENT PLAN NO.	Engineer of work WAYNE W. CHANG R.C.E. 46548
LOMR NO.	Grading Permit No.
404 PERMIT NO.	
401 PERMIT NO.	
1602 PERMIT NO.	

COUNTY APPROVED CHANGES			
No.	Description	Approved by	Date
	ORIGINAL		X–X–XX

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE

LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3

RECORD FROM: ROS 16512

ELEVATION: 488.50 FEET DATUM: NGVD 29

FILE NO.

7/15/2024 8:31 PM

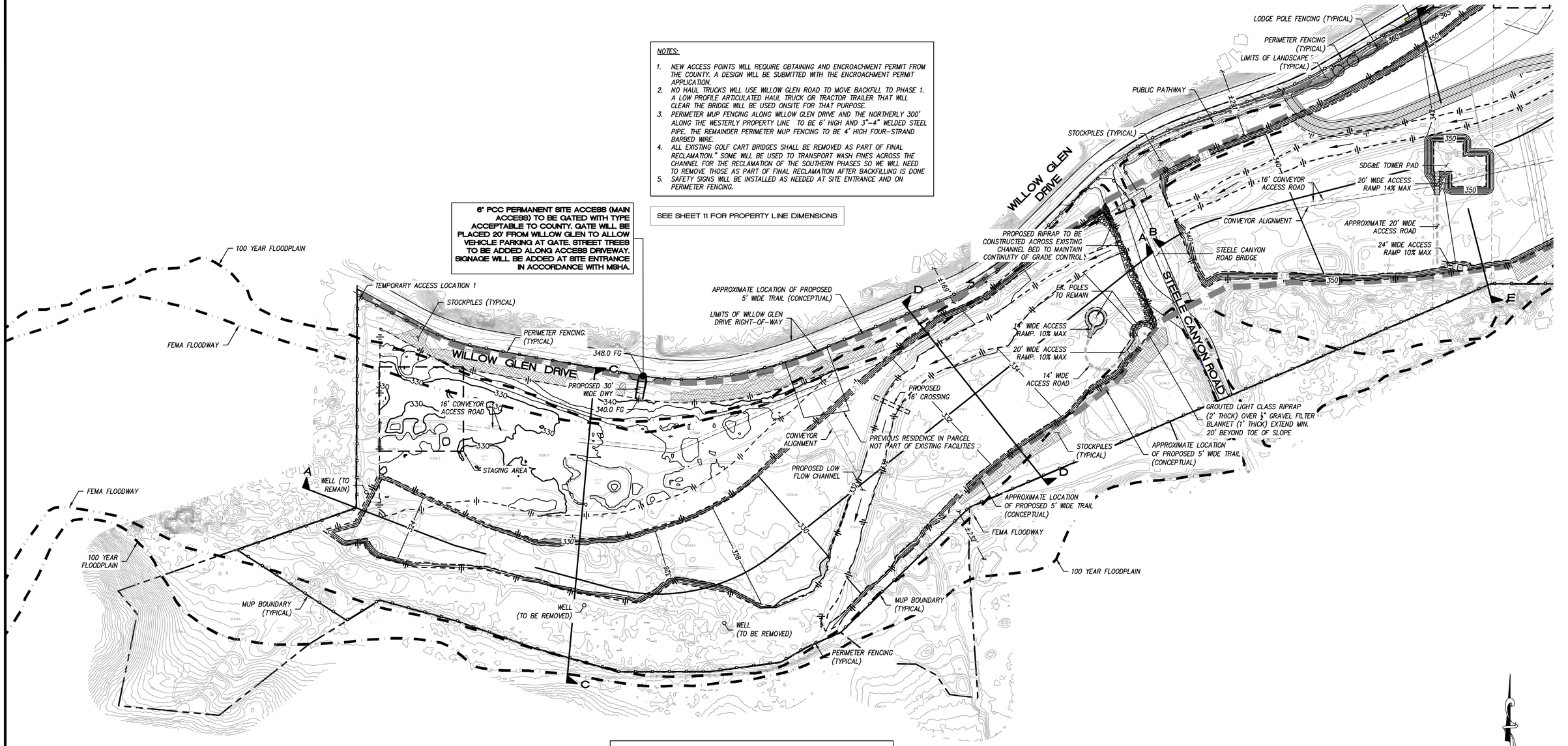
ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

NOTES:

1. NEW ACCESS POINTS WILL REQUIRE OBTAINING AND ENCROACHMENT PERMIT FROM THE COUNTY. A DESIGN WILL BE SUBMITTED WITH THE ENCROACHMENT PERMIT APPLICATION.
2. NO HAUL TRUCKS WILL USE WILLOW GLEN ROAD TO MOVE BACKFILL TO PHASE 1. A LOW PROFILE ARTICULATED HAUL TRUCK OR TRACTOR TRAILER THAT WILL CLEAR THE BRIDGE WILL BE USED ONSITE FOR THAT PURPOSE.
3. PERIMETER MUP FENCING ALONG WILLOW GLEN DRIVE AND THE NORTHERLY 300' ALONG THE WESTERLY PROPERTY LINE TO BE 6' HIGH AND 3"–4" WELDED STEEL PIPE. THE REMAINDER PERIMETER MUP FENCING TO BE 4' HIGH FOUR–STRAND BARBED WIRE.
4. ALL EXISTING GOLF CART BRIDGES SHALL BE REMOVED AS PART OF FINAL RECLAMATION." SOME WILL BE USED TO TRANSPORT WASH FINES ACROSS THE CHANNEL FOR THE RECLAMATION OF THE SOUTHERN PHASES SO WE WILL NEED TO REMOVE THOSE AS PART OF FINAL RECLAMATION AFTER BACKFILLING IS DONE
5. SAFETY SIGNS WILL BE INSTALLED AS NEEDED AT SITE ENTRANCE AND ON PERIMETER FENCING.

6' PCC PERMANENT SITE ACCESS (MAIN ACCESS) TO BE GATED WITH TYPE ACCEPTABLE TO COUNTY. GATE WILL BE PLACED 20' FROM WILLOW GLEN TO ALLOW VEHICLE PARKING AT GATE. STREET TREES TO BE ADDED ALONG ACCESS DRIVEWAY. SIGNAGE WILL BE ADDED AT SITE ENTRANCE IN ACCORDANCE WITH MSHA.

SEE SHEET 11 FOR PROPERTY LINE DIMENSIONS



UTILITY NOTES:

1. SDG&E NOTE: A MINIMUM 30' WORKING PAD SHALL BE MAINTAINED AROUND THE SDG&E POWER POLES. THE WEST PAD SHALL SLOPE AT 1% TO THE PAD RAMP. THE EAST PAD SHALL SLOPE 1% TO THE ADJACENT GROUND TO THE SOUTHEAST. EACH SDG&E ACCESS RAMP SHALL HAVE A 2% INWARD CROSS–SLOPE TO PREVENT STORM RUNOFF FROM FLOWING OVER THE RAMP EDGE. THE SDG&E ACCESS ROAD BETWEEN RAMPS SHALL HAVE A 2% CROSS–SLOPE DOWN TOWARDS THE WEST. THE ACCESS ROAD SHALL HAVE A MINIMUM 75' TURN RADIUS.
2. CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858–278–2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY. NO GRADING WITHIN 20' OF EXISTING STEEL LATTICE TOWER FOUNDATIONS & NO GRADING WITHIN 30' OF EXISTING STEEL POLE FOUNDATION.

SCALE: 1" = 200'

0 100 200 400

FOR REVIEW ONLY

COUNTY APPROVED CHANGES			
No.	Description	Approved by	Date
	ORIGINAL		X–X–XX

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

PRIVATE CONTRACT

SHEET 5 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

RECLAMATION PLAN FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210–1791

Approved COUNTY ENGINEER BY: Date

Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692–0760

FILE NO.

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NOTES:

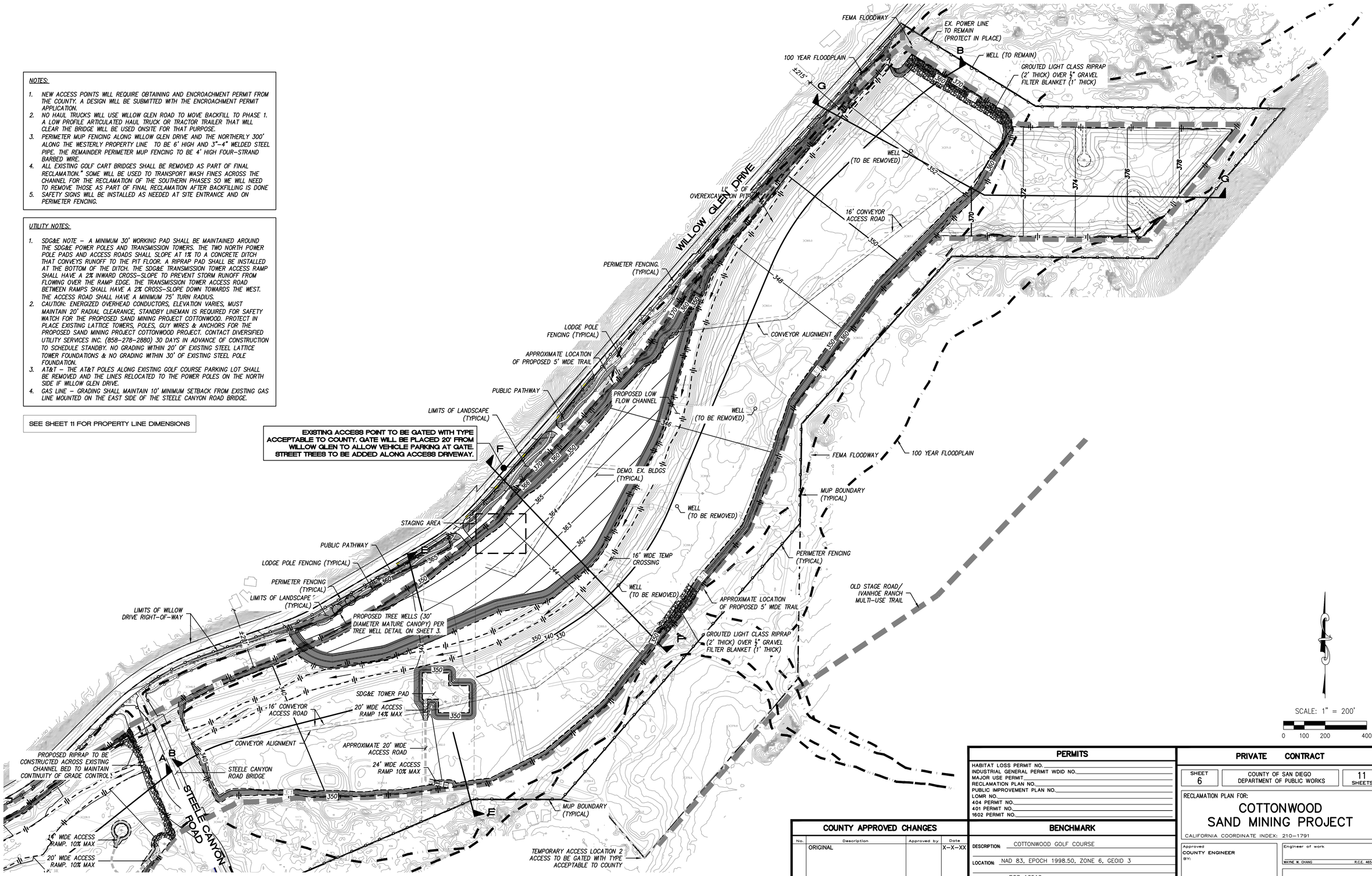
1. NEW ACCESS POINTS WILL REQUIRE OBTAINING AND ENCROACHMENT PERMIT FROM THE COUNTY. A DESIGN WILL BE SUBMITTED WITH THE ENCROACHMENT PERMIT APPLICATION.
2. NO HAUL TRUCKS WILL USE WILLOW GLEN ROAD TO MOVE BACKFILL TO PHASE 1. A LOW PROFILE ARTICULATED HAUL TRUCK OR TRACTOR TRAILER THAT WILL CLEAR THE BRIDGE WILL BE USED ONSITE FOR THAT PURPOSE.
3. PERIMETER MUP FENCING ALONG WILLOW GLEN DRIVE AND THE NORTHERLY 300' ALONG THE WESTERLY PROPERTY LINE TO BE 6' HIGH AND 3"–4" WELDED STEEL PIPE. THE REMAINDER PERIMETER MUP FENCING TO BE 4' HIGH FOUR–STRAND BARBED WIRE.
4. ALL EXISTING GOLF CART BRIDGES SHALL BE REMOVED AS PART OF FINAL RECLAMATION." SOME WILL BE USED TO TRANSPORT WASH FINES ACROSS THE CHANNEL FOR THE RECLAMATION OF THE SOUTHERN PHASES SO WE WILL NEED TO REMOVE THOSE AS PART OF FINAL RECLAMATION AFTER BACKFILLING IS DONE
5. SAFETY SIGNS WILL BE INSTALLED AS NEEDED AT SITE ENTRANCE AND ON PERIMETER FENCING.

UTILITY NOTES:

1. SDG&E NOTE – A MINIMUM 30' WORKING PAD SHALL BE MAINTAINED AROUND THE SDG&E POWER POLES AND TRANSMISSION TOWERS. THE TWO NORTH POWER POLE PADS AND ACCESS ROADS SHALL SLOPE AT 1% TO A CONCRETE DITCH THAT CONVEYS RUNOFF TO THE PIT FLOOR. A RIPRAP PAD SHALL BE INSTALLED AT THE BOTTOM OF THE DITCH. THE SDG&E TRANSMISSION TOWER ACCESS RAMP SHALL HAVE A 2% INWARD CROSS–SLOPE TO PREVENT STORM RUNOFF FROM FLOWING OVER THE RAMP EDGE. THE TRANSMISSION TOWER ACCESS ROAD BETWEEN RAMPS SHALL HAVE A 2% CROSS–SLOPE DOWN TOWARDS THE WEST. THE ACCESS ROAD SHALL HAVE A MINIMUM 75' TURN RADIUS.
2. CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858–278–2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY. NO GRADING WITHIN 20' OF EXISTING STEEL LATTICE TOWER FOUNDATIONS & NO GRADING WITHIN 30' OF EXISTING STEEL POLE FOUNDATION.
3. AT&T – THE AT&T POLES ALONG EXISTING GOLF COURSE PARKING LOT SHALL BE REMOVED AND THE LINES RELOCATED TO THE POWER POLES ON THE NORTH SIDE IF WILLOW GLEN DRIVE.
4. GAS LINE – GRADING SHALL MAINTAIN 10' MINIMUM SETBACK FROM EXISTING GAS LINE MOUNTED ON THE EAST SIDE OF THE STEELE CANYON ROAD BRIDGE.

SEE SHEET 11 FOR PROPERTY LINE DIMENSIONS

EXISTING ACCESS POINT TO BE GATED WITH TYPE ACCEPTABLE TO COUNTY. GATE WILL BE PLACED 20' FROM WILLOW GLEN TO ALLOW VEHICLE PARKING AT GATE. STREET TREES TO BE ADDED ALONG ACCESS DRIVEWAY.



FOR REVIEW ONLY

COUNTY APPROVED CHANGES			
No.	Description	Approved by	Date
	ORIGINAL		X–X–XX

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

PRIVATE CONTRACT

SHEET 6 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

RECLAMATION PLAN FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210–1791

Approved COUNTY ENGINEER
BY:
Date

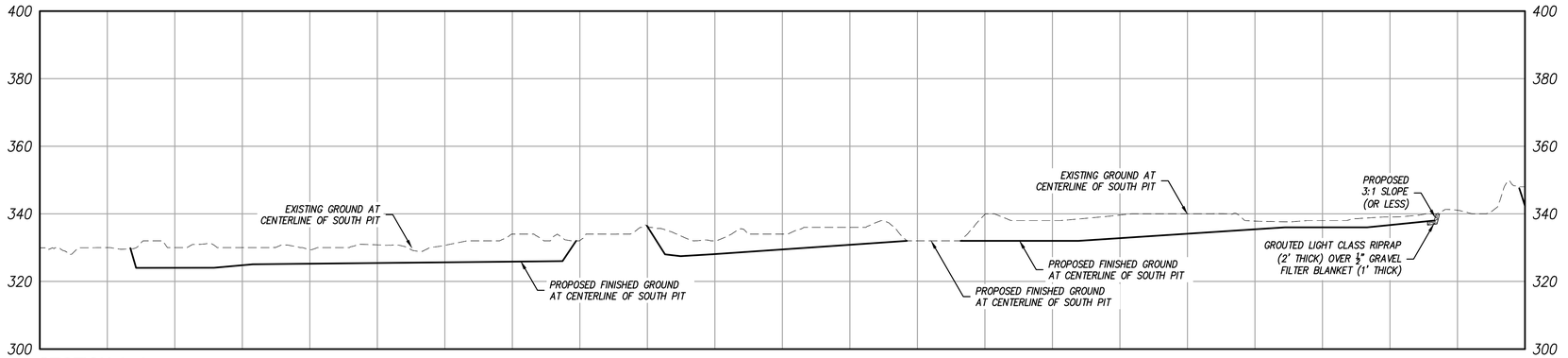
Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692–0760

FILE NO.

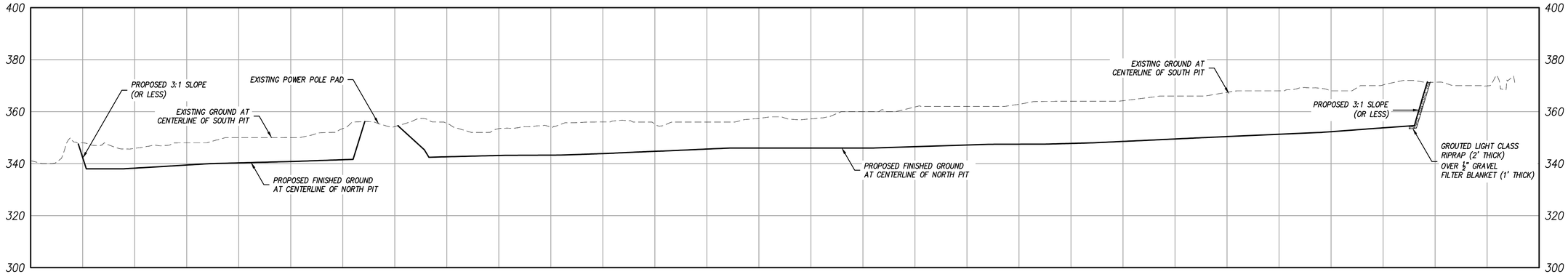
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SECTION A-A
SCALE HORIZ: 1" = 200' VERT: 1"=20'

UTILITY NOTE:

CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY. NO GRADING WITHIN 20' OF EXISTING STEEL LATTICE TOWER FOUNDATIONS & NO GRADING WITHIN 30' OF EXISTING STEEL POLE FOUNDATION.



SECTION B-B
SCALE HORIZ: 1" = 200' VERT: 1"=20'

FOR REVIEW ONLY

SCALE: 1" = 200'

0 100 200 400

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

PRIVATE CONTRACT

SHEET 7 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

SITE CROSS-SECTIONS FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210-1791

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

Approved
COUNTY ENGINEER
BY:
Date

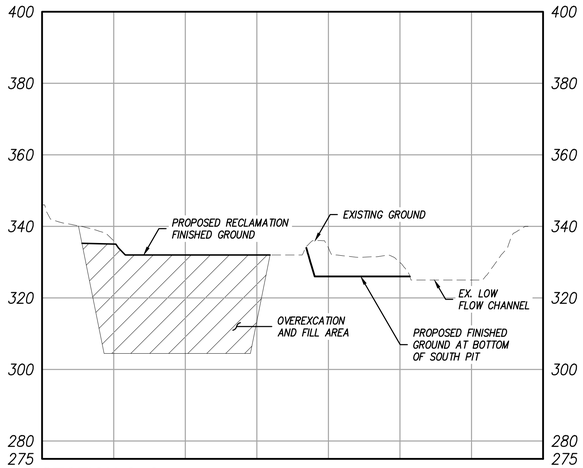
Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

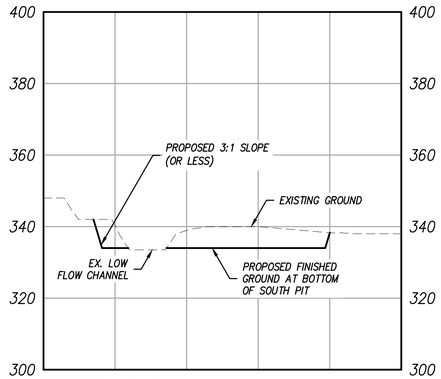
ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FILE NO.

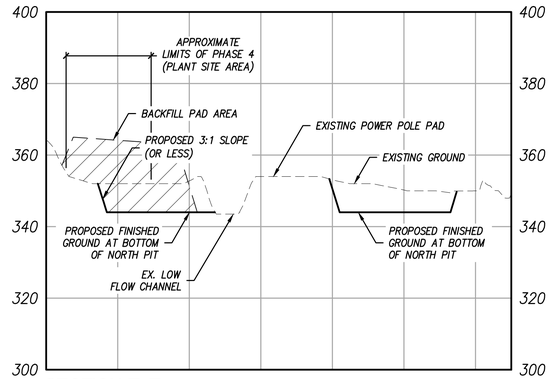
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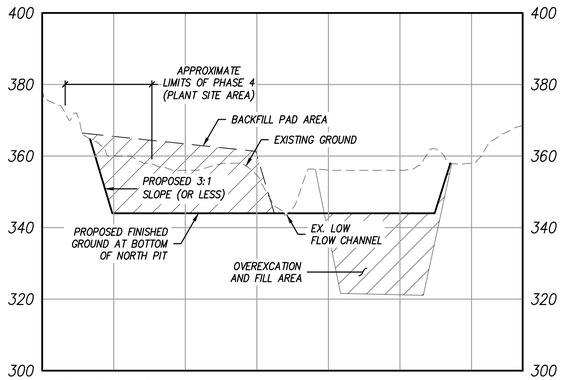
SECTION C-C
SCALE HORIZ: 1" = 200' VERT: 1"=20'



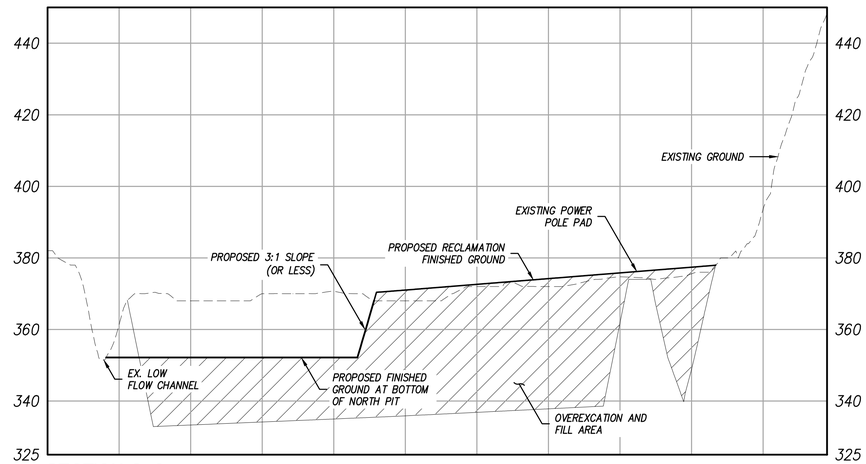
SECTION D-D
SCALE HORIZ: 1" = 200' VERT: 1"=20'



SECTION E-E
SCALE HORIZ: 1" = 200' VERT: 1"=20'



SECTION F-F
SCALE HORIZ: 1" = 200' VERT: 1"=20'



SECTION G-G
SCALE HORIZ: 1" = 200' VERT: 1"=20'

UTILITY NOTE:

CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY. NO GRADING WITHIN 20' OF EXISTING STEEL LATTICE TOWER FOUNDATIONS & NO GRADING WITHIN 30' OF EXISTING STEEL POLE FOUNDATION.

FOR REVIEW ONLY

SCALE: 1" = 200'

0 100 200 400

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

PRIVATE CONTRACT

SHEET 8 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

SITE CROSS-SECTIONS FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210-1791

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

Approved
COUNTY ENGINEER
BY:
Date

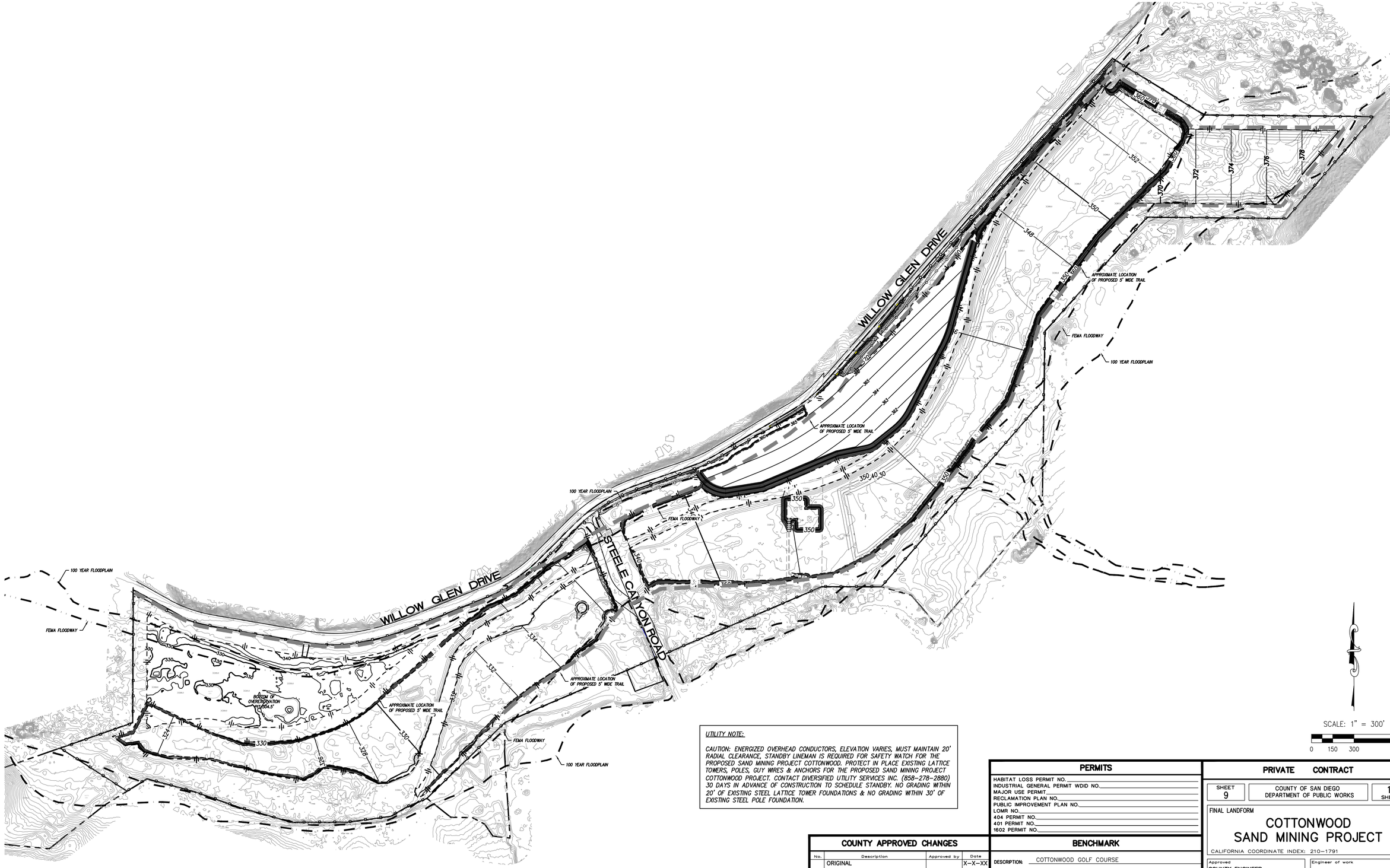
Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FILE NO.

7/14/2024 10:53 PM



FOR REVIEW ONLY

UTILITY NOTE:

CAUTION: ENERGIZED OVERHEAD CONDUCTORS, ELEVATION VARIES, MUST MAINTAIN 20' RADIAL CLEARANCE, STANDBY LINEMAN IS REQUIRED FOR SAFETY WATCH FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD. PROTECT IN PLACE EXISTING LATTICE TOWERS, POLES, GUY WIRES & ANCHORS FOR THE PROPOSED SAND MINING PROJECT COTTONWOOD PROJECT. CONTACT DIVERSIFIED UTILITY SERVICES INC. (858-278-2880) 30 DAYS IN ADVANCE OF CONSTRUCTION TO SCHEDULE STANDBY. NO GRADING WITHIN 20' OF EXISTING STEEL LATTICE TOWER FOUNDATIONS & NO GRADING WITHIN 30' OF EXISTING STEEL POLE FOUNDATION.

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE

LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3

RECORD FROM: ROS 16512

ELEVATION: 488.50 FEET DATUM: NGVD 29

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

PRIVATE CONTRACT

SHEET 9 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

FINAL LANDFORM

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210-1791

Approved COUNTY ENGINEER BY: Date

Engineer of work WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FILE NO.

7/13/2024 10:07 PM

RIPARIAN FOREST PLANT PALETTE
(15.39 acres)

Species	Common Name	Spacing on Center (feet)	Grouping Size	Number Per Acre
Container Plantings[1]				
Artemisia dracunculus	tarragon	5	5	100
Baccharis salicifolia	mule fat	6	10	200
Distichlis spicata	saltgrass	10	3	150
Iva hayesiana	San Diego marsh elder	5	5	120
Platanus racemosa	western sycamore	15	3	50
Populus fremonti ssp. *fremonti*	western cottonwood	15	5	50
Quercus agrifolia	California live oak	15	3	50
Rosa californica	California wild rose	5	3	100
Salix exigua	sand bar willow	8	5	120
Salix gooddingii	black willow	12	5	150
Salix laevigata	red willow	12	5	180
Salix lasiolepis	arroyo willow	12	5	180
Sambucus nigra	blue elderberry	10	3	50
			Total	**1,500**

Scientific Name	Common Name	% Purity/ Germination	Pounds Per Acre
Seed Mixture[1]			
Ambrosia psilostachya	western ragweed	45/45	4
Anemopsis californica	yerba mansa	55/80	1
Artemisia douglasiana	Douglas mugwort	15/40	3
Artemisia palmeri	Palmer's sagebrush	20/50	2
Baccharis salicifolia	mule fat	10/20	3
Baccharis sarothroides	broom baccharis	7/42	1
Bolboschoenus maritimus	alkali bulrush	90/60	1
Eleocharis macrostachys	pale spike-rush	95/60	1
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	95/80	1
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5
Oenothera elata ssp. *hookeri*	evening primrose	98/84	0.5
Pluchea odorata	salt marsh fleabane	30/40	2
		Total	**20.0***

[1] The quantities and amount of container stock and seed to be order would be determined following reclamation of each phase/subphase based on the exact of area disturbed as part of mining activities. Substitutions require approval of the Restoration Specialist.

* No less than 20 lbs. per acre of seed shall be installed.

STREAMBED (EMERGENT WETLAND) SEED MIXTURE
(9.49 acres)

Scientific Name	Common Name	%Purity/ Germination	Pounds per Acre
Seed Mixture[1]			
Anemopsis californica	yerba mansa	55/80	1
Artemisia douglasiana	Douglas' sagewort	15/40	3
Bolboschoenus maritimus	alkali bulrush	90/60	1
Cyperus eragrostis	tall flatsedge	80/75	1
Eleocharis macrostachys	pale spike-rush	95/60	1
Erythranthe cardinalis (*Mimulus cardinalis*)	Cardinal monkey flower	5/64	0.5
Erythranthe guttata (*Mimulus guttatus*)	seep monkey flower	10/69	0.5
Euthamia occidentalis	western goldenrod	24/45	1
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5
Pluchea odorata	salt marsh fleabane	30/40	2
		Total	**11.5***

[1] The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities. Substitutions require approval of the Restoration Specialist.

* No less than 10 lbs. per acre of seed shall be installed.

EROSION CONTROL SEED MIX
(97.90 acres)

Species	Common Name	Percent Purity/ Germination	Pounds Per Acre[1]
Ambrosia psilostachya	western ragweed	45/45	6
Bromus carinatus	California bromegrass	95/90	8
Vulpia microstachys	small fescue	98/75	20
Plantago insularis	plantain	90/80	20
		Total	**54***

[1] The final quantities and amount of container stock and seed to be order would be determined following reclamation of each phase/subphase based on the exact of area disturbed as part of mining activities. Substitutions require approval of the Restoration Specialist.

* No less than 50 lbs. per acre of seed shall be installed.

RIPARIAN SCRUB PLANT PALETTE
(84.84 acres)

Scientific Name	Common Name	Spacing on Center (ft.)	Grouping Size	Number Per Acre
Container Stock[1]				
Ambrosia pumila [2,3]	San Diego ambrosia	5	5	25
Artemisia dracunculus	tarragon	5	5	200
Asclepias fascicularis	narrow leaf milkweed	5	3	50
Baccharis salicifolia	mule fat	6	10	220
Croton californicus	California croton	5	5	200
Distichlis spicata	saltgrass	10	3	200
Ericameria palmeri var. *palmeri* [3]	Palmer's goldenbush	5	5	50
Iva hayesiana	San Diego marsh elder	5	5	200
Platanus racemosa	western sycamore	15	3	30
Populus fremonti ssp. *fremonti*	western cottonwood	15	3	30
Rosa californica	California wild rose	5	3	50
Salix exigua	sand bar willow	8	5	180
Salix gooddingii	black willow	12	5	100
Salix laevigata	red willow	12	5	30
Salix lasiolepis	arroyo willow	12	5	30
Sambucus nigra	blue elderberry	10	3	100
			Total	**1,695**

Scientific Name	Common Name	%Purity/ Germination	Pounds Per Acre
Seed Mixture[1]			
Ambrosia psilostachya	western ragweed	45/45	4
Artemisia douglasiana	Douglas' sagewort	15/40	3
Artemisia palmeri	Palmer's sagebrush	20/50	2
Baccharis salicifolia	mule fat	10/20	3
Baccharis sarothroides	broom baccharis	7/42	1
Bolboschoenus maritimus	alkali bulrush	90/60	1
Croton californicus	California croton	90/40	1
Eleocharis macrostachys	pale spike-rush	95/60	1
Isocoma menziesii	goldenbush	18/40	1
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	95/80	1
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5
Oenothera elata ssp. *hookeri*	evening primrose	98/84	0.5
Pluchea odorata	salt marsh fleabane	30/40	2
		Total	**21.0***

[1] The quantity of seed ordered for each phase/subphase will be determined based on the exact size of the area disturbed as part of mining activities. Substitutions require approval of the Restoration Specialist.

[2] If available at a nursery; should be installed in the higher elevation portions of this habitat (i.e., closer to the upland slopes).

[3] Special status species.

* No less than 20 lbs. per acre of seed shall be installed.

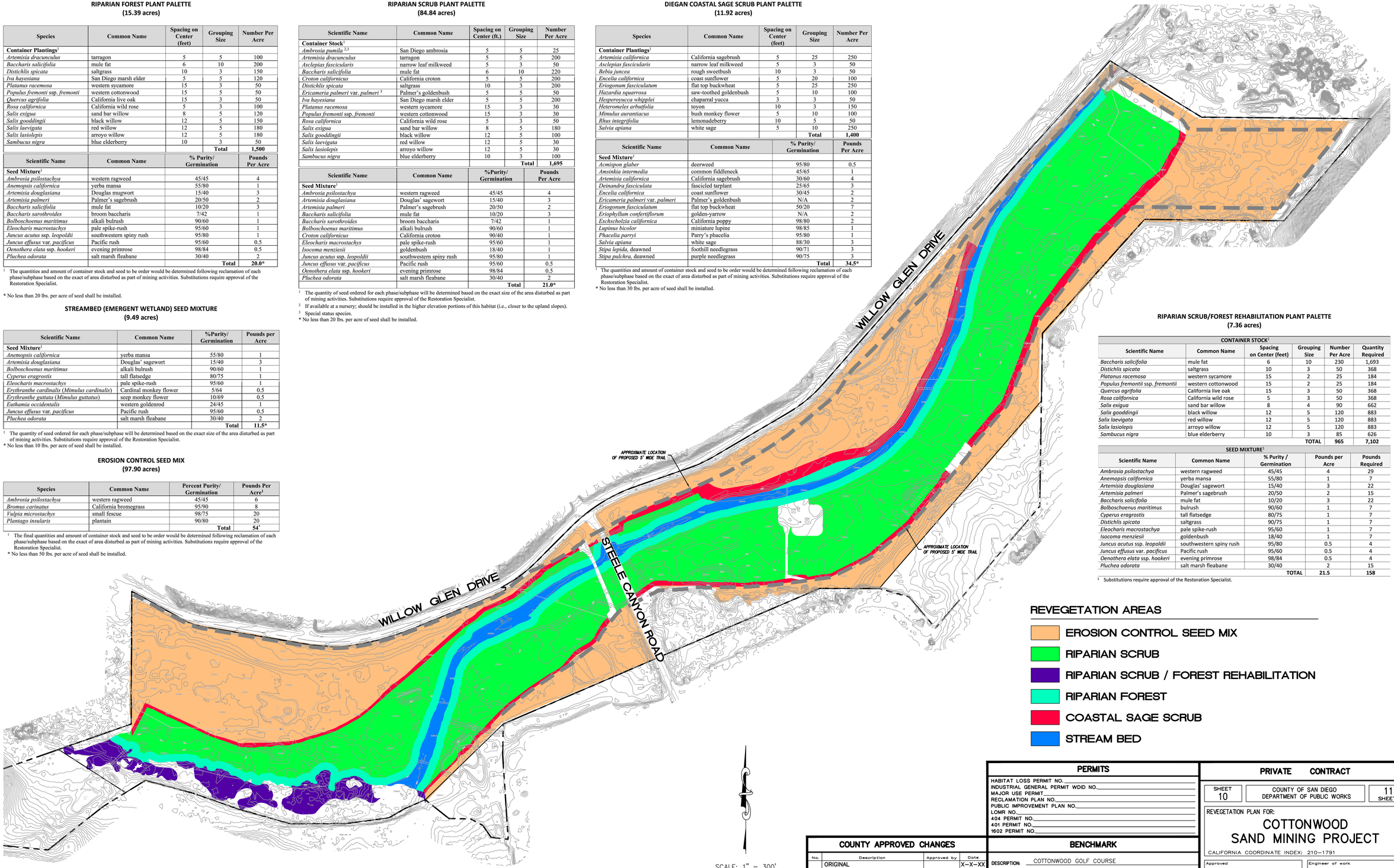
DIEGAN COASTAL SAGE SCRUB PLANT PALETTE
(11.92 acres)

Species	Common Name	Spacing on Center (feet)	Grouping Size	Number Per Acre
Container Plantings[1]				
Artemisia californica	California sagebrush	5	25	250
Asclepias fascicularis	narrow leaf milkweed	5	3	50
Bebbia juncea	rough sweetbush	10	3	50
Encelia californica	coast sunflower	5	20	100
Eriogomum fasciculatum	flat top buckwheat	5	25	250
Hazardia squarrosa	saw-toothed goldenbush	5	10	100
Hesperoyucca whipplei	chaparral yucca	3	3	50
Heteromeles arbutfolia	toyon	10	3	150
Mimulus aurantiacus	bush monkey flower	5	10	100
Rhus integrifolia	lemonadeberry	10	5	50
Salvia apiana	white sage	5	10	250
			Total	**1,400**

Scientific Name	Common Name	% Purity/ Germination	Pounds Per Acre
Seed Mixture[1]			
Acmispon glaber	deerweed	95/80	0.5
Amsinkia intermedia	common fiddleneck	45/65	1
Artemisia californica	California sagebrush	30/60	4
Deinandra fasciculata	fascicled tarplant	25/65	3
Encelia californica	coast sunflower	30/45	2
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	N/A	2
Eriogonum fasciculatum	flat top buckwheat	50/20	7
Eriophyllum confertiflorum	golden-yarrow	N/A	2
Eschscholzia californica	California poppy	98/80	2
Lupinus bicolor	miniature lupine	98/85	1
Phacelia parryi	Parry's phacelia	95/80	1
Salvia apiana	white sage	88/30	3
Stipa lepida, deawned	foothill needlegrass	90/71	3
Stipa pulchra, deawned	purple needlegrass	90/75	3
		Total	**34.5***

[1] The quantities and amount of container stock and seed to be order would be determined following reclamation of each phase/subphase based on the exact of area disturbed as part of mining activities. Substitutions require approval of the Restoration Specialist.

* No less than 30 lbs. per acre of seed shall be installed.



RIPARIAN SCRUB/FOREST REHABILITATION PLANT PALETTE
(7.36 acres)

CONTAINER STOCK[1]					
Scientific Name	Common Name	Spacing on Center (feet)	Grouping Size	Number Per Acre	Quantity Required
Baccharis salicifolia	mule fat	6	10	230	1,693
Distichlis spicata	saltgrass	10	3	50	368
Platanus racemosa	western sycamore	15	2	25	184
Populus fremontii ssp. *fremontii*	western cottonwood	15	2	25	184
Quercus agrifolia	California live oak	15	3	50	368
Rosa californica	California wild rose	5	3	50	368
Salix exigua	sand bar willow	8	4	90	662
Salix gooddingii	black willow	12	5	120	883
Salix laevigata	red willow	12	5	120	883
Salix lasiolepis	arroyo willow	12	5	120	883
Sambucus nigra	blue elderberry	10	3	85	626
			TOTAL	**965**	**7,102**

SEED MIXTURE[1]				
Scientific Name	Common Name	% Purity / Germination	Pounds per Acre	Pounds Required
Ambrosia psilostachya	western ragweed	45/45	4	29
Anemopsis californica	yerba mansa	55/80	1	7
Artemisia douglasiana	Douglas' sagewort	15/40	3	22
Artemisia palmeri	Palmer's sagebrush	20/50	2	15
Baccharis salicifolia	mule fat	10/20	3	22
Bolboschoenus maritimus	bulrush	90/60	1	7
Cyperus eragrostis	tall flatsedge	80/75	1	7
Distichlis spicata	saltgrass	90/75	1	7
Eleocharis macrostachya	pale spike-rush	95/60	1	7
Isocoma menziesii	goldenbush	18/40	1	7
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	95/80	0.5	4
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5	4
Oenothera elata ssp. *hookeri*	evening primrose	98/84	0.5	4
Pluchea odorata	salt marsh fleabane	30/40	2	15
		TOTAL	**21.5**	**158**

[1] Substitutions require approval of the Restoration Specialist.

REVEGETATION AREAS

- EROSION CONTROL SEED MIX
- RIPARIAN SCRUB
- RIPARIAN SCRUB / FOREST REHABILITATION
- RIPARIAN FOREST
- COASTAL SAGE SCRUB
- STREAM BED

SCALE: 1" = 300'

0 150 300 600

FOR REVIEW ONLY

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

PRIVATE CONTRACT

SHEET 10 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

REVEGETATION PLAN FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210-1791

Approved COUNTY ENGINEER BY: Date

Engineer of work WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FILE NO.

7/13/2024 7:18 PM

THIS SURVEY WAS BASED ON A PRELIMINARY TITLE REPORT ISSUED BY FIRST AMERICAN TITLE COMPANY, AS ORDER NO. 1235014-20, DATED FEBRUARY 12, 2002. EFFECTS OF AGREEMENTS, PERMITS, LIENS, ASSESSMENTS, LEASES, COVENANTS, AND/OR RESTRICTIONS APPEARING IN SAID POLICY AS ITEM NOS. 1-4, 11, 12, 18, 22-24, 26, 29, 32-34, 36, 38, 39, 44, 47, 54, 55, 57, 63, 65, 66, AND 70-72, INCLUSIVE, ARE NOT NOTED ON THIS SURVEY.

(5) RIGHTS OF THE PUBLIC IN AND TO ANY PORTION OF THE HEREIN DESCRIBED PROPERTY SHOWN AS LYING WITHIN ROADS, STREETS OR HIGHWAYS.

(6) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED APRIL 29, 1914 IN BOOK 651, PAGE 63 OF DEEDS. THE EXACT LOCATION AND EXTENT OF SAID EASEMENT CANNOT BE DETERMINED FROM RECORD AND IS NOT PLOTTED HEREON.

(7) AN EASEMENT FOR POLE LINES AND INCIDENTAL PURPOSES RECORDED MAY 10, 1916 IN BOOK 708, PAGE 297 OF DEEDS. THE EXACT LOCATION AND EXTENT OF SAID EASEMENT CANNOT BE DETERMINED FROM RECORD AND IS NOT PLOTTED HEREON.

(8) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED MAY 10, 1916 IN BOOK 708, PAGE 298 OF DEEDS. THE EXACT LOCATION AND EXTENT OF SAID EASEMENT CANNOT BE DETERMINED FROM RECORD AND IS NOT PLOTTED HEREON.

(9) AN EASEMENT FOR PUBLIC ROAD AND INCIDENTAL PURPOSES RECORDED MARCH 28, 1922 IN BOOK 751, PAGE 264 OF DEEDS.

(10) AN EASEMENT FOR ROAD PURPOSES AND INCIDENTAL PURPOSES RECORDED MARCH 28, 1928 IN BOOK 751, PAGE 265 OF DEEDS.

(13) THE PRIVILEGE AND RIGHT TO EXTEND DRAINAGE STRUCTURES, EXCAVATION AND EMBANKMENT SLOPES RECORDED OCTOBER 23, 1940 IN BOOK 1084, PAGE 266 OF OFFICIAL RECORDS.

(14) AN EASEMENT AND RIGHT OF WAY FOR PUBLIC ROAD PURPOSES RECORDED APRIL 9, 1942, IN BOOK 1324, PAGE 363 OF OFFICIAL RECORDS.

(15) AN EASEMENT AND RIGHT OF WAY FOR PUBLIC ROAD PURPOSES RECORDED MAY 1, 1942, IN BOOK 1341, PAGE 258 OF OFFICIAL RECORDS.

(16) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED NOVEMBER 10, 1948 IN BOOK 3013, PAGE 199 OF OFFICIAL RECORDS.

(17) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED APRIL 11, 1951 IN BOOK 4048, PAGE 482 OF OFFICIAL RECORDS. NO WIDTH SPECIFIED IN SAID DOCUMENT.

(19) AN EASEMENT FOR RIGHT OF WAY PURPOSES IN, UPON, OVER, UNDER AND ACROSS THE LANDS HEREINAFTER DESCRIBED, TO ERECT, CONSTRUCT, RECONSTRUCT, REPLACE, MAINTAIN AND USE A LINE OR INDEPENDENT LINES OF POLES AND/OR STEEL TOWERS AND WIRES AND/OR CABLES SUSPENDED THEREON AND SUPPORTED THEREBY, AND UNDERGROUND CONDUITS, CABLES, VAULTS AND MANHOLES, FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY AND FOR ALL OTHER PURPOSES CONNECTED THEREWITH, AND FOR TELEPHONE, SIGNAL AND COMMUNICATION PURPOSES, INCLUDING GUYS, ANCHORAGE, CROSSARMS, BRACES AND ALL OTHER APPLIANCES AND FIXTURES FOR USE IN CONNECTION THEREWITH AND ALSO FOR PIPELINES FOR ANY AND ALL PURPOSES, TOGETHER WITH THEIR NECESSARY FIXTURES AND APPURTENANCES, AT SUCH LOCATIONS AND ELEVATIONS, UPON, ALONG, OVER AND UNDER THE HEREINAFTER DESCRIBED RIGHT OF WAY AS GRANTEE MAY NOW OR HEREAFTER DEEM CONVENIENT AND NECESSARY FROM TIME TO TIME, TOGETHER WITH THE RIGHT OF INGRESS THERETO AND EGRESS THEREFROM, TO AND ALONG SAID RIGHT OF WAY BY A PRACTICAL ROUTE OR ROUTES IN, UPON, OVER AND ACROSS THE HEREINAFTER DESCRIBED LANDS, TOGETHER WITH THE RIGHT TO CLEAR AND KEEP CLEAR SAID RIGHT OF WAY FROM EXPLOSIVES, BUILDINGS, STRUCTURES AND INFLAMMABLE MATERIALS FOR PROTECTION FROM FIRE AND OTHER HAZARDS AND INCIDENTAL PURPOSES RECORDED FEBRUARY 9, 1960 AS FILE NO. 26567 OF OFFICIAL RECORDS.

(20) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED APRIL 6, 1960 AS FILE NO. 70178 OF OFFICIAL RECORDS.

(21) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED OCTOBER 24, 1960 AS FILE NO. 210673 OF OFFICIAL RECORDS.

(25) AN EASEMENT AND RIGHT OF WAY FOR PUBLIC ROAD PURPOSES RECORDED MARCH 29, 1962 AS FILE NO. 53378 OFFICIAL RECORDS.

(27) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED JUNE 8, 1962 AS FILE NO. 98151 OF OFFICIAL RECORDS.

(28) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED SEPTEMBER 23, 1963 AS FILE NO. 169818 OF OFFICIAL RECORDS. NOT PLOTTABLE

(30) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED OCTOBER 1, 1963 AS FILE NO. 175212 OF OFFICIAL RECORDS.

(31) THE PRIVILEGE AND RIGHT TO EXTEND DRAINAGE STRUCTURES, EXCAVATION AND EMBANKMENT SLOPES RECORDED FEBRUARY 14, 1964 AS FILE NO. 28666 AND 28667 OF OFFICIAL RECORDS.

(35) AN EASEMENT FOR PIPELINES AND INCIDENTAL PURPOSES RECORDED MARCH 31, 1966 AS FILE NO. 54103 OF OFFICIAL RECORDS.

(37) AN EASEMENT FOR PIPELINES FOR WELLS AND INCIDENTAL PURPOSES RECORDED MARCH 31, 1966 AS FILE NO. 54104 OF OFFICIAL RECORDS. THE EXACT LOCATION AND EXTENT OF SAID EASEMENT CANNOT BE DETERMINED FROM RECORD AND IS NOT PLOTTED HEREON.

(40) AN EASEMENT FOR DRAINAGE AND INCIDENTAL PURPOSES AS DELINEATED AND DESIGNATED ON MAP 9553.

(41) AN EASEMENT FOR OPEN SPACE AND INCIDENTAL PURPOSES AS DELINEATED AND DESIGNATED ON MAP 9553.

(42) AN EASEMENT FOR PIPELINES FOR WELLS AND INCIDENTAL PURPOSES RECORDED JUNE 27, 1978 AS FILE NO. 78-267214 OF OFFICIAL RECORDS.

(43) AN EASEMENT FOR DRAINAGE CHANNEL AND INCIDENTAL PURPOSES RECORDED OCTOBER 8, 1979 AS FILE NO. 79-419917 OF OFFICIAL RECORDS.

(45) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED AUGUST 12, 1980 AS FILE NO. 80-256258 OF OFFICIAL RECORDS.

(46) AN EASEMENT FOR ELECTRICAL, GAS AND COMMUNICATION SYSTEMS, TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS AND INCIDENTAL PURPOSES RECORDED OCTOBER 7, 1980 AS FILE NO. 80-329857 OF OFFICIAL RECORDS. THE EXACT LOCATION AND EXTENT OF SAID EASEMENT CANNOT BE DETERMINED FROM RECORD AND IS NOT PLOTTED HEREON.

(48) THE PRIVILEGE AND RIGHT TO EXTEND DRAINAGE STRUCTURES AS GRANTED IN IRREVOCABLE OFFER RECORDED JULY 20, 1984 AS FILE NO. 84-275597 AND WAS ACCEPTED JUNE 3, 1992 AS FILE NO. 1992-0344626 BOTH OF OFFICIAL RECORDS.

(49) AN IRREVOCABLE OFFER TO DEDICATE REAL PROPERTY FOR PUBLIC RIGHT OF WAY PURPOSES RECORDED JULY 20, 1984 AS FILE NO. 84-275597 OF OFFICIAL RECORDS.

(50) AN IRREVOCABLE OFFER TO DEDICATE REAL PROPERTY FOR PUBLIC RIGHT OF WAY PURPOSES RECORDED JULY 20, 1984 AS FILE NO. 84-275598 OF OFFICIAL RECORDS.

(51) AN IRREVOCABLE OFFER TO DEDICATE REAL PROPERTY FOR PUBLIC RIGHT OF WAY PURPOSES RECORDED JULY 20, 1984 AS FILE NO. 84-275599 OF OFFICIAL RECORDS.

(52) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED AUGUST 3, 1984 AS FILE NO. 84-295705 OF OFFICIAL RECORDS.

(53) AN EASEMENT FOR DRAINAGE SYSTEM AND INCIDENTAL PURPOSES RECORDED AUGUST 20, 1984 AS FILE NO. 84-317325 OF OFFICIAL RECORDS.

(56) AN EASEMENT FOR DRAINAGE AND INCIDENTAL PURPOSES RECORDED MAY 1, 1985 AS FILE NO. 85-152525 OF OFFICIAL RECORDS.

(58) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED SEPTEMBER 30, 1986 AS FILE NO. 86-435379 OF OFFICIAL RECORDS.

(59) AN EASEMENT FOR THE INSTALLATION, CONSTRUCTION, MAINTENANCE, REPAIR, REPLACEMENT, RECONSTRUCTION AND INSPECTION OF AN ENCLOSED OR UNENCLOSED FLOOD DRAINAGE CHANNEL AND ALL STRUCTURES INCIDENTAL THERETO, AND FOR THE FLOWAGE OF ANY WATERS AND INCIDENTAL PURPOSES RECORDED DECEMBER 30, 1987 AS FILE NO. 87-713689 OF OFFICIAL RECORDS.

(60) AN EASEMENT FOR PUBLIC HIGHWAY AND INCIDENTAL PURPOSES RECORDED MARCH 24, 1988 AS FILE NO. 88-134732 OF OFFICIAL RECORDS. SAID INSTRUMENT ALSO GRANTS THE PRIVILEGE AND RIGHT TO EXTEND AND MAINTAIN DRAINAGE STRUCTURES AND EXCAVATION AND EMBANKMENT SLOPES.

(61) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED AUGUST 22, 1988 AS FILE NO. 88-416623 OF OFFICIAL RECORDS. NOT PLOTTABLE.

(62) AN EASEMENT FOR EITHER OR BOTH POLE LINES, UNDERGROUND CONDUITS AND INCIDENTAL PURPOSES TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS RECORDED DECEMBER 7, 1988 AS FILE NO. 88-628567 OF OFFICIAL RECORDS.

(64) AN EASEMENT FOR SLOPE, PUBLIC HIGHWAY AND INCIDENTAL PURPOSES RECORDED AUGUST 28, 1990 AS FILE NO. 90-468529 OF OFFICIAL RECORDS.

(67) AN EASEMENT FOR LAYING UNDERGROUND WATER PIPELINES AND LATERALS, MAIN SEWER LINES, SEWER TRUNK LINES, COLLECTION LINES AND LATERALS, SEWER MANHOLES AND OTHER UNDERGROUND AND SURFACE STRUCTURES APPURTENANT TO SAID WATER AND SEWER LINES AND INCIDENTAL PURPOSES RECORDED JUNE 26, 1991 AS FILE NO. 91-0309793 OF OFFICIAL RECORDS.

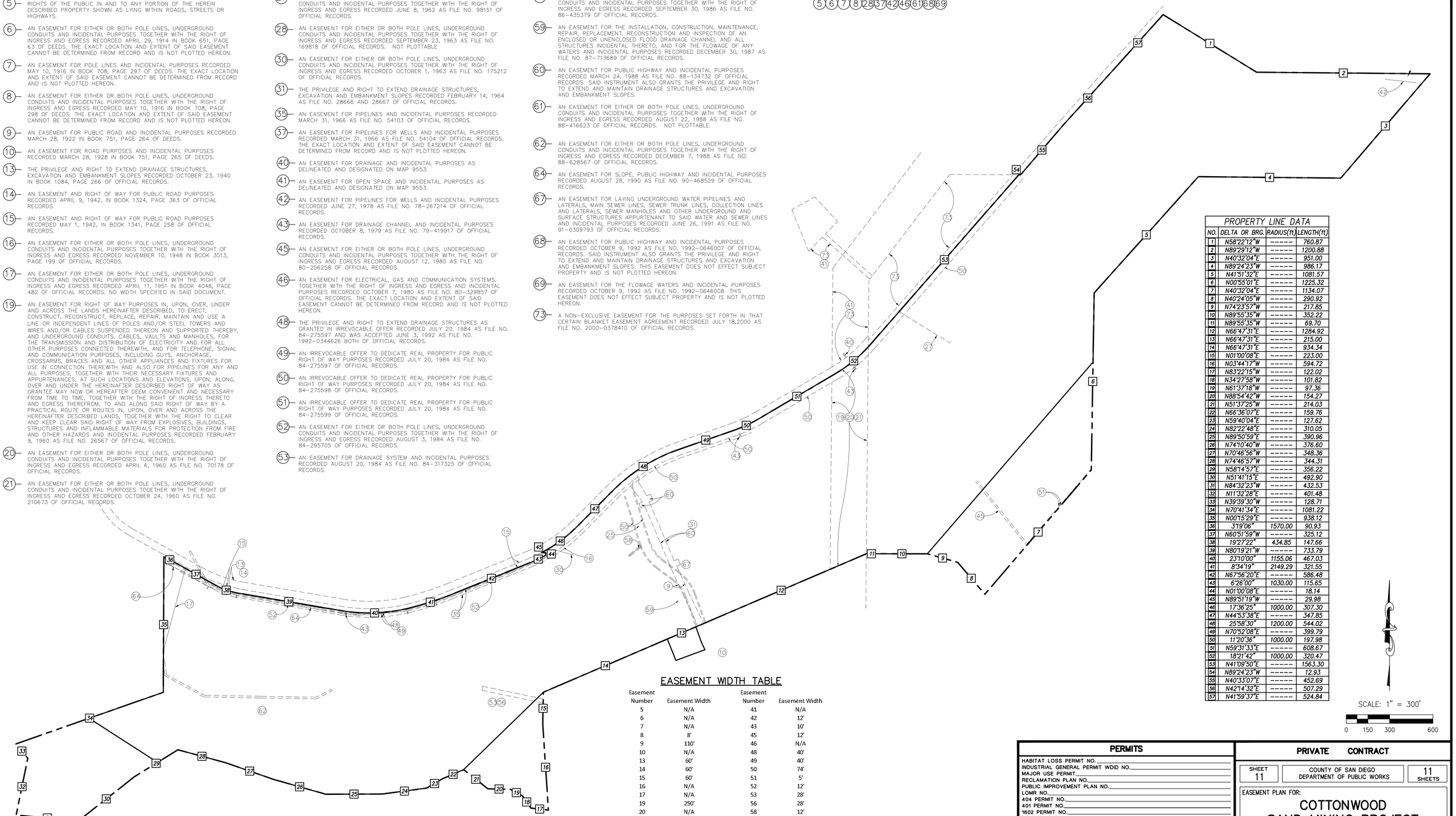
(68) AN EASEMENT FOR PUBLIC HIGHWAY AND INCIDENTAL PURPOSES RECORDED OCTOBER 9, 1992 AS FILE NO. 1992-0646007 OF OFFICIAL RECORDS. SAID INSTRUMENT ALSO GRANTS THE PRIVILEGE AND RIGHT TO EXTEND AND MAINTAIN DRAINAGE STRUCTURES AND EXCAVATION AND EMBANKMENT SLOPES. THIS EASEMENT DOES NOT EFFECT SUBJECT PROPERTY AND IS NOT PLOTTED HEREON.

(69) AN EASEMENT FOR THE FLOWAGE WATERS AND INCIDENTAL PURPOSES RECORDED OCTOBER 9, 1992 AS FILE NO. 1992-0646008. THIS EASEMENT DOES NOT EFFECT SUBJECT PROPERTY AND IS NOT PLOTTED HEREON.

(73) A NON-EXCLUSIVE EASEMENT FOR THE PURPOSES SET FORTH IN THAT CERTAIN BLANKET EASEMENT AGREEMENT RECORDED JULY 18,2000 AS FILE NO. 2000-0378410 OF OFFICIAL RECORDS.

NON-PLOTTABLE EASEMENTS
THE EXACT LOCATION AND EXTENT OF SAID EASEMENT CANNOT BE DETERMINED FROM RECORD AND IS NOT PLOTTED HEREON.

(5) (6) (7) (8) (28) (37) (42) (46) (61) (68) (69)



PROPERTY LINE DATA

NO.	DELTA OR BRG.	RADIUS(ft)	LENGTH(ft)
1	N58°22'12"W	------	760.87
2	N89°29'12"W	------	1200.88
3	N40°32'04"E	------	951.00
4	N89°24'23"W	------	986.17
5	N41°51'32"E	------	1081.57
6	N00°55'01"E	------	1225.32
7	N40°32'04"E	------	1134.07
8	N40°24'05"W	------	290.92
9	N74°23'57"W	------	217.85
10	N89°55'35"W	------	352.22
11	N89°55'35"W	------	69.70
12	N66°47'31"E	------	1284.92
13	N66°47'31"E	------	215.00
14	N66°47'31"E	------	934.34
15	N01°00'08"E	------	223.00
16	N03°44'17"W	------	594.72
17	N83°22'15"W	------	122.02
18	N34°27'58"W	------	101.82
19	N61°37'18"W	------	97.36
20	N88°54'42"W	------	154.27
21	N51°37'25"W	------	214.03
22	N66°36'07"E	------	159.76
23	N59°40'04"E	------	127.62
24	N82°22'48"E	------	310.05
25	N89°50'59"E	------	390.96
26	N74°10'40"W	------	376.60
27	N70°46'56"W	------	348.36
28	N74°46'57"W	------	344.31
29	N58°14'57"E	------	356.22
30	N51°41'15"E	------	492.90
31	N84°32'23"W	------	432.53
32	N11°32'28"E	------	401.48
33	N39°39'30"W	------	128.71
34	N70°41'34"E	------	1081.22
35	N00°15'29"E	------	938.12
36	3°19'06"	1570.00	90.93
37	N60°51'59"W	------	325.12
38	19°27'22"	434.85	147.66
39	N80°19'21"W	------	733.79
40	23°10'00"	1155.06	467.03
41	8°34'19"	2149.29	321.55
42	N67°56'20"E	------	586.48
43	6°26'00"	1030.00	115.65
44	N01°00'08"E	------	18.14
45	N89°51'19"W	------	29.98
46	17°36'25"	1000.00	307.30
47	N44°53'38"E	------	347.85
48	25°58'30"	1200.00	544.02
49	N70°52'08"E	------	399.79
50	11°20'36"	1000.00	197.98
51	N59°31'33"E	------	608.67
52	18°21'42"	1000.00	320.47
53	N41°09'50"E	------	1563.30
54	N89°24'23"W	------	12.93
55	N40°33'07"E	------	452.69
56	N42°14'32"E	------	507.29
57	N41°59'37"E	------	524.84

SCALE: 1" = 300'

0 150 300 600

EASEMENT WIDTH TABLE

Easement Number	Easement Width	Easement Number	Easement Width
5	N/A	41	N/A
6	N/A	42	12'
7	N/A	43	10'
8	8'	45	12'
9	110'	46	N/A
10	N/A	48	40'
13	60'	49	40'
14	60'	50	74'
15	60'	51	5'
16	N/A	52	12'
17	N/A	53	28'
19	250'	56	28'
20	N/A	58	12'
21	250'	59	20'
25	60'	60	N/A
27	12'	61	4'
28	N/A	62	12'
30	5'	64	N/A
31	60'	67	20'
35	30'	68	N/A
37	15'	69	N/A
40	N/A	73	N/A

COUNTY APPROVED CHANGES

No.	Description	Approved by	Date
	ORIGINAL		X-X-XX

PERMITS

HABITAT LOSS PERMIT NO.
INDUSTRIAL GENERAL PERMIT WDID NO.
MAJOR USE PERMIT
RECLAMATION PLAN NO.
PUBLIC IMPROVEMENT PLAN NO.
LOMR NO.
404 PERMIT NO.
401 PERMIT NO.
1602 PERMIT NO.

BENCHMARK

DESCRIPTION: COTTONWOOD GOLF COURSE
LOCATION: NAD 83, EPOCH 1998.50, ZONE 6, GEOID 3
RECORD FROM: ROS 16512
ELEVATION: 488.50 FEET DATUM: NGVD 29

PRIVATE CONTRACT

SHEET 11 | COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS | 11 SHEETS

EASEMENT PLAN FOR:

COTTONWOOD SAND MINING PROJECT

CALIFORNIA COORDINATE INDEX: 210-1791

Approved COUNTY ENGINEER
BY:
Date

Engineer of work
WAYNE W. CHANG R.C.E. 46548

Grading Permit No.

FOR REVIEW ONLY

ENGINEER'S NAME: CHANG CONSULTANTS
PHONE NO. (858) 692-0760

FILE NO.

12/5/2021 10:42 PM

Attachment B –
Environmental Documentation

Final Environmental Impact Report (FEIR) Is available under separate cover:

See County of San Diego web site:
https://www.sandiegocounty.gov/pds/ceqa/MUP-18-023.html

Attachment C – Public Documentation

The following comments and recommendations were received separately from those contained in the Final Environmental Impact Report

[Public comments provided during the environmental review process, and response to comments provided in accordance with the CA Environmental Quality Act (CEQA), are contained in the Final Environmental Impact Report (FEIR) available under separate cover.
Please see County of San Diego web site:
https://www.sandiegocounty.gov/pds/ceqa/MUP-18-023.html]

County of San Diego, Planning & Development Services

COMMUNITY PLANNING OR SPONSOR GROUP PROJECT REVIEW

ZONING DIVISION

Record ID(s): PDS2018-MUP-18-023 ;PDS2018-RP-18-001

Project Name: Cottonwood Sand Mine

Project Manager: Christopher Jacobs

Project Manager's Phone: christopher.jacobs@sdcounty.ca.gov

Scope of Review:

Board Policy I-1 states; *"groups may advise the appropriate boards and commissions on discretionary projects as well as on planning and land use matters important to the community."* Planning & Development Services (PDS) has received an application for the project referenced above. PDS requests that your Group evaluate and provide comment on the project in the following areas:

- The completeness and adequacy of the Project Description
- Compatibility of the project design with the character of the local community
- Consistency of the proposal with the Community Plan and applicable zoning regulations
- Specific concerns regarding the environmental effects of the project (e.g., traffic congestion, loss of biological resources, noise, water quality, depletion of groundwater resources)

Initial Review and Comment:

Shortly after an application submittal, a copy of the application materials will be forwarded to the Chair of the applicable Planning or Sponsor Group. The project should be scheduled for initial review and comment at the next Group meeting. The Group should provide comments on planning issues or informational needs to the PDS Project Manager.

Planning Group review and advisory vote:

A. **Projects that do not require public review of a CEQA document:** The Group will be notified of the proposed hearing date by the PDS Project Manager. The project should be scheduled for review and advisory vote at the *next Group meeting*.

B. **Projects that require public review of a CEQA document:** The Chair of the Planning Group will be noticed when an environmental document has been released for public review. The final review of the project by the Group, and any advisory vote taken, should occur *during the public review period*.

As part of its advisory role, the Group should provide comments on both the adequacy of any environmental document that is circulated and the planning issues associated with the proposed project. The comments provided by the Group will be forwarded to the decision-making body and considered by PDS in formulating its recommendation.

Notification of scheduled hearings:

In addition to the public notice and agenda requirements of the Brown Act, the Group Chair should notify the project applicant's point of contact and the PDS Project Manager at least two weeks in advance of the date and time of the scheduled meeting.

County of San Diego, Planning & Development Services

COMMUNITY PLANNING OR SPONSOR GROUP PROJECT RECOMMENDATION

ZONING DIVISION

Record ID(s): PDS2018-MUP-18-023 ;PDS2018-RP-18-001

Project Name: Cottonwood Sand Mine

Planning/Sponsor Group: Valle de Oro Community Planning Group

Results of Planning/Sponsor Group Review

Meeting Date: March 18, 2025

A. Comments made by the group on the proposed project.

Please find comments attached.

B. Advisory Vote: The Group ☒ **Did** ☐ **Did Not** make a formal recommendation, approval or denial on the project at this time.

If a formal recommendation was made, please check the appropriate box below:

MOTION:

- ☐ Approve without conditions
- ☐ Approve with recommended conditions
- ☒ Deny
- ☐ Continue

VOTE: 11 **Yes** 0 **No** 0 **Abstain** 4 **Vacant / Absent**

C. Recommended conditions of approval:

Reported by: Oday Yousif **Position:** Chair **Date:** 3/18/25

Please email recommendations to BOTH EMAILS;
Project Manager listed in email (in this format): Firstname.Lastname@sdcounty.ca.gov **and to** CommunityGroups.LUEG@sdcounty.ca.gov

Valle de Oro Community Planning Group
3755 Avocado Blvd #187, La Mesa, CA 91941
Oday Yousif, *Chair*

March 18, 2025

Via U.S. Postal Mail & Email: christopher.jacobs@sdcounty.ca.gov

San Diego County
Planning & Development Services
Attn: Christopher Jacobs
5510 Overland Avenue, Suite 310
San Diego, CA 92123

Subject: Recommendation of the Valle de Oro Community Planning Group for Cottonwood Sand Mine Major Use Permit (PDS2018-MUP-18-023) and Reclamation Plan (PDS2018-RP-18-001)

Dear Mr. Jacobs:

At the March 18, 2025, meeting of the Valle de Oro Community Planning Group (VDO CPG), the group formally moved to recommend denial of the Cottonwood Sand Mine Major Use Permit (PDS2018-MUP-18-023) and Reclamation Plan (PDS2018-RP-18-001). This detailed evaluation, based on the Scope of Review outlined in San Diego County Board Policy I-1, references materials from the County's official project webpage, previous community group communications, zoning regulations, the Valle de Oro Community Plan, and the detailed Valle de Oro Community Planning Group Comment Letter dated August 1, 2023.

1. Completeness and Adequacy of the Project Description

The project description as currently provided on the County's official project webpage lacks essential details and comprehensive clarity regarding key elements of the project. The increase in truck trips to a daily total of 146 round trips significantly alters the impact profile of this project. However, detailed analyses of this increase's impact on local infrastructure, traffic safety, and environmental quality remain insufficiently articulated. Additionally, the use of potentially hazardous backfill materials—such as concrete and asphalt—is mentioned without adequate discussion regarding their long-term environmental implications, potential contamination risks, and how these materials will affect local water quality, particularly within the sensitive Sweetwater River watershed. An additional concern is the lack of clear liability during and after the reclamation period. With the real possibility thar reclamation is not successful, the future of the site is compromised.

Further, the project description inadequately explains stormwater runoff management. Given the project's duration (at least 10 years), more robust planning and clear specifications are required for addressing potential pollution risks, soil erosion control, and overall impacts to the Sweetwater River watershed and the Sweetwater Reservoir downstream, which serves as a drinking water source for approximately 200,000 residents. The Stormwater Quality Management Plan must detail more specific protections to address runoff pollutants throughout the life of the project, rather than relying on generalized or future promises of mitigation.

Valle de Oro Community Planning Group
3755 Avocado Blvd #187, La Mesa, CA 91941
Oday Yousif, *Chair*

2. Compatibility of Project Design with the Local Community

The Cottonwood Sand Mine project's proposed industrial activities starkly contrast with the semi-rural and suburban character of the Rancho San Diego area, severely impacting residents' quality of life. The Valle de Oro community prides itself on its harmonious blend of residential neighborhoods, natural open spaces, recreational amenities, and educational facilities. However, the project's proposed industrial operations—with minimal setbacks as close as 100 feet to residences—significantly threaten this community's harmony and character.

The area's visual and environmental aesthetic, marked by natural landforms, residential neighborhoods, and local wildlife habitats, would suffer irreversible disruption from the mine's industrial presence. Moreover, the proposed visual and structural intrusions—including the presence of industrial-scale equipment, noise barriers, conveyor systems, and heavy truck traffic—will create severe visual impacts, disrupting both the character and tranquility of the community.

The VDO CPG is particularly concerned about the project's potential to create cumulative impacts on noise pollution, airborne particulates, and aesthetic degradation, drastically altering the quality of life for local residents, students attending nearby schools, and seniors residing in local assisted living facilities.

3. Consistency with Community Plan and Zoning Regulations

The proposed Cottonwood Sand Mine Project is unequivocally inconsistent with both the Valle de Oro Community Plan and the San Diego County General Plan, particularly regarding land use and zoning designations. The site's zoning, designated explicitly as Open Space-Recreation, is meant to facilitate passive recreational uses, protect sensitive ecological areas, and conserve valuable open space resources. The introduction of industrial sand mining is fundamentally contrary to these zoning intentions, constituting inappropriate land use for this location.

Furthermore, the proposed project's proximity to critical Biological Resource Core Areas (BRCAs) significantly undermines key objectives of the San Diego County Multiple Species Conservation Program (MSCP). These BRCAs are designed to preserve vital wildlife corridors and habitats for numerous sensitive and endangered species. Introducing industrial activities that fragment these habitats jeopardizes years of dedicated conservation efforts aimed at preserving the region's ecological integrity and biodiversity.

The project also directly violates specific guidelines stated in the Valle de Oro Community Plan that prioritize conserving sensitive habitats, protecting open space resources, and preventing environmental degradation from industrial uses, particularly along designated scenic corridors such as Willow Glen Drive. This scenic route's character, central to community identity, would be irrevocably altered, negatively affecting both ecological integrity and community aesthetics.

4. Specific Concerns Regarding Environmental Effects

- Traffic and Roadway Safety: The project's proposed traffic volume of 146 daily round-trip truck movements along Willow Glen Drive would exacerbate existing congestion, create significant public safety hazards, and increase noise and air pollution. The community already faces heavy traffic from existing mining operations and commercial activities, and adding extensive truck traffic would significantly heighten the risk of accidents and negatively impact local infrastructure.

Valle de Oro Community Planning Group
3755 Avocado Blvd #187, La Mesa, CA 91941
Oday Yousif, *Chair*

- Biological and Ecological Impacts: The Cottonwood Sand Mine would directly harm sensitive habitats and disrupt critical wildlife corridors essential for numerous protected and endangered species. Proposed mitigation measures, primarily deferred until after the conclusion of mining operations, fail to protect biological resources from immediate, ongoing, and potentially irreversible harm. Continuous mining activities over ten years would fragment and severely degrade habitat connectivity, undermining regional conservation efforts.

- Noise and Community Health: Noise pollution generated by mining operations—including heavy trucks, conveyors, and equipment—would exceed acceptable levels, adversely impacting nearby residential communities, educational institutions, and senior living facilities. Proposed noise barriers are inadequate in scope and effectiveness. Additionally, airborne particulate matter generated by mining operations significantly increases community health risks, including respiratory illnesses like Valley Fever.

- Hydrology, Stormwater, and Water Quality: The Stormwater Quality Management Plan does not adequately detail comprehensive protections necessary to prevent water contamination from mining operations. The potential use of hazardous backfill materials such as asphalt and concrete significantly increases the risk of contamination to groundwater and the Sweetwater River watershed. Such contamination would have severe implications for local ecosystems and downstream communities reliant upon these water resources.

Conclusion

Given the extensive concerns outlined above, including insufficient project description, fundamental incompatibility with the local community, inconsistency with the Valle de Oro Community Plan and County zoning regulations, and severe environmental impacts, the Valle de Oro Community Planning Group strongly recommends denial of the Cottonwood Sand Mine Major Use Permit (PDS2018-MUP-18-023) and Reclamation Plan (PDS2018-RP-18-001). We urge Planning and Development Services, the San Diego County Planning Commission, and the San Diego County Board of Supervisors to uphold the community's integrity, public health, safety, and environmental sustainability by rejecting this inappropriate and potentially damaging project. Thank you for your thoughtful consideration of our recommendation.

If you have further questions, I can be reached at (619) 403-0889.

Respectfully,



Oday Yousif, Chair

Cc: Monica.MontgomerySteppe@sdcounty.ca.gov
Joel.Anderson@sdcounty.ca.gov
DaniellaT.Hofreiter@sdcounty.ca.gov

Public Comments

Valle de Oro Community Planning Group
Voluntary Sign In Sheet.

Lori McMillan	lorimac007@gmail.com
JOE DUNCAN, BONNIE DUNCAN	JEDUNCAN98@AOL.COM BONMOM81@AOL.COM
Randall Wheeler	rwheeler6@cox.net
Angela Bailey	treehugr74@yahoo.com
MIKE + ANDREA SOLOWAY	MICHAELSOLOWAY@YAHOO.COM
Cliff & Susan Clifford	SUECliff@cox.net
Kathy Nutting	KJnutting@cox.net
JERI KRAUS	IRISHMREMKO@cox.net
Charles Grandot	Chipdot@cox.net
Cyndi Denny	CADTNT81@gmail.com
Steve Denny	C0575346@cox.net
Carolyn Shaw	cshawtrey@gmail.com
Desrell Fisher	
Jane DiVigni	
Susan & Mark Watts	Pasatiempo
Ed Woodruff	Spring Valley P. Planning Group
Sydney Longfellow	s.longfellow2010@gmail.com
Heidi Hauser	hauserheidi16@gmail.com
Carol Allen	callen2045@hotmail.com
Harry Allen	hallen777@hotmail.com

Valle de Oro Community Planning Group
Voluntary Sign In Sheet.

Name	Email (optional if you want to get VDO CPG updates)
Janet & Frank Williams	JanetWilliams@cox.net
Don & Kelly	KellyTKCK@aol.com
LARRY OLDS	LEOLDS124@GMAIL.COM
Brian Lorenz	brian@lorenzadvertising.com
Elizabeth Urquhart	eaurquhart@icloud.com
Patricia Knight	PattydKnight@yahoo.com
Brad Monroe	bradmonroe2011@gmail.com
Lynn Grant	Burlyn@gmail.com
Stephen Bickley	smkbickley@cox.net
Anne-Marie Jacques	sdn8vemom@Gmail.com
Robert Jacques	ht6455@Gmail.com
ELAINE PIERCE	EMARYpierce@AOL.com
Lori Loiselle	loiselle.lori@gmail.com
Marilyn Loiselle	
ROSE STEINHARDT	Rosest@MAC.com
Chris Jacobs	Christopher.Jacobs@sdcounty.ca.gov
Barbara Nowak	bnowaklabs@aol.com
Linda Crouch	lbunny713@yahoo.com
Lawrence Crouch	ikecrouch@cox.net

Valle de Oro Community Planning Group
Voluntary Sign In Sheet.

To submit your comment/complaint oday yousif@gmail.com

STEVE CASSOTTA	Ray Stamper
Sharon Cox	Kathy Hayes
John R Marsh	Laura Durick
Frances Foster	Tracy Weekley
Tom Colley	Everett Evleth
Dave Roman	Cherie Christian-Martinez
Stephen Reinstein	Danielle Martinez
Dan & Susan Autty	Cindy Jerhune
Philip T. Bailey	Kelly Mertes
Jackie Bailey	Gerry McLean
Jane + Todd Steen	Eric Sass
Mark & Karan Lawless	Lisa Griffiths
Stephen & Carolyn Kapp	Brenda Richmond
Eddie Bota	Linda Schrader
Betula Eliyha	Jeff SCHRADER
Susan Stathey	Sherrie Aldrich
Gregg Rosner	Dana Aldrich
Ruth Nelson	Lynne Dehneider
Sem Yee	E-A S.
Joanne Stamper	Lee Sherwood
	Henry Powell

Valle de Oro Community Planning Group
Voluntary Sign In Sheet.

Andrew Jeffery	MARK GRIPE
Robert Hatton	
LEONARD PINSON	
BERT Burley	
Rosalyn McKinney	
MIKE McKinney	
Lute Morton	
Araceli Puga Saldana	
Karen Monthan-Tedeno	
Steve Mitchell Lt Cdr USN (Ret)	
Bryanne Sickinger	
Preston Brown (JDCPG)	
Brittany Waddell	
Diane Wallace	
Gary Wallace	
RITA HENDRICKSON	
BARRY JANTZ	

SPEAKER CARD FOR PUBLIC COMMMENTS

County of San Diego
Valle de Oro Community Planning Group

Please complete and submit this card to the group Chair if you wish to speak on any agenda or non-agendized item. Please keep your comments brief while still communicating your concerns. The time allotted for public comment is two minutes per individual unless otherwise stated by the Chair during the meeting or arranged with the Chair prior to the meeting. Please provide the following information for the purpose of recognizing your comments:

Name: Lori Loiselle

Agenda Item No.: F1

Comment Summary: reasons it is not in the best interest of our community

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

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County of San Diego
Valle de Oro Community Planning Group

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Name: Robert JACOBS

Agenda Item No.: F1

Comment Summary: CONCERN ON ENVIROMENT // AFFECTON WEST SIDE OF WILLOWGLEN AND AFFECT TO SWEETWATER RESERVOIR AND COMMUNITIES TO SOUTH

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

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Name: Stephen Bickley

Agenda Item No.: F1

Comment Summary: County purchase for park & DNE golf course

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

SPEAKER CARD FOR PUBLIC COMMMENTS

County of San Diego
Valle de Oro Community Planning Group

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Name: BRAD MONROE

Agenda Item No.: F1

Comment Summary: STUDENT ACCESS

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

SPEAKER CARD FOR PUBLIC COMMMENTS

County of San Diego
Valle de Oro Community Planning Group

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Name: ROBERT FOSTER

Agenda Item No.: F1

Comment Summary: against the plan

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

SPEAKER CARD FOR PUBLIC COMMMENTS

County of San Diego
Valle de Oro Community Planning Group

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Name: Carolyn Chase

Agenda Item No.: F1

Comment Summary: _____

_____

_____

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

SPEAKER CARD FOR PUBLIC COMMMENTS

County of San Diego
Valle de Oro Community Planning Group

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Name: Randall Wheeler

Agenda Item No.: F 1

Comment Summary: breathing sand is harmful to health

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

SPEAKER CARD FOR PUBLIC COMMMENTS

County of San Diego
Valle de Oro Community Planning Group

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Name: Stephen Rewstein

Agenda Item No.: F1

Comment Summary: Totally inconsistent with our community

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

SPEAKER CARD FOR PUBLIC COMMMENTS

County of San Diego
Valle de Oro Community Planning Group

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Name: BARRY JANTZ

Agenda Item No.: F1

Comment Summary: NO ON SAND MINE

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

SPEAKER CARD FOR PUBLIC COMMMENTS

County of San Diego
Valle de Oro Community Planning Group

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Name: Theresa McKenna

Agenda Item No.: 1

Comment Summary: Health + Safety Concerns

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

SPEAKER CARD FOR PUBLIC COMMMENTS

County of San Diego
Valle de Oro Community Planning Group

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Name: Stephen Kapp

Agenda Item No.: #1

Comment Summary: Deny comment - since not zoning ordinance conforming or compatible.

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

SPEAKER CARD FOR PUBLIC COMMMENTS

County of San Diego
Valle de Oro Community Planning Group

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Name: Basil Zetouni

Agenda Item No.: F 1

Comment Summary: _____

_____

_____

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

SPEAKER CARD FOR PUBLIC COMMMENTS

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Name: Brittany Waddell

Agenda Item No.: F1

Comment Summary: Inadequacy of environmental impact analysis.

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

SPEAKER CARD FOR PUBLIC COMMMENTS

County of San Diego
Valle de Oro Community Planning Group

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Name: Dina Beebe

Agenda Item No.: \

Comment Summary: The county should think about the community well-are before profits

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

SPEAKER CARD FOR PUBLIC COMMMENTS

County of San Diego
Valle de Oro Community Planning Group

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Name: Lisa Griffiths

Agenda Item No.: _____

Comment Summary: Not the right thing for our community.

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

SPEAKER CARD FOR PUBLIC COMMMENTS

County of San Diego
Valle de Oro Community Planning Group

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Name: Josan Feathers

Agenda Item No.: F 1

Comment Summary: Oppose

The group Chair will recognize speakers in the order in which speaker cards were submitted. All comments shall be directed at the Chair. The Chair reserves the right to limit public comment. Alternatively, public comment via email or writing may be directed to the Chair, in writing.

roxana gores <roxsshuttles@yahoo.com>

I'm not able to make the Valley De Oro meeting on Tuesday March 18th.

I would like to voice my strong disagreement against this proposed sand mine. I've lived and own my homes on Willow Glen Dr since 1977 and my husband since 1976. Over the years we have lived with 2 sand mines and the Robertsons Ready Mix 96/Hesters quarry, which we were told by Joel Cloud it would only be in operation for 15 years and it was going to be a mom & pop operation. Here we are 45 years later still going strong at our expense. After all these years of growth there is no place for another sand mine in the middle of all these houses and apartments! From living across the street from the quarry I've contracted Valley Fever! You NEVER recover from Valley Fever it's with you till death. It can spread throughout your body. My life since getting Valley Fever has drastically changed for the worst. I wouldn't wish this on anyone! It only takes one cocci spore to be inhaled to be infected. So yes Valley Fever is in the soil/sand on Willow Glen Dr. any digging can release the spores. I can't imagine anyone would even think to OK a project like this in the Sweetwater river bottom where the water flows from Loveland Lake down to Sweetwater Lake, thats the main drinking water supply. We know what it's like to live by mining operations. Endless dust, blasting, constantly dealing with truck traffic. Constant noise. Rumbling from conveyor belts. Diesel fumes. And a very large eye sore! Last but most important health issues! Please stop this crazy idea of a sand plant in the middle of our beautiful neighborhood!

Thanks,
Peter and Roxana Gores

Beckysue <rsneary1956@gmail.com>

Hi I live in East County and am concerned about The Cottonwood Sand Mine Project.

It is pretty near an elementary school and senior housing and requires. very large trucks on Willow Road and Jamacha Road, not a good combination.

Probable contamination of Sweetwater River would occur, not "Environmental Justice" for people or wildlife!

Other creative uses I could see, a municipal lower cost golf course, pickleball, baseball, basketball, soccer,, tennis courts., hiking trails, bike trails.

There are a lot of nature reserves in the area, but also as San Diego continues the need for more housing density (very apparent in new homes over off Jamacha) having open space and recreational spaces replaces the "back yard" for urban high density hones.

This area happens to be on bus lines too.

Also a potential vacation RV area like "Camp Land by the Bay" or Pio Pico maybe?

These are all uses likely more acceptable to nearby residents and useful to the County, or if the homeowners in the area want to buy it for a private green space, I would not mind that. I would not be using it but wouldn't be sharing the road with giant trucks with trailers!

Please dont approve the Cottonwood Sand Mine!

Rebecca Neary

Jamul CA 91935

Linda Wilks <paintedpony1889@cox.net>

COTTONWOOD SAND MINE PROJECT

MUP-18-023

MARCH 18, 2025

This project should be denied as the EIR really presents no evidence that anything that is objectionable in it can be mitigated. The acreage is designated Open Space and for recreational use, NOT a sand mine. The present use complies with the three community plans that govern this area. It is completely illogical to tear up the heart of a community that is already in existence to go backwards and allow a sand mine here. This is not progress. The traffic study should be thrown out as it was done during the pandemic. It is impossible to mitigate the environmental lose of endangered fauna and flora. Gone is gone. This also applies to the Native American artifacts. Sand mines are identified under Prop 65 as a health hazard.

99% of the community is against it.

Not the right TIME!

Not the right PLACE!

Not the right PROJECT!

Please stop it now!

Sincerely,

Linda L. Wilks

mikayla.mitchell@gmail.com

This is for tonight's meeting - I am in opposition of the sandmine.

The Environmental and Community Impact of the Proposed Cottonwood Sand Mine in Rancho San Diego

73% decline in wildlife populations since 1970.

The proposed **Cottonwood Sand Mine** threatens Rancho San Diego's air, water, biodiversity, public health, and economic stability. This project, which aims to extract millions of tons of sand from the former **Cottonwood Golf Club**, presents **severe and irreversible risks** to the local environment and residents.

This document outlines the **scientific and economic consequences** of the mine, detailing the long-term damage it will cause to the region's ecology, infrastructure, and public health. The evidence overwhelmingly supports **rejecting** this project.

---

1. Irreversible Biodiversity Loss

Key Fact: The UN reports that **up to 1 million species** are at risk of extinction due to habitat destruction.

The proposed mine site is a **critical ecological corridor**, home to federally protected wetlands and essential habitat for **endangered species**, including the **least Bell's vireo (Vireo bellii pusillus)** and the **Southwestern willow flycatcher (Empidonax traillii extimus)**. Sand mining operations would **destroy and fragment** this vital ecosystem, pushing already vulnerable species closer to extinction.

Supporting Data:

- The **Global Living Planet Index** has recorded a **69% average decline in wildlife populations** since 1970, primarily due to land degradation and habitat loss (WWF, 2022).
- **Sand mining** leads to an annual **10% decline in species populations** in affected ecosystems (UNEP, 2019).

Destroying this habitat is **permanent and non-reversible**. There is no way to "restore" an ecosystem that has been **entirely excavated**.

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2. Air Pollution and Public Health Risks

Key Fact: Crystalline silica dust exposure is linked to lung cancer, COPD, and silicosis.

Sand mining releases **fine silica dust**, a **Group 1 Carcinogen** (World Health Organization), which is proven to cause **lung cancer, respiratory diseases, and premature deaths**. Nearby communities experience significantly higher rates of **asthma, cardiovascular disease, and neurological disorders** due to prolonged exposure.

Supporting Data:

- A **2021 study by the American Lung Association** found that individuals exposed to silica dust have a **25% increased risk of lung cancer**.
- **Children and the elderly** are the most vulnerable, with long-term exposure causing **irreversible lung damage** and **neurodevelopmental disorders**.

Rancho San Diego residents would be forced to **breathe in these toxins daily**. The community should not become a **test site for industrial air pollution.**

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3. Groundwater Depletion and Water Contamination

Key Fact: The U.S. Geological Survey states that **sand mining can permanently lower water tables** and reduce drinking water availability.

San Diego County already faces **severe water shortages**. The Cottonwood Sand Mine would **consume enormous amounts of groundwater**, worsening local drought conditions. Additionally, mining disrupts **natural filtration** processes, introducing **sediment, heavy metals, and contaminants** into aquifers that supply drinking water to humans and wildlife.

Supporting Data:

- A **2021 UNESCO report** found that sand mining is responsible for **up to 40% of groundwater depletion** in affected regions.
- San Diego **imports over 80% of its water**. Any local groundwater loss **further weakens water security** in an already drought-prone region.

Water is **San Diego's most valuable resource**. Allowing an industrial mining operation to **drain and pollute** it is reckless and irresponsible.

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4. Economic Consequences and Property Value Decline

Key Fact: Studies show property values near industrial mining operations can drop by 20-40%.

The presence of a **large-scale industrial sand mine** will cause **immediate property devaluation** in Rancho San Diego. Homes that were purchased in a **residential, green space environment** will suddenly be located next to an **active extraction site**. Homeowners and businesses will **lose value and potential buyers** due to the **health risks, noise, dust, and environmental degradation.**

Supporting Data:

- A **2020 study from the Journal of Real Estate Finance and Economics** found that homes within **one mile of an active mine** experience a **25% decline in property value**.
- Analysis of similar mines in **Wisconsin, Texas, and California** showed that **local businesses struggle** due to increased dust, noise, and traffic congestion.

For many residents, their home is their **largest financial investment**. The Cottonwood Sand Mine puts that investment **directly at risk**.

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5. Traffic Congestion and Infrastructure Strain

Key Fact: The project estimates **200 heavy trucks PER DAY**, worsening congestion and road deterioration.

The **constant flow of heavy mining trucks** along Campo Road and Willow Glen Drive will create:

- **Traffic bottlenecks** and long delays for local commuters.
- **Dangerous road conditions**, with a significant increase in **fatal truck accidents**.
- **Severe road damage**, requiring **millions in taxpayer-funded repairs**.

Supporting Data:

- According to the **U.S. Department of Transportation**, a **single heavy truck causes as much road damage as 9,600 cars**.
- **Fatal crashes involving heavy trucks** increase by **50% in areas with industrial mining operations** (National Highway Traffic Safety Administration, 2022).

This mine will turn **residential streets into a major industrial trucking route**, endangering drivers, pedestrians, and school zones.

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6. Coastal Erosion and Increased Flood Risks

Key Fact: Sand mining destroys natural flood barriers, increasing vulnerability to storms.

By extracting millions of tons of sand, the Cottonwood Sand Mine would contribute to **regional erosion** and **disrupt natural water flows**, increasing the risk of **flooding and storm damage** in surrounding areas.

San Diego is already **experiencing climate change impacts**—allowing this mine to **exacerbate coastal erosion and flood risks** is short-sighted and destructive.

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7. Threat to Endangered Species

Key Fact: Over 1,000 species on the IUCN Red List are impacted by mining.

This mine directly threatens **multiple endangered species**, including those dependent on riparian and wetland habitats.

Supporting Data:

- **40% decline in bird species** reliant on river ecosystems due to habitat destruction.

Once these species are gone, **they are gone forever**.

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8. Climate Change Acceleration

Key Fact: Resource extraction, including sand mining, has tripled since 1970, fueling climate change.

Sand mining is a **major contributor to climate change** due to its destruction of ecosystems that **store carbon and regulate temperature.**

Supporting Data:

- **Dredging releases trapped carbon**, worsening greenhouse gas emissions.

Approving this mine is a step **backward** in the fight against climate change.

Conclusion

The **Cottonwood Sand Mine project is an environmental and public health disaster.** The overwhelming scientific evidence demonstrates that this mine will:

- **Destroy biodiversity**
- **Poison the air and water**
- **Lower property values**
- **Worsen traffic and infrastructure decay**
- **Accelerate climate change**

Given these **undeniable facts**, this project **must be rejected**. Strong regulatory action and sustainable alternatives are the only way forward.

References

- World Wildlife Fund (2022). Living Planet Index Report.
- UNEP (2019). Sand and Sustainability.
- WHO (2021). Crystalline Silica and Occupational Lung Disease.
- U.S. Geological Survey (2021). The Impact of Sand Mining on Groundwater.
- National Highway Traffic Safety Administration (2022). Heavy Truck Traffic and Road Safety Analysis.
- Yale E360. The Hidden Toll of Sand Mining.
- World Economic Forum (2023). The Role of Sand Mining in Flooding.

Hello, Mr. Yousif, I sent this yesterday because I think that at a time when there is a persistent homeless crisis, a carveout for a homeless camp not real close to the community and people in it is a far better use than poisoning the water and air and creating a huge scar on the landscape.

HOMELESS SHELTER BETTER USE THAN SAND MINE

From:<henkinp@earthlink.net>

To:.Supervisor Jim Desmond <jim.desmond@sdcounty.ca.gov>, .Supervisor Joel Anderson <joel.anderson@sdcounty.ca.gov>, .Supervisor Terra LawsonRemer <terra.lawson-remer@sdcounty.ca.gov>, .Supervisor Monica Montgomery-Steppe <Monica.MontgomerySteppe@sdcounty.ca.gov>

Cc:FGG PublicComment <PublicComment@sdcounty.ca.gov>

Subject:HOMELESS SHELTER BETTER USE THAN SAND MINE

Date: Mar 19, 2025 11:18 AM

Hi Supervisors,

Apparently, 214 acres on a former Golf Course are coming available and they are proposed for a sand mine. Why do we need all that space for a sand mine? This may be a good opportunity to substitute for the twice rejected Lemon Grove shelter idea.

The residents do not want a sand mine there. Maybe there would be less opposition to a congregate homeless shelter. In addition to the potential health effects, increased traffic impacting emergency vehicle routes, a large scale industrial project will probably cause excessive noise levels. It is also not near a health facility, across fro a liquor store, or as close to a school.

It is worth a second (maybe even a third) look.

Regards,

Paul Henkin

Article:

Rancho San Diego residents rail against proposed project to turn defunct golf course into sand mine

Story by Richard Allyn, KFMB San Diego [3-18-2025]

Residents of Rancho San Diego voiced strong opposition to a proposed plan to convert the Cottonwood Golf Course into a sand mine during a packed community planning group meeting on Wednesday night.

The Valle de Oro Community Planning Group unanimously voted to recommend denying the project, citing concerns over health, traffic, and environmental impacts.

The controversial proposal aims to mine 4.7 million cubic yards of sand over a decade on 214 acres of the current golf course site. Dozens of community members attended the meeting to express their disapproval of the plan, which they believe does not align with the character of their neighborhood.

Opponents highlighted potential health effects, increased traffic impacting emergency vehicle routes, and environmental concerns as primary reasons for their opposition. The planning group's vote to recommend denying the project reflects these widespread community concerns.

In response to the opposition, the project's developer provided a statement to CBS 8, arguing that the proposal would "ultimately transform a defunct golf course property into 200 acres of permanent, preserved open space for the community to enjoy." The developer also emphasized the regional benefits of creating a local sand supply, stating it would

"reduce the increased costs and environmental damage caused by trucking sand in from outside the region and Mexico."

Despite the developer's claims, residents remain unconvinced about the project's merits and its compatibility with the surrounding area.

The proposal will next be reviewed by the San Diego County Planning Commission, which is expected to vote on whether to recommend the project move forward on April 18.

County of San Diego, Planning & Development Services

COMMUNITY PLANNING OR SPONSOR GROUP PROJECT REVIEW

ZONING DIVISION

Record ID(s): PDS2018-MUP-18-023 ;PDS2018-RP-18-001

Project Name: Design Exception Related to Cottonwood Sand Mine

Project Manager: Christopher Jacobs

Project Manager's Phone: christopher.jacobs@sdcounty.ca.gov

Scope of Review:
Board Policy I-1 states; *"groups may advise the appropriate boards and commissions on discretionary projects as well as on planning and land use matters important to the community."* Planning & Development Services (PDS) has received an application for the project referenced above. PDS requests that your Group evaluate and provide comment on the project in the following areas:

- The completeness and adequacy of the Project Description
- Compatibility of the project design with the character of the local community
- Consistency of the proposal with the Community Plan and applicable zoning regulations
- Specific concerns regarding the environmental effects of the project (e.g., traffic congestion, loss of biological resources, noise, water quality, depletion of groundwater resources)

Initial Review and Comment:

Shortly after an application submittal, a copy of the application materials will be forwarded to the Chair of the applicable Planning or Sponsor Group. The project should be scheduled for initial review and comment at the next Group meeting. The Group should provide comments on planning issues or informational needs to the PDS Project Manager.

Planning Group review and advisory vote:

A. **Projects that do not require public review of a CEQA document:** The Group will be notified of the proposed hearing date by the PDS Project Manager. The project should be scheduled for review and advisory vote at the *next Group meeting*.

B. **Projects that require public review of a CEQA document:** The Chair of the Planning Group will be noticed when an environmental document has been released for public review. The final review of the project by the Group, and any advisory vote taken, should occur *during the public review period*.

As part of its advisory role, the Group should provide comments on both the adequacy of any environmental document that is circulated and the planning issues associated with the proposed project. The comments provided by the Group will be forwarded to the decision-making body and considered by PDS in formulating its recommendation.

Notification of scheduled hearings:

In addition to the public notice and agenda requirements of the Brown Act, the Group Chair should notify the project applicant's point of contact and the PDS Project Manager at least two weeks in advance of the date and time of the scheduled meeting.

County of San Diego, Planning & Development Services

COMMUNITY PLANNING OR SPONSOR GROUP PROJECT RECOMMENDATION

ZONING DIVISION

Record ID(s): PDS2018-MUP-18-023 ;PDS2018-RP-18-001

Project Name: Design Exception Related to Cottonwood Sand Mine

Planning/Sponsor Group: Valle de Oro Community Planning Group

Results of Planning/Sponsor Group Review

Meeting Date: March 18, 2025

A. Comments made by the group on the proposed project.

Please find comments attached.

B. Advisory Vote: The Group ☒ **Did** ☐ **Did Not** make a formal recommendation, approval or denial on the project at this time.

If a formal recommendation was made, please check the appropriate box below:

MOTION:

- ☐ Approve without conditions
- ☐ Approve with recommended conditions
- ☒ Deny
- ☐ Continue

VOTE: 10 **Yes** 0 **No** 1 **Abstain** 4 **Vacant / Absent**

C. Recommended conditions of approval:

Reported by: Oday Yousif **Position:** Chair **Date:** _____

Please email recommendations to BOTH EMAILS;
Project Manager listed in email (in this format): Firstname.Lastname@sdcounty.ca.gov **and to** CommunityGroups.LUEG@sdcounty.ca.gov

Valle de Oro Community Planning Group
3755 Avocado Blvd #187, La Mesa, CA 91941
Oday Yousif, *Chair*

March 18, 2025

Via U.S. Postal Mail & Email: christopher.jacobs@sdcounty.ca.gov

San Diego County
Planning & Development Services
Attn: Christopher Jacobs
5510 Overland Avenue, Suite 310
San Diego, CA 92123

Subject: Recommendation of the Valle de Oro Community Planning Group for the Design Exception Review Related to the Cottonwood Sand Mine Major Use Permit (PDS2018-MUP-18-023) and Reclamation Plan (PDS2018-RP-18-001)

Dear Mr. Jacobs:

On March 18, 2025, the Valle de Oro Community Planning Group (CPG) convened to review the above-referenced Design Exception Review (DER) request pertaining to the proposed Cottonwood Sand Mine Project and Reclamation Plan. Specifically, this DER seeks to waive the requirement to underground overhead utilities along Willow Glen Drive. After consideration of the project materials, discussion with stakeholders, and review of the project based on the criteria in Board Policy I-1 s, the Valle de Oro CPG recommends denial of the Design Exception Review. Outlined below are our detailed comments, organized under the four key criteria we were asked to evaluate.

1. **Completeness and Adequacy of the Project Description**

The application materials provide a partial explanation regarding the relocation of existing AT&T lines to the SDGE poles on the opposite side of Willow Glen Drive. However, the Valle de Oro CPG finds that the documentation did not provide sufficient justification or supporting studies to demonstrate why undergrounding is infeasible or should be exempted. Our group requires a more robust engineering and cost analysis to confirm that no viable alternatives exist that would preserve community character while minimizing disruption. As currently presented, the request to waive undergrounding lacks sufficient evidence of hardship or infeasibility.

2. **Compatibility of the Project Design with the Character of the Local Community**

Valle de Oro has consistently emphasized the importance of maintaining a visually cohesive and safe roadway environment. While the applicant posits that using overhead utility lines on existing SDG&E poles is simpler, overhead utility lines often detract from scenic vistas and undermine efforts to reduce visual clutter along Willow Glen Drive. Undergrounding utilities is a long-standing practice that enhances roadside aesthetics and aligns with community goals to preserve and improve neighborhood appearance. Granting an exception to continue overhead lines may undermine these goals and set a concerning precedent for future projects.

3. **Consistency with the Community Plan and Applicable Zoning Regulations**

Our Community Plan prioritizes infrastructure improvements that promote orderly development, safe travel corridors, and harmonious integration of utilities into the surrounding environment. The applicant's request to waive undergrounding does not demonstrate consistency with these principles,

Valle de Oro Community Planning Group
3755 Avocado Blvd #187, La Mesa, CA 91941
Oday Yousif, *Chair*

which call for utilities to be placed underground where feasible. Additionally, we were not presented with any compelling evidence to indicate that zoning or relevant planning documents would support an exception for overhead utility lines in lieu of underground infrastructure. On the contrary, current policies trend toward undergrounding for aesthetic, safety, and environmental considerations whenever possible.

4. **Specific Concerns Regarding Environmental Effects**

The request to waive undergrounding also raises several environmental and community-impact concerns: **Traffic Disruption**: Although the applicant claims that overhead line work will lessen construction impacts, an incomplete analysis was provided for how project construction would be managed if undergrounding proceeded. Without a thorough traffic control plan for either scenario, it is difficult to weigh short-term disruptions against the long-term benefits of underground utilities. **Visual Resources**: Preserving open viewsheds and reducing visual blight is a stated priority within our community. Overhead lines are at odds with these objectives. **Public Safety**: Underground utilities may reduce the risk posed by downed lines during storms or high winds. The project materials did not fully address how overhead lines would be protected, nor did they address potential long-term maintenance concerns. The request also poses a possible greater fire risk considering the current and future vegetative state of the site, which is largely overgrown, unmaintained, and often at greater risk due to unhoused populations. This risk is especially heightened considering the Draft EIR presents a fire protection plan from 2021.

Conclusion and Recommendation

Based on our analysis of the project using the four criteria outlined by Board Policy I-1, the Valle de Oro Community Planning Group recommends denial of the Design Exception Review request to waive the requirement for undergrounding overhead utilities along Willow Glen Drive. We strongly encourage the applicant to provide a more thorough feasibility analysis of undergrounding the lines, including robust cost, engineering, and environmental data, and to pursue design solutions that align with both County requirements and community expectations. We appreciate the opportunity to provide input, and we look forward to continued collaboration to ensure that future development within Valle de Oro remains consistent with our community's vision and standards.

If you have further questions, I can be reached at (619) 403-0889.

Respectfully,



Oday Yousif, Chair

Cc: Monica.MontgomerySteppe@sdcounty.ca.gov
Kdmf@sdcounty.ca.gov
DaniellaT.Hofreiter@sdcounty.ca.gov

SPRING VALLEY COMMUNITY PLANNING GROUP
P.O. Box 1637, Spring Valley, CA 91979-1637

Date: March 25, 2025

From: Spring Valley Community Planning Group
Christopher Pierce, Chair (svcpg4@gmail.com)

To: Christopher Jacobs (Christopher.Jacobs@sdcounty.ca.gov)
Land Use/Environmental Planner III – Project Planning
County of San Diego - Planning & Development Services (PDS)
5510 Overland Avenue, Second Floor
San Diego, California 92123

CC: StopCottonwoodSandMine.org (info@stopcottonwoodsandmine.com)

Subject: Cottonwood Sand Mining Project Major Use Permit (PDS2018-MUP-18-023); Reclamation Plan (PDS2018-RP-18-001); and Design Exception Request (DER) to waive the undergrounding of overhead utilities

At the March 25, 2025 meeting of The Spring Valley Community Planning Group SVCPG), the group formally adopted the position that the Cottonwood Sand Mine Major Use Permit application should be denied. The vote to send this letter was 12 Yes, 0 No, 2 Absent, and 1 Vacant.

The SVCPG agrees that the Cottonwood Sand Mining Project Environmental Impact Report (EIR) is a flawed and incomplete document that does not adequately analyze the significant environmental impacts of the potential Project to the people, wildlife, water, air, and roads of multiple communities.

Additionally, the Sand Mine Project does not propose adequate mitigation measures or alternatives to address those impacts. The EIR does not comply with applicable goals, policies or requirements of the San Diego County General Plan as well as the Valle De Oro Community Plan.

Upon review, the SVCPG believes the EIR is incomplete and not in compliance with CEQA and therefore must be revised and reissued to the public for review.

The most significant issues of concern to residents regarding the Cottonwood Sand Mining Project EIR include:

1. Transportation / Traffic is a significant environmental impact with incomplete analysis.
2. The health risk associated with Valley Fever is drastically minimized in the EIR.
3. The EIR appears to gloss over the impact on air quality as not being significant. Even a moderate impact could be catastrophic and should be considered and studied.

SPRING VALLEY COMMUNITY PLANNING GROUP
P.O. Box 1637, Spring Valley, CA 91979-1637

4. The proposed Project is inconsistent with the Land Use Element of the County of San Diego General Plan. The designation for the entire project site is Open Space-Recreation which applies to large, existing recreational areas and allows for active and passive recreational uses.
5. The proposed project is inconsistent with the Valle de Oro Community Plan.
6. The EIR did not adequately address how its proposed sand mining activities will conserve rather than destroy wildlife habitats.
7. Biological Resources are significant environmental impacts with incomplete analysis.
8. The EIR states that "the Project would result in significant impacts" to Federally and State Endangered or Threatened Species. Proposed mitigation plans are not sufficient to protect endangered and threatened species in the area.
9. Noise is a significant environmental Impact with incomplete analysis.
10. The EIR does not properly address that the Project may have a significant impact to property water wells near the property site.
11. Aesthetics is a significant unmitigable environmental impact.
12. The EIR did not address Emergency Access adequately. The report indicates that a "Traffic Control Plan would establish procedures" however these procedures are not described.

The Spring Valley Community Planning Group stands with thousands of community members who are seriously concerned about the significant impacts the Cottonwood Sand Mining Project's twelve-year sand mining operation would have on surrounding communities including Spring Valley and La Presa, and to the San Diego National Wildlife Refuge. As much as the sand, for concrete, is a needed commodity, the location proposed by the Applicant seems highly inappropriate. Industrial sand mines do not exist in developed, residential areas – nor should this one at the expense of our community and the environment.

Respectfully,

Christopher Pierce, Chair
Spring Valley Community Planning Group
Svcpg4@gmail.com
619-512-2007

Cc: Monica.MontgomerySteppe@sdcounty.ca.gov
Joel.Anderson@sdcounty.ca.gov
DaniellaT.Hofreiter@sdcounty.ca.gov

From:	JDCPG Chairman
To:	LUEG, PDS.PlanningCommission
Cc:	Jacobs, Christopher; Anderson, Joel; Hayes, Andrew; Lawson-Remer, Terra; MontgomerySteppe, Monica; Desmond, Jim; odayyousif@gmail.com; Robin Joy Maxson; info@stopcottonwoodsandmine.com
Subject:	[External] JDCPG Response to Updated Draft EIR for proposed Cottonwood Sand Mine
Date:	Wednesday, May 21, 2025 2:41:04 PM
Attachments:	JDCPG Cottonwood Sand Mine Updated DEIR Letter.pdf

Mr. Ashman,

The response to the Cottonwood Sand Mine Updated DEIR from the Jamul-Dulzura Community Planning Group is attached.

In summary, the JDCPG UNANIMOUSLY opposes this project.

Sincerely,

Lisa Hodgson
Chairman
Jamul-Dulzura Community Planning Group

Jamul-Dulzura

Community Planning Group

Unincorporated Area of the County of San Diego

P.O. Box 613, Jamul, CA 91935

County of San Diego
Planning & Development Services
5510 Overland Avenue, Suite 110
San Diego, CA 92123
Ronald Ashman, Chair Planning Commission

May 20, 2025

RE: Cottonwood Sand Mining Project Major Use Permit (PDS2018-MUP-18-023); Reclamation Plan (PDS2018-RP-18-001).

Dear Mr. Ashman,

> A planned community development would never be approved to be built next to an open pit sand mine. Why are you considering approving an open pit sand mining operation in the middle of an established community?

In August 2023, the Jamul-Dulzura Community Planning Group submitted its comments on the Updated Draft EIR. As we write to you today, the Final EIR for this project has not yet been released and neither our group not the general public has read the responses from County Planning and Development Services (PDS) to our questions and statements so we are unaware of what changes may have been made. In light of the scheduled June 13, 2025 Planning Commission Hearing date, the Jamul-Dulzura Community Planning Group unanimously opposes this project.

The Cottonwood Sand Mine open pit mining project will threaten our communities and our region with numerous possible hazards for which there is no mitigation. We do not believe the dangerous conditions to which the communities will be subjected can be mitigated. We as a group reject the premise that there is an acceptable level of harm.

1) IMPACTS ON THE COMMUNITES OF JAMUL-DULZURA

a) Traffic and Road Infrastructure

Our Planning Group has continuously pleaded for years with the County, the State and SANDAG for a comprehensive updated Traffic Study for SR-94. Residents in the back country rely on SR-94 for daily commuting. It is the primary lifeline and link through the region and

badly needed infrastructure improvements keep getting delayed. Jamul Drive is a vital alternative to SR-94 and passes through the heart of the Cottonwood Sand Mine project boundaries. The increasing loads of traffic over the last two decades have put enormous pressure on daily commutes and commercial trucking contributes to slowing the movement of normal traffic. Expanding truck hauling operations will significantly impact this essential transportation and mobility link.

Without a traffic study that includes new project approvals and future potential growth, the DEIR analysis fails to estimate traffic loads and the extent of possible conflicts from adding hauling trucks.

b) Wildland Fires and Emergency Evacuation

The State of California has ranked the Jamul-Dulzura region in the lowest 5% of the most difficult places from which to evacuate during a wildland fire. Topographically, our region is a series of ascending valleys through hills and mountains and is designated as either High or Very High Fire Hazard Severity Zone (VHFHSZ). It is an historical fire corridor with recurring north-easterly Santa Ann wind-driven fires.

Our biggest concern is the threat of fire entrapment on SR-94 and the tributary routes that lead into it. We are entirely dependent on SR-94 for emergency evacuation. SR-94 routinely backs up for miles from Rancho San Diego to the community of Jamul. In any emergency, vehicle accidents or roadside fires, ingress and egress can come to a standstill all the way to the Otay Lakes Road/SR-94 intersection. This is our greatest vulnerability.

A breakdown of hauling trucks on these roads and their operations at the key chokepoints of Jamul Drive, Steele Canyon Road, Willow Glen Road and SR-94 could stall traffic flow and increase the risk of accidents and roadside fires from backed-up idling cars. Arriving emergency vehicles are constricted by limited maneuverability. Recovery operations take much more time under these conditions.

c) Our Conservation Mission

It is the stated mission of the Jamul-Dulzura Planning Area *"to preserve and protect resources for future generations."* It is recognized as the most biodiverse area in the continental United States and conservation organizations and government agencies have worked for decades to protect habitat and wildlife and their resources. The newly established conservation area of Village 14 in Proctor Valley borders the San Diego National Wildlife Refuge that connects to the Sweetwater River/Cottonwood Basin and forms our northern boundary alongside the open pit mining site.

These are linked to the myriad of conserved lands to the south and all will be adversely affected in some indeterminable degree. There is no mitigation for this as erosion of habitat and degradation to endangered species is inevitable.

d) Health Risks

Studies completed in Los Angeles back in the 90's found that smog pollutants in vehicles were higher than outside. For all commuters and travelers through the mining site on Jamul Drive there is no escaping absorption of either silica dust or the presence of spores of soil dwelling fungus. Quality of life will be greatly reduced for at least a decade and for some forever. The

noises emanating from sand pit operations will have a significant impact on the surrounding community.

2) DELIBERATION AND CHOICES

The choice is clearly in favor of protecting to the fullest extent the human communities and natural communities that have come to thrive here and also to protect the outlying communities from the cumulative negative impacts. For our Jamul-Dulzura Community, under threat of wildfire entrapment, it will be disastrous. Once approved, the door is open for extensions and permit renewals. A new precedent would be set to prioritize a singular industrial interest over an established community.

The Jamul-Dulzura Community Planning Group unanimously opposes this project.

Respectfully,

Lisa Hodgson

Chairman
Jamul-Dulzura Community Planning Group
jdcpgchairman@gmail.com

Cc: PLANNING AND DEVELOPMENT SERVICES
PDS.PlanningCommission@sdcounty.ca.gov
Ronald Ashman, Chair, D-2
Michael Edwards, Vice Chair, D-2
Molly Weber, D-3
Yolanda Calvo, D-4
David Pallinger, D-5
Christopher Jacobs, Christopher.Jacobs@sdcounty.ca.gov
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Chair Robin Joy Maxson, robinjoymaxson@gmail.com
OTHERS:
info@stopcottonwoodsandmine.com

March 18, 2025

To the Valle de Oro Community Planning Group,

“Stop Cottonwood Sand Mine”, a civic non-profit organization representing thousands of residents, is here today to respectfully present critical evidence that clearly shows the Cottonwood Sand Mine Major Use Permit application is unsuitable for approval based on the factors outlined in Section 7358 of the County of San Diego Zoning Ordinance. As per the ordinance, before granting a use permit, the granting authority must make favorable findings concerning several factors, including impacts on the surrounding environment, neighborhood character, and public facilities. After careful review, it is evident that favorable findings cannot be made regarding the following required factors therefore the Cottonwood Sand Mine permit application should be denied.

1. Incompatibility with Surrounding Area

The Cottonwood Sand Mine project is fundamentally incompatible with the surrounding area. Rancho San Diego, which has a population of over 21,000 residents, is characterized by suburban residential neighborhoods, schools, and recreational facilities. It is an area valued for its natural beauty, including scenic hillsides, the Sweetwater River corridor, and expansive open spaces. The proposed sand mine would introduce significant industrial operations to this peaceful, residential community, which is in direct conflict with the existing neighborhood character.

The mining operations, with a proposed 100-foot setback from residences, are far too close to sensitive receptors like schools and senior living facilities. The San Diego Region Aggregate Supply Study recommends a much greater setback of 1,300 feet to mitigate noise, but even this would not fully mitigate the significant noise and dust impacts that would inevitably degrade the quality of life for residents. In fact, the project's environmental documents acknowledge that the aesthetic impacts would be "significant and unmitigable" for more than 12 years, highlighting the long-term and irreversible harm this project would inflict on the community's visual character.

2. Inadequate Public Facilities and Services

The County of San Diego's regulations require that public facilities and services be adequate to support a proposed use. In the case of the Cottonwood Sand Mine, this is not the case. The roads, water, sanitation, and other utilities are not equipped to handle the demands of this large-scale industrial operation. The streets, including Willow Glen Drive, are already strained by existing mining operations, and the additional 146 truck trips per

day would exacerbate congestion, air pollution, and noise in the area, creating hazards for local residents and schools.

Moreover, there is insufficient emergency response infrastructure for the type of industrial activity proposed in such a densely populated area. The County's Planning and Safety requirements would not be met without drastic investments in infrastructure that have not been proposed or accounted for in the project application.

3. Harmful Effect on Neighborhood Character

The proposed sand mine would irrevocably change the character of the Rancho San Diego community. It would introduce an industrial activity into a primarily residential area, conflicting with the goals of preserving open space, protecting wildlife, and maintaining the suburban ambiance that residents value. The proximity of sensitive land uses—such as schools, parks, and the National Wildlife Refuge—would further exacerbate these conflicts.

The project would also have a devastating impact on the Willow Glen Drive Scenic Highway, which the Valle de Oro Community Plan specifically aims to protect. The aesthetics of this area would be significantly harmed by the industrial nature of the mine, which would create a stark contrast with the surrounding natural and residential landscapes.

4. Traffic Impacts and Inadequate Road Infrastructure

The Cottonwood Sand Mine would generate significant traffic impacts on an already congested road network. The proposed 146 daily truck trips would add substantial stress to streets that are not designed to handle such industrial traffic. The traffic analysis presented in the project documents is outdated, based on surveys conducted during the COVID-19 pandemic when traffic patterns were altered. These analyses do not accurately reflect current traffic conditions, and therefore, the full scope of the traffic and safety impacts has not been adequately assessed.

Moreover, existing traffic from nearby mining operations, such as Robertson’s Ready Mix and Hester’s Granite Pit, is already overwhelming local streets. The addition of a large-scale sand mine would only worsen traffic safety, congestion, and air quality for thousands of residents, including children and senior citizens.

5. Unsuitability of the Site

The project site is located in an area designated as Open Space and part of the County’s Biological Resource Core Area (BRCA). This is a high-value habitat corridor that supports sensitive plant and wildlife species. The proposed sand mine would fragment and degrade these important ecological areas, further threatening the viability of the region’s wildlife and natural habitats.

In addition, the site is located within the floodplain of the Sweetwater River, an area intended for conservation, not industrial development. This raises concerns about the project's potential to disrupt hydrological functions, such as groundwater recharge, and increase the risk of flooding and water pollution. The County's General Plan, Valle de Oro Community Plan, and Multiple Species Conservation Program (MSCP) all prioritize the preservation of these sensitive lands. The Cottonwood Sand Mine is fundamentally incompatible with these planning goals.

6. Inconsistency with County General Plan and CEQA Requirements

The Cottonwood Sand Mine project is inconsistent with several key goals and policies of the County General Plan, particularly those related to conservation, open space, and land use. The General Plan emphasizes the preservation of sensitive habitats and the avoidance of industrial uses in areas with high ecological value. The proposed mine would destroy critical habitats and fail to provide the necessary buffers between industrial and residential uses, undermining the goals of the General Plan.

The project's Environmental Impact Report (EIR) fails to meet California Environmental Quality Act (CEQA) requirements. It neglects to properly analyze the long-term environmental impacts of the mining operations, including air quality, noise, and impacts on sensitive species. The EIR's traffic analysis is based on outdated data, and the report does not adequately explore alternative project locations or mitigation measures that could reduce the project's harmful impacts.

In conclusion, the Cottonwood Sand Mine Major Use Permit application fails to meet the necessary criteria outlined in the County of San Diego Zoning Ordinance. The project is incompatible with the surrounding community, would create significant environmental and traffic hazards, and is inconsistent with the County's long-term planning goals. For these reasons, we respectfully urge the Valle de Oro Community Planning Group to recommend denial of this project's Major Use Permit application and to uphold the principles of responsible development that prioritize the health, safety, and quality of life for all residents of Rancho San Diego and beyond.

Thank you for your consideration.

Elizabeth Urquhart, Chair

Stop Cottonwood Sand Mine

info@stopcottonwoodsandmine.org

https://stopcottonwoodsandmine.org

From: Smith, Ashley J
To: Slovick, Mark
Cc: Jacobs, Christopher; Hofreiter, Daniella T
Subject: FW: Ivanhoe Ranch letter re: Cottonwood Sand Mine EIR
Date: Wednesday, May 14, 2025 4:10:31 PM
Attachments: image001.png
Let_PV Ivanhoe_Cottonwood PC Hearing.pdf
image002.png

FYI on Cottonwood from the Ivanhoe applicant. Mark- they had your email wrong. When we get the final RTCs, can you send them my way so we can share a copy of the responses to Ivanhoe's letter while we're in the process of posting to the webpage?

Thanks,

Ashley

Ashley Smith, Chief, Project Planning
Planning & Development Services
C: (619) 857-8012

From: Kevin Wechter <kwechter@pacventures.com>
Sent: Wednesday, May 14, 2025 2:19 PM
To: mark.slovick@sdcounty.ca; Smith, Ashley J <Ashley.Smith2@sdcounty.ca.gov>
Cc: vanceplan1@gmail.com; Cynthia L. Eldred, Esq. <Cindy@eldredlaw.com>; Brooke Miller <BMiller@sheppardmullin.com>
Subject: [External] Ivanhoe Ranch letter re: Cottonwood Sand Mine EIR

Hi Mark and Ashley.

Please see attached letter from PV Ivanhoe, LLC concerning the Cottonwood Sand Mine EIR. Please reply to confirm receipt.

Thank you,

-Kevin

Kevin Wechter
Principal
P 858.625.6700
E kwechter@pacventures.com

PacVentures, Inc. | 4350 La Jolla Village Dr, Suite 110 | San Diego, CA 92122
www.pacventures.com

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acknowledges that this email may contain forward-looking information based upon estimates and assumptions and that actual results may differ materially from any projections discussed above.

PACVENTURES
INCORPORATED

4350 La Jolla Village Drive, Suite 110
San Diego, CA 92122

Telephone: 858.625.0100
Facsimile: 858.625.9243

May 14, 2025

VIA MAIL and EMAIL

Mr. Mark Slovick
Deputy Director
Mark.Slovick@sdcounty.ca.gov

Ms. Ashley Smith
Chief Project Planning
Ashley.Smith2@sdcounty.ca.gov

Planning & Development Services
5510 Overland Drive, Suite 210,
San Diego, CA 92123

Re: COTTONWOOD SAND MINE PROJECT - Final ENVIRONMENTAL IMPACT REPORT PDS2018-MUP-18-003 PDS2018-RP-18-001 PDS2018-ER-18-19-007 SCH# 2019100513

Dear Mark and Ashley;

As you know PacVentures Inc.'s affiliate, PV Ivanhoe, LLC, owns 170.7-acres adjacent to the Cottonwood Mining project, located in the Valle de Oro Community planning area. Over the past several years we have been in touch with department staff regarding various aspects of this project. In February of 2022, our attorney Cindy Eldred submitted a detailed letter of comment regarding potential impacts to our property which in our opinion had not been sufficiently assessed in the draft EIR. The attached letter from 2022 raised three issues: deficiencies in the hydrology assessment in regard to the Sweetwater River, incomplete assessment of potential noise impacts to our property, and finally, despite the fact that our project had been timely filed prior to Cottonwood's, the proposed sand mine's impacts to our proposed housing project were not specifically acknowledged or addressed.

We have attempted to engage with staff a number of times in 2022, 2023 and as recently as early April 2025 to discuss Ms. Eldred's letter but have never received a substantive response. With the notice that the Cottonwood project is now scheduled for a Planning Commission hearing for June 13 we believe that the Final EIR has been completed by PDS. Apparently at this point the only way we can determine if our comments have been addressed in the EIR is to see for ourselves.

Please provide me with an electronic copy of the Final EIR as soon as possible so we can decide if we need to attend and comment at the upcoming hearing. In addition, if our comments were not addressed in the revised EIR, we'd like to know why.

Regards,

Kevin Wechter

Encl
Cc: Lee Vance (via email)
Cindy Eldred (via email)
Brooke Miller (via email)

THE LAW OFFICE OF
Cynthia L. Eldred, APC
Practice limited to California law

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Cell: 619.277.7388

Thomas A. May, Esq.
Of Counsel
tom@eldredlaw.com
Cell: 619.843.2345

VIA ELECTRONIC MAIL ONLY

February 27, 2022

County of San Diego
Planning & Development Services
5510 Overland Ave., Suite 310
San Diego, CA 92123
ATTN: Mr. Robert Hingtgen
Robert.Hingtgen@sdcounty.ca.gov

Re: Comments to Draft Environmental Impact Report; Cottonwood Sand Mine; PDS2018-MUP-18-023; PDS2018-RP-18-001; Log No. PDS2018-ER-18-19-007; SCH No. 2019100513 (the "DEIR")

Dear Mr. Hingtgen:

We represent PV Ivanhoe, LLC ("Ivanhoe") regarding its ownership and development of a residential community (the "Ivanhoe Ranch Project") on approximately 120 acres of real property ("Ivanhoe's Property") located in the community of Valle de Oro in the unincorporated County of San Diego (the "County"). Ivanhoe's Property lies contiguous to the east and south of the Cottonwood Sand Mine project (the "Sand Mine Project"), as depicted on Figure 1-2 and other figures of the DEIR.

On behalf of Ivanhoe, we appreciate the opportunity to provide these comments on the DEIR. Please do not hesitate to contact us if you have any questions about the content of this letter.

Detailed information regarding Ivanhoe's Property and the Ivanhoe Ranch Project is readily available to County decision-makers, County staff, and preparers of the DEIR, requiring that potential impacts to Ivanhoe's Property and the Ivanhoe Ranch Project be included in the DEIR's analyses of environmental impacts of the Sand Mine Project.

On May 23, 2018, Ivanhoe submitted to the County an application for a general plan amendment, rezone, tentative subdivision map, site plan, agricultural preserve disestablishment, and a Williamson Act Contract cancellation to entitle development of the Ivanhoe Ranch Project. The project consists of a 120-lot subdivision with 119 new residential units and one existing residence to remain unchanged, 24.97 acres of biological open space, and a private 1.78-acre park with a parking lot.

Ivanhoe's application was deemed complete on June 22, 2018 by operation of law under the Permit Streamlining Act. On April 15, 2021, County staff determined that Ivanhoe's application for the County's approval of the Ivanhoe Ranch Project was also complete under the California Environmental Quality Act ("CEQA").

The County published a Notice of Preparation of an Environmental Impact Report ("NOP") for the Ivanhoe Ranch Project on April 15, 2021, and solicited public comments through May 17, 2021, including in public meetings held on April 29, 2021 and May 17, 2021. The NOP, its CEQA Initial Study, County staff presentation materials published on the County's website and presented at the two public meetings, and other related materials describe Ivanhoe's Property and the Ivanhoe Ranch Project in detail, requiring that potential impacts to Ivanhoe's Property and the Ivanhoe Ranch Project be included in the DEIR's analyses of environmental impacts of the Sand Mine Project.

The DEIR's analyses and conclusions of the Sand Mine Project's impacts to existing drainage patterns within the Sweetwater River floodplain are based on inaccurate information that constitutes a material error, requiring that impacts be re-analyzed, the conclusions of the DEIR reviewed for accuracy, and the results of the new analyses and the confirmed or revised conclusions made available to County decision-makers and the public before decision-makers' consideration of a final environmental impact report and the Sand Mine Project.

DEIR Section 3.1.5 analyzes the Sand Mine Project's impacts to hydrology, drainage, groundwater, and water quality within the project site and vicinity. The section's discussion of impacts to existing drainage patterns within the Sweetwater River floodplain is based on a Drainage Study prepared for the Sand Mine Project and included in the DEIR at its Appendix O (the "Drainage Study"). The discussion of impacts concludes that impacts related to the alteration of drainage patterns, erosion, sedimentation, or flooding on site or off site would be less than significant.

The Drainage Study mistakenly relies upon a Sweetwater River floodplain line shown on the HEC-RAS WORK MAP (the "Work Map") in Appendix O of the DEIR. A copy of the Work Map is enclosed as Enclosure 1 to this comment letter.

The Work Map was not updated to reflect the final Sweetwater River floodplain line in the area of the westerly boundary of Ivanhoe's Property, as determined by the Sand Mine Project's engineers, Rick Engineering Company, and ultimately approved by the Federal Emergency Management Agency ("FEMA"). The error is repeated in Figure 3.1.5-2 of the DEIR.

A copy of FEMA's December 1, 2020 letter to The Honorable Greg Cox, Chairman, County Board of Supervisors, with Flood Insurance Rate Map revision date of April 14, 2021, is enclosed as Enclosure 2 to this comment letter. A figure showing in green FEMA's revised floodplain line is enclosed as Enclosure 3 to this comment letter. The area of the green, revised floodplain line corresponds to the area between the red cross-section lines 210 and 280 of the Work Map, Enclosure 1 to this comment letter.

The DEIR's analyses of the Sand Mine Project's impacts related to the alteration of drainage patterns, erosion, sedimentation, or flooding on site or off site within the Sweetwater River floodplain are in error in their reliance on the Work Map. CEQA requires that the analyses and their conclusion(s) must be based on FEMA's Letter of Map Revision, which is included as Enclosure 2 to this comment letter. As a result, the Sand Mine Project's impacts to the Sweetwater River floodplain must re-analyzed, the conclusions of the DEIR reviewed for accuracy, and the results of the new analyses and the confirmed or revised conclusions made available to County decision-makers and the public before decision-makers' consideration of a final environmental impact report and the Sand Mine Project.

The DEIR's analyses and conclusions of the Sand Mine Project's noise impacts fail to provide required analyses and conclusions regarding impacts to the off-site, reasonably foreseeable future noise-sensitive land uses ("NSLUs") of the Ivanhoe Ranch Project. The DEIR's analyses and conclusions also fail to address all noise impacts to an existing NSLU, Isolated Residence 4. The required additional analyses and conclusions must be made available to County decision-makers and the public before decision-makers' consideration of a final environmental impact report and the Sand Mine Project.

DEIR Subchapter 2.4 analyzes the Sand Mine Project's noise impacts. The first significance threshold, on page 2.4-4, provides that the project would result in a significant direct noise impact if the project would result in the exposure of on-site, off-site, existing, and/or reasonably foreseeable future NSLUs to: (1) exterior noise (including noise from the project when combined with all other noise) in excess of 60 dB CNEL or an increase of 10dB CNEL over pre-existing noise in areas where ambient noise levels are 49 dB CNEL or less; or (2) interior noise in excess of 45 dB CNEL.

NSLUs include residences. There are two existing residences on Ivanhoe's Property, identified as Isolated Residence 3 and Isolated Residence 4 in DEIR Subchapter 2.4. Isolated Residence 4 will remain with development of the Ivanhoe Ranch Project. Development of the Ivanhoe Ranch Project will include construction of 119 new residences, all identified as NSLUs in DEIR Subchapter 2.4. Some of these new residences will be located immediately adjacent to the Sand Mine Project.

DEIR Table 2.4-1 lists Mining Operation Noise Levels as exceeding the 60 dB CNEL limit at Isolated Residence 3, with the conclusion that the Sand Mine Project will result in significant direct noise impacts to Isolated Residence 3. With the mitigation provided for in Mitigation Measure M-N-1, impacts are concluded to be less than significant. The analyses and conclusions on impacts to Isolated Residence 3 appear to be supported by substantial evidence in the record. At this time, Ivanhoe has no comment on impacts to Isolated Residence 3.

However, Ivanhoe does have comment regarding Isolated Residence 4 and on the future residences to be developed in the Ivanhoe Ranch Project. First as to Isolated Residence 4, Figure 2.4-3b depicts a stockpile encroaching into the 400-foot setback line near Isolated Residence 4. Because heavy machinery would be involved in amassing and using the stockpile, the location of

the stockpile raises the question of whether the DEIR correctly concludes that the Sand Mine Project would not result in significant noise impacts to Isolated Residence 4.

Secondly, the applicable significance threshold, summarized above, requires that the DEIR analyze impacts to reasonably foreseeable future NSLUs. The residences to be developed in the Ivanhoe Ranch Project are reasonably foreseeable future NSLUs for reasons summarized in the first issue discussion of this comment letter, among other reasons. CEQA requires that the DEIR analyze the Sand Mine Project's noise impacts to those future NSLUs. The DEIR must provide those analyses and conclusions and make them available to County decision-makers and the public before decision-makers' consideration of a final environmental impact report and the Sand Mine Project.

Very truly yours,

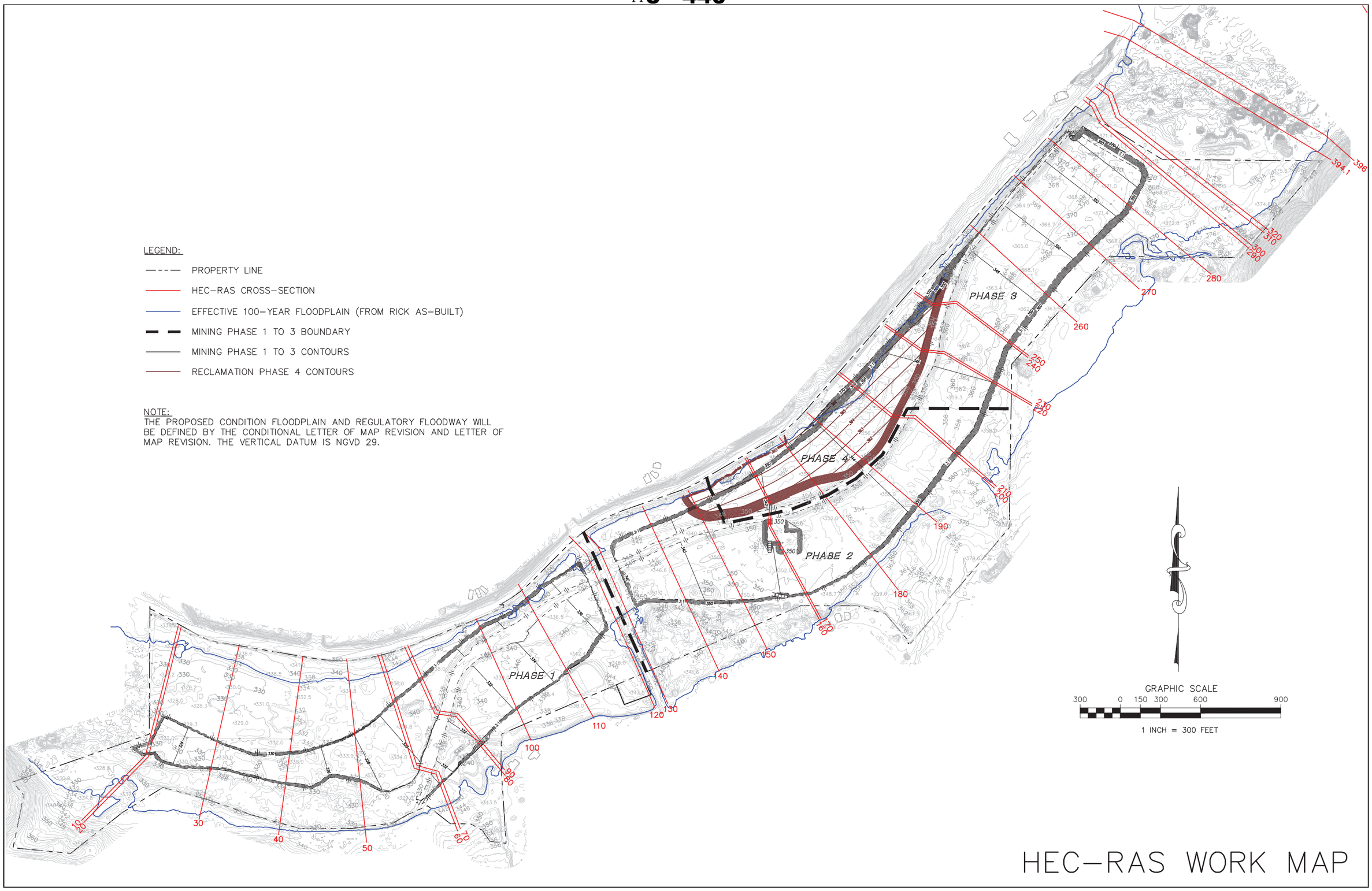
C Eldred

Cynthia L. Eldred, Esq.
THE LAW OFFICE OF CYNTHIA L. ELDRED, APC
cc: (via electronic mail only)
PV Ivanhoe, LLC
Vance and Associates
Juliette Orozco, County Land Use and Environmental Planner

LEGEND:

- PROPERTY LINE
- HEC–RAS CROSS–SECTION
- EFFECTIVE 100–YEAR FLOODPLAIN (FROM RICK AS–BUILT)
- MINING PHASE 1 TO 3 BOUNDARY
- MINING PHASE 1 TO 3 CONTOURS
- RECLAMATION PHASE 4 CONTOURS

NOTE:
THE PROPOSED CONDITION FLOODPLAIN AND REGULATORY FLOODWAY WILL BE DEFINED BY THE CONDITIONAL LETTER OF MAP REVISION AND LETTER OF MAP REVISION. THE VERTICAL DATUM IS NGVD 29.



GRAPHIC SCALE
300 0 150 300 600 900
1 INCH = 300 FEET

HEC–RAS WORK MAP

Federal Emergency Management Agency

Washington, D.C. 20472

December 1, 2020

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable Greg Cox
Chairman, Board of Supervisors
San Diego County
1600 Pacific Highway
San Diego, CA 92101

IN REPLY REFER TO:
Case No.: 20-09-2025P
Community Name: San Diego County, CA
Community No.: 060284
Effective Date of
This Revision: **April 14, 2021**

Dear Mr. Cox:

The Flood Insurance Rate Map for your community has been revised by this Letter of Map Revision (LOMR). Please use the enclosed annotated map panel(s) revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals issued in your community.

Additional documents are enclosed which provide information regarding this LOMR. Please see the List of Enclosures below to determine which documents are included. Other attachments specific to this request may be included as referenced in the Determination Document. If you have any questions regarding floodplain management regulations for your community or the National Flood Insurance Program (NFIP) in general, please contact the Consultation Coordination Officer for your community. If you have any technical questions regarding this LOMR, please contact the Director, Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) in Oakland, California, at (510) 627-7211, or the FEMA Mapping and Insurance eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP). Additional information about the NFIP is available on our website at https://www.fema.gov/flood-insurance.

Sincerely,

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

List of Enclosures:

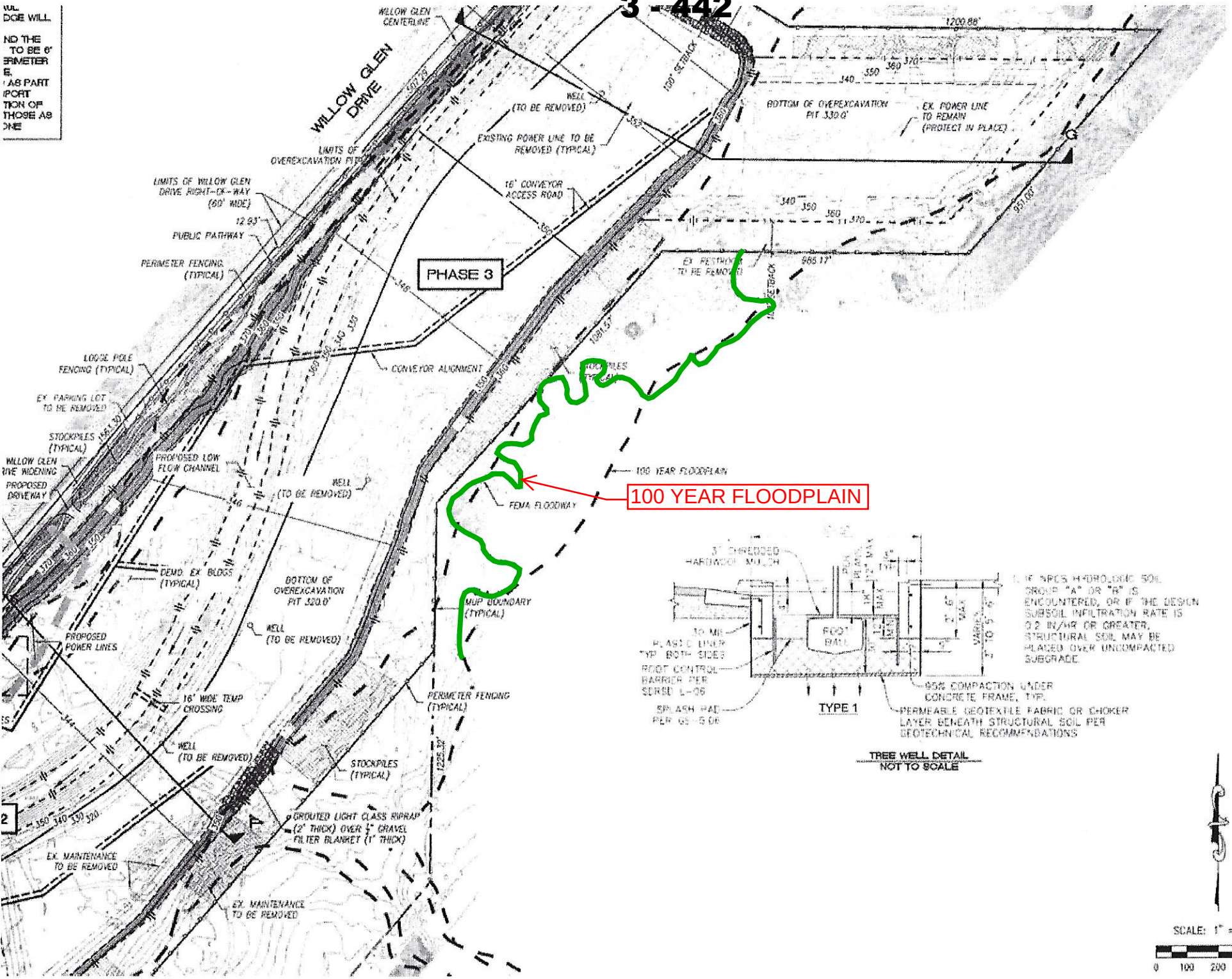
Letter of Map Revision Determination Document
Annotated Flood Insurance Rate Map
Annotated Flood Insurance Study Report

cc: Mr. Greg Carlton, P.E.
Senior Civil Engineer
San Diego County

Mr. Brendan Hastie, P.E., LEED AP
Associate Principal
Rick Engineering Company

Mr. David Montgomery, P.E.
Project Engineer
Rick Engineering Company

Ivanhoe Ranch Comment Letter to Cottonwood Sand Mine_DEIR Enclosure 3 Correct Sweetwater River Floodplain Line



7111-200
02-23-2022

1+ 858 430 5700 Call 24/7
info@aspm-sd.com
https://www.aspm-sandiego.com

Mail to:
ASPM-San Diego
4079 Governor Drive, Ste 700
San Diego, CA 92122-2522

Date: March 20, 2025

From: Steele Canyon Estates Board of Directors
ASPM-San Diego
4079 Governor Drive, Suite 700
San Diego, CA 92122

To: Christopher Jacobs (Christopher.Jacobs@sdcounty.ca.gov)
Land Use/Environmental Planner III – Project Planning
County of San Diego - Planning & Development Services (PDS)
5510 Overland Avenue, Second Floor
San Diego, California 92123

CC: Oday Yousif, Chair – Valle de Oro Community Planning Group (odayyousif@gmail.com)
StopCottonwoodSandMine.org (info@stopcottonwoodsandmine.com)

Subject: Cottonwood Sand Mining Project Major Use Permit (PDS2018-MUP-18-023); Reclamation Plan (PDS2018-RP-18-001); and Design Exception Request (DER) to waive the undergrounding of overhead utilities

The Steele Canyon Estates Homeowners Association Board of Directors, representing 173 homeowners, has formally adopted the position that the Cottonwood Sand Mine Major Use Permit application should be denied.

We believe that the Cottonwood Sand Mining Project Environmental Impact Report (EIR) is a flawed and incomplete document that fails to adequately analyze the significant environmental impacts of the potential project on the people, wildlife, water, air, and roads of our community.

Additionally, the Sand Mine Project does not propose adequate mitigation measures or alternatives to address those impacts. The EIR does not comply with the applicable goals, policies, or requirements of the San Diego County General Plan or the Valle De Oro Community Plan.

Upon review, we believe the EIR is incomplete and not in compliance with CEQA and, therefore, must be revised and reissued to the public for review.

The most significant issues of concern to Steele Canyon Estates residents regarding the Cottonwood Sand Mining Project EIR include:

1. Aesthetics is a significant unmitigable environmental impact.
2. The proposed project is inconsistent with the Valle de Oro Community Plan.
3. Biological Resources are significant environmental impacts with incomplete analysis.
4. The EIR states that “the Project would result in significant impacts” to Federally and State Endangered or Threatened Species. Proposed mitigation plans are not sufficient to protect endangered and threatened species in the area.
5. Noise is a significant environmental Impact with incomplete analysis.
6. The health risk associated with Valley Fever is drastically minimized in the EIR.
7. The EIR appears to gloss over the impact on air quality as not being significant. However, even a moderate impact could be catastrophic and should be considered and studied.

8. The EIR does not properly address that the Project may have a significant impact to property water wells near the property site.
9. The proposed Project is inconsistent with the Land Use Element of the County of San Diego General Plan. The designation for the entire project site is Open Space-Recreation which applies to large, existing recreational areas and allows for active and passive recreational uses.
10. The EIR did not adequately address how its proposed sand mining activities will conserve rather than destroy wildlife habitats.
11. Transportation/Traffic is a significant environmental impact with incomplete analysis.
12. The EIR did not address Emergency Access adequately. The report indicates that a "Traffic Control Plan would establish procedures" however these procedures are not described.

The residents of Steele Canyon Estates stand with thousands of community members who are seriously concerned about the significant impacts the Cottonwood Sand Mining Project's twelve-year sand mining operation would have on the residential community in Rancho San Diego, surrounding communities, and to the San Diego National Wildlife Refuge. As much as the sand, for concrete, is a needed commodity, the location proposed by the Applicant seems highly inappropriate. Industrial sand mines do not exist in developed, residential areas – nor should this one at the expense of our community and the environment.

Sincerely,

Julie Buckshnis, CCAM®
ASPM-San Diego
At the direction of the Board of Directors
Steele Canyon Estates

LEAGUE OF WOMEN VOTERS® OF SAN DIEGO
2020 Columbia Street, Suite 244
San Diego, California 92101

LEAGUE OF WOMEN VOTERS® OF NORTH COUNTY SAN DIEGO
P. O. Box 131272
Carlsbad, California 92013

May 19, 2025

County of San Diego
Planning & Development Services
5510 Overland Avenue, Suite 310
San Diego, CA 92123

E-mailed to: PDS.PlanningCommission@sdcounty.ca.gov

Dear Commissioners,

The League of Women Voters believes that in order to assure the future availability of essential resources, government policies should promote stewardship of natural resources. Policies that promote resource conservation are a fundamental part of such stewardship. Resources such as water and soil should be protected. Consumption of nonrenewable resources should be minimized. Reclamation and reuse of natural resources should be encouraged.

We further believe that soil and water conservation are essential elements in land management practices. Development should require best management practices for soil and water conservation.

As sand is a nonrenewable resource and extractive mining is not a best management practice for conservation, we are deeply concerned that the proposed sand mining operation threatens to pollute groundwater, degrade surrounding wetlands, and harm the delicate ecosystem of the Sweetwater River and Sweetwater Reservoir, endangering vital water resources and local biodiversity. Therefore, we urge the County of San Diego Planning and Development Services Department to deny the permits for the Cottonwood Golf Course to be converted to an open pit sand mining operation.

Sincerely,

Kim Knox
President, LWV of San Diego

Marian Vega Clancy
President, LWV of N. County San Diego

GMIA

GROSSMONT-MT. HELIX IMPROVEMENT ASSOCIATION

Preserving the Character of Our Community

January 7, 2022

County Planning and Development Services
5510 Overland Avenue, Suite 310
San Diego, CA 92123

Via email to: robert.hingtegen@sdcounty.ca.gov

Regarding:
COTTONWOOD SAND MINING PROJECT (PDS2018-MUP-18-023), (PDS2018-RP-18-001);
LOG NO. PDS2018-ER-18-19-007; SCH# 2019100513

Dear Planning and Development Services:

Thank you for the opportunity to provide public input on environmental issues that should be analyzed within the Environmental Impact Report. We have several concerns about the project that we are addressing below.

We understand the proposed mining site consists of 251 acres located at 3121 Willow Glen Drive, El Cajon, where operations will include excavation and processing, Monday through Friday between 7:00a.m. and 5:00p.m., for a minimum of 10 years. The related truck operation is expected to require approximately 176 one-way trips (88 round trips) every business day to move approximately 3.8 million cubic yards of extracted material.

The Grossmont - Mt. Helix Improvement Association (GMIA) is a volunteer, multi-neighborhood organization that works to preserve and enhance the quality and character of our community. We represent over 7,000 single-family residences with about 20,000 people. Our region includes parcels east of Bancroft Drive, south of El Cajon, generally north of SR94 and Rancho San Diego, and west of SR54/Jamacha Road, and provides community outreach and engagement.

The proposed project lies less than a mile from our region, and will significantly impact our community. We are particularly concerned about the following:

1. Non-conformance with the General Plan;
2. Non-conformance with the Community Plan;
3. Non-conformance with the Rancho San Diego Specific Plan;
4. Air quality and dust control;
5. Impact on air quality from added truck traffic;
6. Traffic congestion on our surface streets and our highways;

7. Traffic congestion on our Highway 94 in both directions;
8. Impact on traffic at the 94 and north-bound 125 interchange;
9. Impact on traffic at the south-bound 125/Spring Street approach to east-bound 94; and
10. Increased truck noise, including "jake" braking and turbo whining/whistling.

Thank you for considering our comments. Please contact me at anneekrueger@yahoo.com or 619-252-2295 if you have any questions.

Respectfully,

Anne Krueger
President
Grossmont-Mt. Helix Improvement Association

cc via email: County Supervisor Nathan Fletcher
Nathan.fletcher@sdcounty.ca.gov

GMIA

GROSSMONT-MT. HELIX IMPROVEMENT ASSOCIATION

Preserving the Character of Our Community

May 23, 2025

County Planning and Development Services
5510 Overland Avenue, Suite 310
San Diego, CA 92123

Regarding: Cottonwood Sand Mining Project

Dear Planning Commission:

The Grossmont-Mt. Helix Improvement Association is writing this letter to express our opposition to the proposed Cottonwood Sand Mining Project. We have numerous concerns about the project.

We understand the proposed mining site will include excavation and processing, Monday through Friday between 7:00a.m. and 5:00p.m., for a minimum of 10 years. The related truck operation is expected to require approximately 176 one-way trips (88 round trips) every business day to move approximately 3.8 million cubic yards of extracted material.

The Grossmont - Mt. Helix Improvement Association (GMIA) is a volunteer organization that represents over 7,000 single-family residences with about 20,000 people. Our region includes the areas east of Bancroft Drive, south of El Cajon, generally north of SR94 and Rancho San Diego, and west of SR54/Jamacha Road, and provides community outreach and engagement.

The proposed project lies less than a mile from our region and will significantly impact our community. We are particularly concerned about the following:

1. Non-conformance with the General Plan;
2. Non-conformance with the Community Plan;
3. Non-conformance with the Rancho San Diego Specific Plan;
4. Air quality and dust control;
5. Impact on air quality from added truck traffic;
6. Traffic congestion on our surface streets and our highways;
7. Traffic congestion on our Highway 94 in both directions;
8. Impact on traffic at the 94 and north-bound 125 interchange;
9. Impact on traffic at the south-bound 125/Spring Street approach to east-bound 94; and
10. Increased truck noise, including "jake" braking and turbo whining/whistling.

Thank you for considering our comments. Please contact me at anneekrueger@yahoo.com or 619-252-2295 if you have any questions.

Respectfully,

Anne Krueger

Anne Krueger
President

SHUTE, MIHALY & WEINBERGER LLP

396 HAYES STREET, SAN FRANCISCO, CA 94102
T: (415) 552-7272 F: (415) 552-5816
www.smwlaw.com

CATHERINE C. ENGBERG
Attorney
Engberg@smwlaw.com

September 1, 2023

Via E-Mail

Mr. Christopher Jacobs
Land Use/Environmental Planner
Planning & Development Services
5510 Overland Avenue, Suite 310
San Diego, CA 92123
E-Mail: christopher.jacobs@sdcounty.ca.gov

Re: Cottonwood Sand Mining Project (PDS2018-MUP-18-023), (PDS2018-RP-18-001); Log No. PDS2018-ER-18-19-007; SCH# 2019100513

Dear Mr. Jacobs:

We submit this letter on behalf of the Sierra Club San Diego Chapter ("Sierra Club"). As you know, we submitted comments on behalf of Sierra Club on the Recirculated Draft Environmental Impact Report ("RDEIR") for the proposed Cottonwood Sand Mining Project ("Project") two weeks ago on August 19, 2023. Our letter included comments regarding the need to employ a different baseline for biological resources due to changed conditions on the Project site that have resulted in substantial areas of healthy Southern Willow Scrub and Non-native grassland, and have altered and improved the Sweetwater River channel. Since then, news articles have been aired and/or published about the Project and the existing biological setting of the project site. As discussed further below, we are writing to inform the County of the relevant news article and to request that you consider these supplemental comments. We request that this letter be entered into the Administrative Record for the Project.

NBC 7 San Diego aired a television news segment and published a news article, both of which discuss the status of endangered arroyo toads in the Sweetwater River downstream from the Loveland Reservoir, where the proposed Cottonwood Sand Mining Project would be located. See the television news segment at this link: https://www.nbcsandiego.com/videos/storms-water-district-give-hope-to-endangered-san-diego-county-arroyo-toad-

species/3290679/?fbclid=IwAR3uoUAsTpyNt_F6xL3jAsurfDavG0JuLbzq2MNQRsbLBmzEDRQ7ZpXMUVs; and the news article attached to this letter as Attachment A. The segment and article (henceforth referred to as "news article") explain that water releases from the Loveland Reservoir, combined with a rainy winter, resulted in resurgence of the arroyo toad population, because the toads rely on water for breeding habitat. Id. The water flow from Loveland Reservoir, above the golf course to the east, flows through the golf course, and then to the Sweetwater Reservoir below the golf course to the west.

According to Sweetwater Authority Biologist, Pete Famolaro, who has spent decades studying arroyo toads, "[T]his is perfect habitat for the arroyo toad." Dr. Robert Fisher, a biologist with the U.S. Geological Survey – Western Ecological Research Center, who has also spent his career studying the arroyo toad, indicates that "[The watershed] was occupied by toads and by phenomenal numbers of toad."

Despite the fact that the County recirculated the biological resources section of the DEIR, the document continued to rely on old surveys. For that reason, mischaracterizes site conditions and describes conditions during and following one of the worst droughts in California history. As evidenced by the attached news article, had the RDEIR conducted updated surveys, the altered conditions described in the attached news article would have been documented and considered in the revised analysis. The changed conditions on the Project site is important information from which to establish a baseline. Once an accurate baseline is established, the County should once again revise the biological resources analysis to accurately analyze the impacts of the proposed mine on the various habitat types and species found within them.

For the foregoing reasons, the Sierra Club urges the County to delay further consideration of the Project unless and until the County prepares and recirculates a revised draft EIR that fully complies with CEQA and the CEQA Guidelines.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

Catherine C. Engberg
Carmen J. Borg, AICP
Urban Planner

Attachment A – *NBC 7 San Diego*, "This endangered toad is experiencing a resurgence thanks to storms like Hilary and a San Diego water district," August 23, 2023. https://www.nbcsandiego.com/videos/storms-water-district-give-hope-to-endangered-san-diego-county-arroyo-toad-species/3290679/?fbclid=IwAR3uoUAsTpyNt_F6xL3jAsurfDavG0JuLbzq2MNQRsbLBmzEDRQ7ZpXMUVs

cc: Susan Wynn, USFWS
David Mayer, Regional Supervisor, CDFW
Heather Schmalbach, CDFW
Dahvia Lynch, Director, County Planning & Development Services
Bethany Principe, Coordinator, County Parks and Recreation MSCP Program
Stephanie Neal, County, Sustainability Planning Division
Peter Andersen
George Courser
Dave Hogan
Lisa Ross
Elizabeth Urquhart
Dan Weber
Barry Jantz
Richard Miller

1685767.1

EAST SAN DIEGO COUNTY

This endangered toad is experiencing a resurgence thanks to storms like Hilary and a San Diego water district

The largest populations of arroyo toads are in San Diego County and they're not off the endangered species list yet — but there's hope

By **Joe Little** • Published August 23, 2023 • Updated on August 23, 2023 at 10:46 am



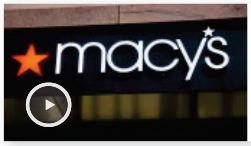
The arroyo toad is not off the U.S. endangered species list — but now there's hope.

An endangered toad in San Diego's East County is having a bit of a resurgence thanks to a couple of storms like Hilary and a large hole in the bottom of a dam.

"This is perfect habitat for the arroyo toad," said Sweetwater Authority Biologist Pete Famolaro while standing in a Sweetwater River watershed near the Loveland Reservoir.

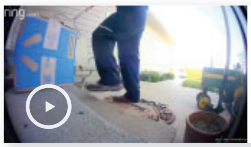
"They're probably about the size of a penny," said Famolaro while holding the tip of his index finger to the base of his thumb.

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FedEx driver kills rattlesnake balled at customer's front door, video shows

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Famolaro said he's studied the arroyo toad since the 1990s when it first became apparent the species was endangered. The fact that California is regularly hampered by drought doesn't help.

"They need water in order to breed and that's what ties us to the river, is their need to breed," he explained.

Famolaro said a water transfer from the Loveland Reservoir in November got the ball rolling. A valve at the base of the Loveland Dam was opened. Millions of gallons of water were released into the Sweetwater River watershed to head downhill to the Sweetwater Reservoir 17 miles away. The Sweetwater Authority said transfers like the one in November and a secondary one in the winter saved ratepayers $11 million.

Downed trees, rockslides, power outages: Hilary brings damage to San Diego County

The water transfer saturated the ground, which allowed unexpected heavy winter rains to create an environment ideal for arroyo toad breeding.

“It was really exciting to see that,” said Dr. Robert Fisher, a biologist with the U.S. Geological Survey – Western Ecological Research Center.

Fisher and Famolaro have studied the toad together for years.

“This toad is very specific to Southern California and to these breeding sites,” said Dr. Fisher. “The largest populations left in the United States are in San Diego County.”



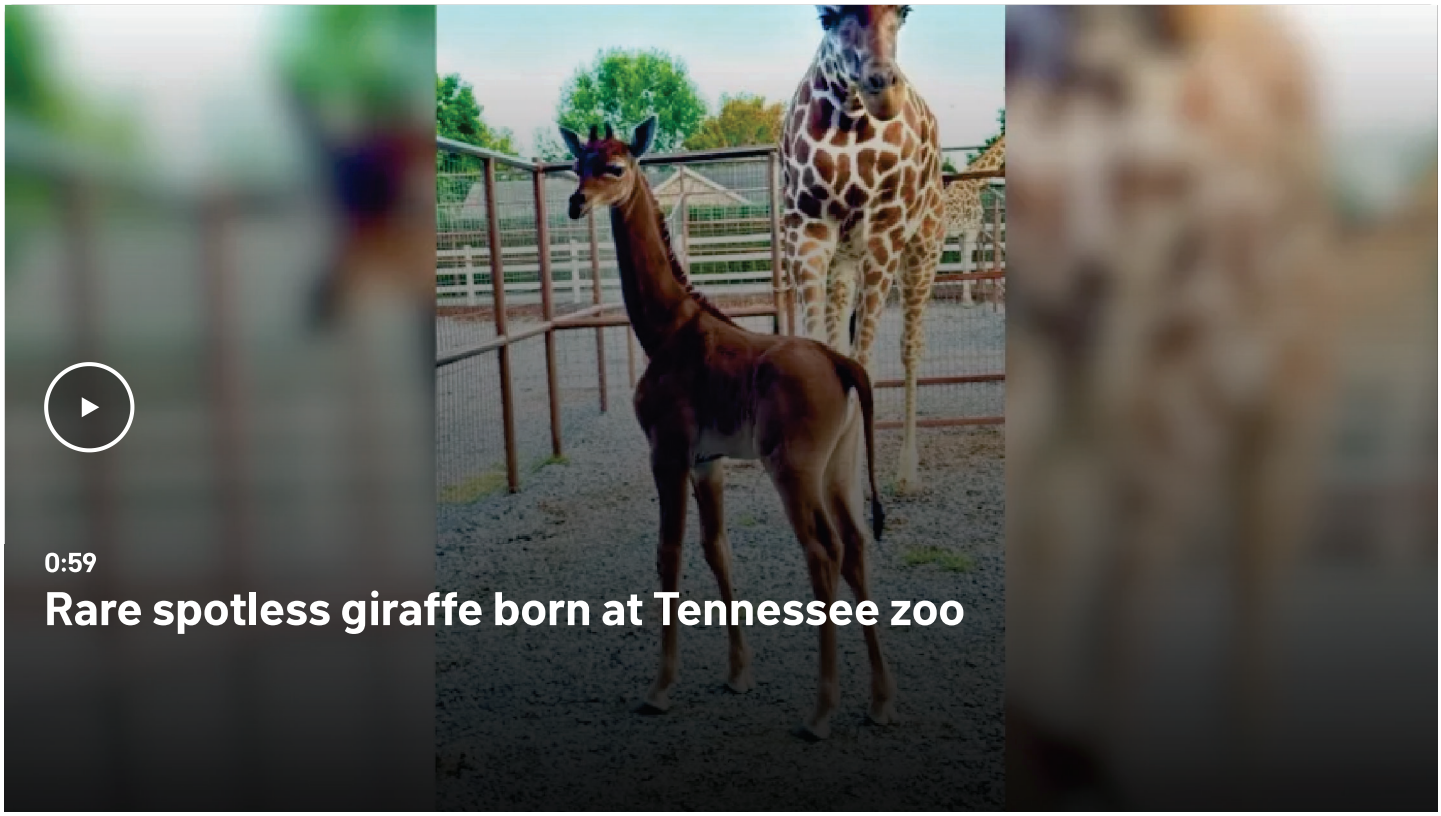
A FedEx driver killed a rattlesnake after delivering a package in Nebraska.

They found the timing of the water transfers and a healthy winter gave the toads enough water and time to replenish their numbers in the watershed -- not enough to take them off the endangered species list, but enough to give them hope.

“[The watershed] was occupied by toads and by phenomenal numbers of toad,” smiled Fisher.

“I was like, ‘Wow. We finally found a solution. We finally found something that worked,’” agreed Famolaro.

“Let’s think about reestablishing them back in places where they used to be,” concluded Fisher.



The giraffe born at Brights Zoo in Limestone, Tenn., is believed to be the only solid-colored reticulated giraffe in the world.

This article tagged under:

EAST SAN DIEGO COUNTY • ALPINE • ENDANGERED SPECIES • SWEETWATER AUTHORITY

Taboola Feed

Resolution 25-29

A Resolution of the Board of Directors of the San Miguel Consolidated Fire Protection District Opposing the Proposed Cottonwood Sand Mine Project

WHEREAS, the San Miguel Fire Protection District ("District") is committed to protecting life, property, and the environment within its jurisdiction, including ensuring safe access and egress, responsible wildfire mitigation, and adequate emergency response capabilities for all residents and communities; and

WHEREAS, the District adopted the Fire Code for the San Miguel Consolidated Fire Protection District, inclusive of the California Fire Code, the International Fire Code, the National Fire Protection Association's Standards, and the County of San Diego Consolidated Fire Code, as Ordinance No. 2019-2 for the protection of the Public's health and safety; and

WHEREAS, the proposed Cottonwood Sand Mine Project ("Project") is located within the area served by the District, namely the South side of Willow Glen Drive, at 3121 Willow Glen Drive, El Cajon, California, a region designated as a Very High Fire Hazard Severity Zone; and

WHEREAS, large-scale mining operations, including blasting, hauling, and heavy equipment use, introduce significant fire ignition risks, particularly during periods of extreme heat, drought, and Red Flag conditions; and

WHEREAS, the increased industrial traffic associated with the Project is anticipated to negatively impact evacuation routes, delay emergency response times, and create congestion on rural roads that serve as critical ingress and egress points during wildfire or other emergencies; and

WHEREAS, the proposed operations could place additional strain on the District's limited personnel and resources, potentially requiring increased staffing, equipment, or mutual aid support without providing offsetting mitigation funding or impact fees; and

WHEREAS, airborne particulates, dust, and emissions generated by mining activity directly related to the Project pose a public health risk to nearby residents and responders, particularly those with respiratory vulnerabilities, and may complicate the District's mission to safeguard Public health; and

WHEREAS, the Project has generated significant opposition from local residents, environmental organizations, and regional public safety advocates due to its cumulative impact on Public health, safety, and wildfire preparedness; and

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the San Miguel Fire Protection District, that:

1) The District formally opposes the Cottonwood Sand Mine Project based upon its potential to adversely impact emergency services due to increased fire risk, interference with emergency response and evacuation infrastructure, and the Project's overall negative impacts to public health and life safety, unless and until the Project meets or exceeds all Public health and life safety concerns outlined by the District, and the Project receives formal approval from the District.

2) The District urges the San Diego County Board of Supervisors, Planning Commission, and all responsible permitting agencies to deny approval of the Cottonwood Sand Mine Project unless and until all Public health and life safety concerns of this District are met.

PASSED AND ADOPTED by the Board of Directors of the San Miguel Consolidated Fire Protection District this 14th day of May 2025 by the following vote:

AYES: **Directors McKenna, Muns, Nelson, Pierce, Raddatz and Woodruff**

NOES: **None**

ABSTAIN: **None**

ABSENT: **Director Robles**

ATTEST

Shayna Rians, Board Clerk

Kim Raddatz, Board President

Attachment C – Public Documentation
E-mail

3 - 459

From: lesliemurray100
To: Jacobs, Christopher
Subject: [External] Cottonwood Sand Mine project
Date: Sunday, September 10, 2023 1:22:45 PM

Dear Mr. Jacobs,

My mother is a resident of La Vita Real, a senior living community in Rancho San Diego. I am deeply concerned about the proposed Cottonwood San Mine. The location of a large sand excavation project in a residential community next to schools is troubling enough, but for it to be in such close proximity to the residences of hundreds of elderly people with a multitude of health issues is beyond concerning.

It is hard to believe that this plan is even being considered. The noise, traffic congestion, water and air pollution, and environmental impact on the area will be immense. Add to this the disruption of the quality of life of residents and visitors alike, and it is clear that this is not the ideal location for a project like this.

Please do not approve the Cottonwood Sand Mine proposal.

Thank you for your consideration,

Leslie Murray

From: Barbara Oberndorfer
To: Jacobs, Christopher
Cc: Larry Olds; Jennifer Alkatib
Subject: [External] Re: Cottonwood Sand Mine Project
Date: Monday, November 6, 2023 7:49:36 AM
Attachments: image001.png

Chris - good morning,

Thank you so much for your immediate response and email.

As you know, both Larry Olds and I met with Miyu Oda-DesHotels at her office last week. She was wonderful and took quite a bit of time learning of our concerns. She was able to address most everything, the Sand Mine Project status being one of our greatest concerns.

I have included my fellow HOA board members in this email. We live in Pasatiempo (Steele Canyon & Willow Glen), which is right in the middle of this proposed disaster. My entire community is vehemently opposed to this. It's vital we stay as informed as possible with any meetings or opportunities for the public to attend.

Chris, as a whole, we have other concerns within our community and I'm hopeful you might be able to provide some guidance. I'll meet with my fellow board members soon and follow up with our questions for your review and input.

Thank you.

Barbara Oberndorfer

On Fri, Nov 3, 2023 at 9:00 AM Jacobs, Christopher <Christopher.Jacobs@sdcounty.ca.gov> wrote:

> Good morning, Barbara,
>
> I am a planner at San Diego County, in the Department of Development Services. I understand that you have questions regarding the Cottonwood sand mine project. Feel free to call me at 619-323-8718 so that I may answer your questions directly. Alternatively, feel free to provide your question(s) in writing and I will write back to you.
>
> Thank you,

Chris Jacobs *(he/him/his)*

Land Use/Environmental Planner III – Project Planning

County of San Diego - Planning & Development Services (PDS)

5510 Overland Avenue, Suite 310

San Diego, CA 92123

Phone: 619-323-8718



From: Caren Rahn
To: Jacobs, Christopher
Subject: Re: [External] Recirculated Draft EIR for Cottonwood Sand Mine Project
Date: Sunday, November 5, 2023 9:42:42 AM

This is regarding a response I put in, in July. I replied to thread. I put the owner had already ruined a course in Carlsbad I meant “poway”.
Thank you so much!

Sent from my iPhone

> On Jul 21, 2023, at 2:27 PM, Jacobs, Christopher <Christopher.Jacobs@sdcounty.ca.gov> wrote:
>
>
> Good afternoon,
>
> Thank you for contacting the County of San Diego, Department of Planning and Development Services. Written comments will be compiled as part of the public record and response to comments will be provided in the Final Environmental Impact Report (EIR).
>
> Sincerely,
>
> Chris Jacobs (he/him/his)
> Land Use/Environmental Planner III – Project Planning
> County of San Diego - Planning & Development Services (PDS)
> 5510 Overland Avenue, Suite 310
> San Diego, CA 92123
> Phone: 619-323-8718
>
> -----Original Message-----
> From: Caren Rahn <cjcarebear2006@icloud.com>
> Sent: Thursday, July 20, 2023 5:27 PM
> To: Jacobs, Christopher <Christopher.Jacobs@sdcounty.ca.gov>
> Subject: [External] Recirculated Draft EIR for Cottonwood Sand Mine Project
>
> my comment on The Cotton wood sand mine is as follows:
> This should all be illegal to come into an area where multiple schools are and homes to disrupt and put us more in danger. There already is a sand mine down the way on willow glen by shooting range. It’s insane how many semis and how many accidents I have almost seen involving a semi.
> With this insane project it would raise it all.
> The man who bought the property to do this should be sued. Disgusting to ruin land people walk through and near schools and not to mention 2 lane roads. Why doesn’t he just do it to the Carlsbad course he ruined that’s right by the freeway. He only cares about his profit and not all else at stake.
> I hope you all take into consideration all aspects. Especially all the schools and two lane roads and sand mine that already is in action. It’s disgusting and all over money.
> Please save the land, the kids, the people and nature. Plenty of other sand around in safer areas. Help us matter.
> Thank you.
> Concerned resident of area.
> Caren Rahn
>
> Sent from my iPhone

3 - 463

From: opaque_pauses.0o@icloud.com
To: Jacobs, Christopher
Subject: [External] Cottonwood Sand Mine Project
Date: Sunday, November 5, 2023 4:00:55 PM

Mr. Jacobs
As a resident of La Vida Real I am very concerned about the impact that the Cottonwood Sand Mine project would have on our community.There are issues that would directly affect the residents here. The air quality here in the area is already compromised by congestion and change in global weather. The senior residents here, struggling with the aging process already have breathing, asthma, and other heath issues that this would exacerbate. There are other issues that are important to this community. The emergency response is always vital here at La Vida Real. Services will be spread more thin and response time will be compromised. A sand mine and it's processing plant is not consistent with this area and it's development of beautiful housing and shopping.

Neither the environment, and directly us, should be exposed to what ultimately is a choice being made by our city council.

Sincerely

Mary Osterling

From: Hagerty, Brian
To: Jacobs, Christopher
Cc: Leighton, Aimee; Quinn, Damien B.
Subject: FW: Sales Tax Revenue Opportunity
Date: Tuesday, March 25, 2025 5:02:39 PM

Hi, Chris:

I'm not sure where the Cottonwood Sand Mine project currently stands (https://www.sandiegocounty.gov/content/sdc/pds/ceqa/MUP-18-023.html), but our former OFP Director (Janel Pehau) is reminding us that the resulting sales tax revenue could come to the County government if there's a requirement included in the Major Use Permit to place the sand mine sales office in the unincorporated area. Please see below. (Sorry if we've brought this up before, and I've misplaced your response.)

I'm including Aimee (LUEG GFD) and Damien (current Director of OFP, where unincorporated sales tax revenue is monitored) for awareness.

Brian

From: Janel Pehau <jpehau@nationalcityca.gov>
Sent: Tuesday, March 25, 2025 4:12 PM
To: Hagerty, Brian <Brian.Hagerty@sdcounty.ca.gov>
Subject: [External] Sales Tax Revenue Opportunity

Hi Brian,

I think I mentioned this to you before, but because it's been in the news again recently in my area, I wanted to bring it up again. The subject is the proposed sand mining operation at the former Cottonwood golf course in the Rancho San Diego area. I don't have a vested interest in whether it eventually gets approved, but in the event that it does, I would hope there is a condition in the major use permit for the project that requires the sales office for the endeavor to be located somewhere in the unincorporated area so that the County gets the sales tax from the operations. There was a similar situation many years ago while I was still the director of OFP where we learned that a sand mining operation located in the unincorporated area had a sales office in the City of San Diego. The City of San Diego got to enjoy the sales tax revenue while people in the area near the sand mining operation got to put up with lots of noise and truck traffic. Perhaps you could ask the LUEG GFD to look into it.

Thanks,
Janel

Janel Pehau
Financial Analyst
Finance Department

City of National City
1243 National City Blvd., National City, CA 91950
T: 619.336.4246 M: 619.504.6254 | jpehau@nationalcityca.gov
Website | Facebook | Instagram | Twitter | LinkedIn

From: Daniel S. Weber
To: Jacobs, Christopher
Subject: [External] Objection to Cottonwood Sand Mine Project (PDS2018-MUP-18-023; PDS2018-RP-18-001; Log No. PDS2018-ER-18-19-007; SCH# 2019100513)
Date: Wednesday, May 1, 2024 11:34:46 AM

Dear Mr. Jacobs

I want to express my objection to the above referenced application for the proposed open pit sand mine at the current Cottonwood Golf Course. The possibility of allowing an industrial activity to operate an open pit sand mine across the street from a residential neighborhood (on the north side), next to a residential neighborhood (on its south side) and within one quarter (1/4) of a mile from an elementary school and County Park is not just bad land use planning but is an ecologically disastrous land use for Rancho San Diego and the proximate Jamul and Spring Valley communities as well for the Wildlife Refuges that abut each end of the property on which the proposed sand mine would operate. Just having to think about the prospect of an open pit sand mine causes clearheaded people to shudder at the thought of it.

Should the proposed sand mining operations become a reality, the negative ecological repercussions of an open pit mining operation will never be fully remedied for the surrounding communities or for the 2 wildlife refuges.

San Diego County's adopted Valle De Oro Plan designates the this land is to be used for recreational uses and a buffer for sensitive wildlife/habitat areas in the Jamacha Valley. The road adjacent to the proposed sand mine (Willow Glen Rd.) is designated part of the scenic road system for San Diego County. Willow Glen Rd. and Steele Canyon Rd. are used by bicyclists and running enthusiasts on a regular basis. Bicycle races are also held on roads adjacent to and that bisect the proposed sand mine property. Attached are photos showing these activities taking place on these roads adjacent to Cottonwood Golf Course. These photos were taken during the past year. One photo shows high school students running on the pedestrian trail right next to the proposed for the sand mine. The other shows cyclists using the bike lane next to the proposed sand mine property.

Due to Semi Truck-sized loads of sand and bulldozers excavating of, carrying of and dumping of sand on the sand mine's proposed conveyor belt, these daily recreational activities will be made more dangerous and unhealthy for those San Diego County citizens who utilize the bike lanes and walk ways on Willow Glen Rd. and Steele Canyon Rd. The dust and exhaust fumes generated daily from the 147+/- semi trucks hauling sand, the excavation equipment excavating the sand and the transfers of sand to to truck loading site will cause unhealthy particulates to be caught up in the breeze and to then only further blown around by the vehicular traffic on those streets that are that are adjacent or proximate to the sand mine's operations. Ultimately, resulting in the dust and particulates constantly being deposited on the citizens who live in the surrounding communities and the school children that attend Jamacha Elementary School and children who play at Steele Canyon Park.

To change or ignore the current land use designation is a breach of the County Government's promises not only to the local residents, but to the citizens who come to the area to drive the scenic roads, run and bike next to pleasant open space with out the threat of semi trucks careening past them at 45 to 50 miles an hour on their way to pick up or drop off their next load of loose sand and with out the mining operation despoiling the air, the river and the wild life refuges that the hikers enjoy when communing with nature.

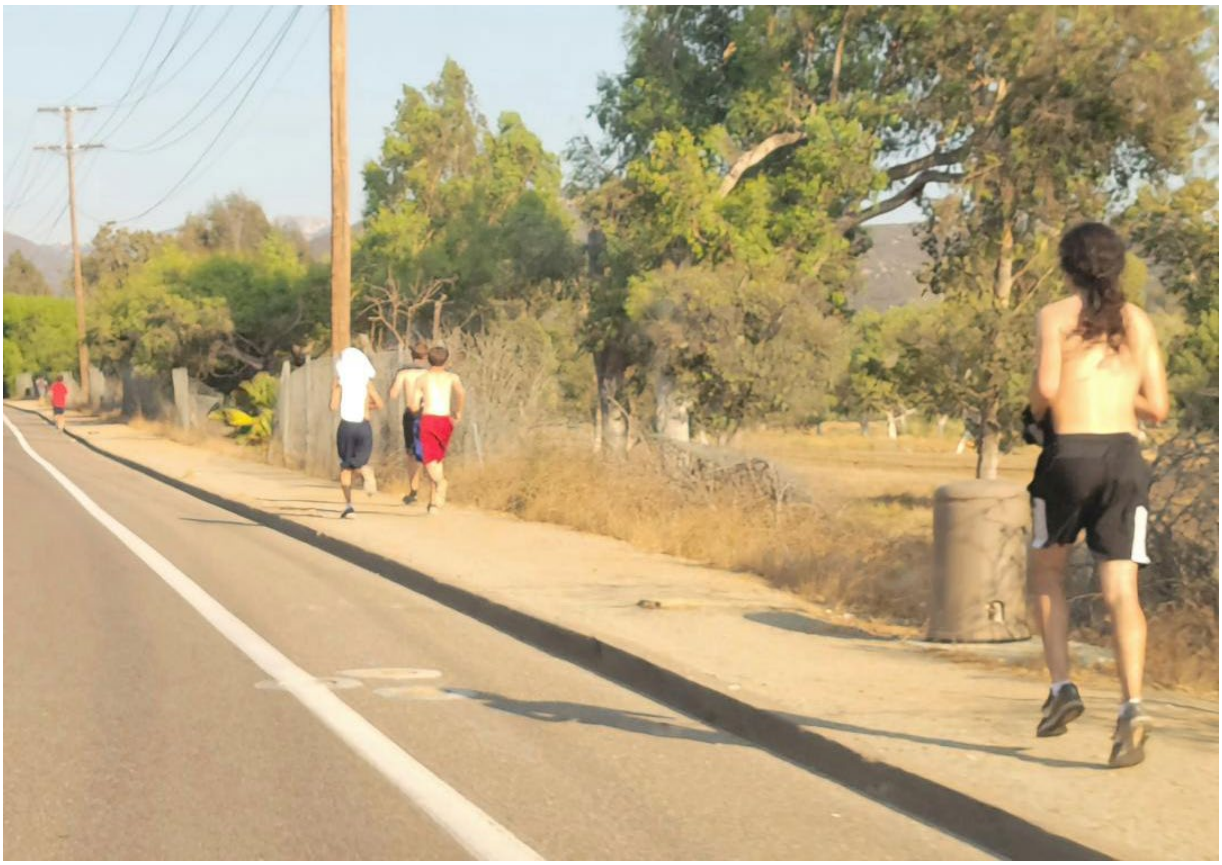
Please realize that there is no solution to the environmental damage this proposed mine will cause to the outdoor activities that the residents of San Diego County wish to enjoy in the Jamacha Valley. There is no viable way to that these proposed mining operations and its related activities can be conducted in a environmentally safe manner for the the 42,598 residents of Rancho San Diego, a substantial portion of the 8,624 residents of Jamul that are proximate to the southern edge of the proposed open pit sand mine nor for many of the residents of Spring Valley who live near the of the western end of of the proposed open pit sand mine or for any of the hundreds of San Diego County Citizens that utilize the streets and walkways for running, walking, hiking or biking next to or in the surrounding neighborhoods next to or school playgrounds near this proposed open pit sand mining operation.

For the protection of the health of the residents of San Diego County, this application must be denied.

Respectfully submitted,

Daniel S. Weber, Esq.
Goria, Weber & Jarvis
1011 Camino del Rio South, Suite 210
San Diego, CA 92108
(619) 692-9200







From: Rosner, Gregg
To: Jacobs, Christopher
Cc: Rosner, Gregg
Subject: Cottonwood Sand Mine and COSD CAP
Date: Friday, May 31, 2024 9:22:44 AM

Hi Chris,

I've been thinking about this mine proposal, and wanted to put out some ideas I have as an alternative to a sand mine. Please note, these are my own thoughts and have nothing to do with my position with the Treasurer Tax Collector nor are endorsed by the same. I'm a native San Diegan and want my home to remain a great place to live.

First, I believe that this property could make a tremendous contribution towards the County of San Diego's Climate Action Plan, but that would require the property be managed by the County and County Partners. I recognize the implications there but think it should be given serious consideration.

That said, with regards to the actual sand mine proposal I have a few questions:

1. If it were approved, what would their proposed mitigation actually look like, and what would be the next incarnation for the property after mitigation were completed? A new golf course? A housing development in the riverbed? Commercial development? A nursery, vacant land, a new stadium for the Chargers to come back to?
2. The sand from the mine is intended for use in cement production, but making cement itself is a tremendous producer of GHG as well as an emitter of all sorts of other toxic pollutants, pollutants that poison our communities, degrade our natural and green spaces and impose additional pressure and stress on those natural GHG mitigants, aka trees, and other CO2 fixers. The mining itself will degrade GHG mitigation, the products of that mine will degrade mitigation even more, how does that fit into the County of San Diego's Climate Action Plan?
3. Governor Newsom has unveiled a plan for capturing water and defending against weather extremes, I wonder how removing all of that sand that filters the Sweetwater River drainage and recharges (to some extent) the underlying aquifer will add to the Governors plan? One of the priorities in the plan is "[s]upporting local communities to successfully implement the Sustainable Groundwater Management Act of 2014" and I can't imagine removing that sand is going to help meet that particular priority.

The ***CAP*** is not just about reducing greenhouse gas emissions, but also sequestration of GHG, and equally as important, strengthening the ecosystems of our County to better face the challenges of the ongoing climate changes we face in the future. Zero carbon emissions by itself will not fix the GHG problem. We need to have proactive or positive impacts on those gases. We need more carbon storage, converting grass fairways to an oak, sycamore, and pine greenland and viable watercourse will surely result in a net increase in carbon storage.

Chapter 04 of the ***CAP***, **GHG Emissions Reduction Measures** discusses the facts and figures, the

sectors and goals and benefits and potentials that we all hope will help the "County to be a leader in the effort to address climate change."

Cottonwood Golf Club presents a great opportunity for the County to move forward in that goal, by first **not** becoming a GHG source directly through mining activities and trucking of sand through the communities of the East County, and indirectly thru the production of Portland Cement at some unspecified locations in the County. The applicant has said that the sand would be used locally to help address the regions "skyrocketing housing and infrastructure construction costs by providing local sand supplies" (East County Magazine July 2023 Articles "Cottonwood Sand Mine Project Brings Strong Opposition From East County Residents").

Per the ***CAP***, I believe that the *Sectors of Water and Wastewater, Agriculture and Conversation*, as well as *Energy,* are ones that would be impacted by my alternative to a sand mine plan. Here is a partial list:

Energy – Replacing the golf course clubhouse and restaurant facilities and their energy uses, lights, kitchens, golf cart charging, air conditioning etc., with open space in various guises such as a partial incorporation into the San Diego National Wildlife Refuge, a Sweetwater River parkland, Native Plant gardens, a working Demonstration Project for returning portions of the property to Native plant open space, Oak Tree plantings, walking and hiking trails, and more, will by itself reduce energy use in this unincorporated part of the County.

Water and Wastewater – Removing all that sand, sand that filters the Sweetwater River and all the runoff from the surrounding communities from the Sycuan Reservation thru Willow Glen, from Jamul through Rancho San Diego, will surely impact water quality. How much water will the sand mining operations use, tamping down dust, controlling wind erosion, cleaning equipment and so on, to impact the adequacy of the water supplies in the area, even if they were to use only reclaimed water.

Agriculture and Conservation – I look at the fairways and greens at the eastern end of the golf courses, and I see trees, Oak and Cottonwood and Sycamore, all native trees, making wood, fixing carbon from the air, creating an ecosystem that maintains and expands biodiversity and provides access to healthy outdoor spaces. I see the Sweetwater River and Reservoir reducing our dependence on water from the Colorado River by improving the underground aquifer that underlies this part of the County.

Opportunities for meeting CAP Goals

On the matter of Climate Co-Benefits and Community priorities, (page 43, 4.2 of Draft CAP Oct 2023) under Equity, improving community health by reducing noise and increasing trees is a direct benefit from not sand mining but from planting trees on parts of the property or just allowing trees to grow from the natural environment. There are also potential opportunities for expansion of green workforce training in both managing the new tree growth, as well as the project to restore other parts of the property to its natural state-identifying and removing non-native plants, growing native plants in a nursery type setting, possibly working with the Cuyamaca College Horticulture Department.

I believe there is a lot that can be done with this property that can be a positive contributor to the County of San Diego's Climate Action Plan, planting carbon absorbing tree's, reducing greenhouse gases, producing a cleaner watershed and reducing dependence on Colorado River imports, building a better environment for the communities in this part of unincorporated County of San Diego land, and strengthening the bonds between the people of Jamul and Rancho San Diego, Cuyamaca College, The Water Conservation Garden, the Jamul and Sycuan Bands, the McGrath YMCA, and many more stakeholders all up and down the Sweetwater River watershed.

Let me add that I recognize that this visionary proposal (!) would entail some sort of financial action by the County, perhaps along with Partners private and public, for example such as: U.S. Fish and Wildlife Service, California State Parks Association, Sycuan Band and the Jamul Indian Village of the Kumeyaay Nation, Cuyamaca Community College, McGrath YMCA, Moon Valley Nurseries, the Living Coast Discovery Center, Target Stores etc.

I also note that the County is still in need of affordable housing, a recent story about Del Mar building affordable housing on the Racetrack grounds made me think of it, perhaps that part of the property just east of Steel Canyon Road and North of Jamul Drive which already has some shuttered buildings there (I think it was some sort of halfway house or rehab center) that could have some housing built there using, for example, HHSA HCD funds or Grants from the State and Federal government, might contribute some units to that problem resolution and provide added fiscal benefits to the County in general.

Let me thank you for any attention you give to this letter, I just think that this property can be put to so much better use, for the benefit of so many more people, for the entire region, than this terribly short sighted and destructive proposal by the owner of the Cottonwood Golf Course. I see a GEM in the East County, not an ugly open sore in the Sweetwater River valley.

Thank you again,

Gregg Rosner
Sr. Accountant
San Diego County Treasurer-Tax Collector's Office
1600 Pacific Highway Room 151
San Diego, CA 92101
619-531-5609

From: Gaines, Georgina on behalf of LUEG, PDS.PlanningCommission
To: Jacobs, Christopher
Cc: Hofreiter, Daniella T
Subject: FW: [External] Cottonwood Salt mines
Date: Thursday, April 17, 2025 11:01:18 AM

-----Original Message-----
From: Jenae Sanders <jenaeners@icloud.com>
Sent: Thursday, April 17, 2025 10:18 AM
To: LUEG, PDS.PlanningCommission <PDS.PlanningCommission@sdcounty.ca.gov>
Subject: [External] Cottonwood Salt mines

Dear Planning Commission,

I am a resident of unincorporated El Cajon, and would be negatively impacted by the proposed plan to mine salt from the Cottonwood gold course area. The health, traffic, and environmental impact would be devastating to our community. I strongly urge you to NOT support this project moving forward.

Respectfully-
Jenae Sanders

From: TravisNJessica Clark
To: Jacobs, Christopher
Subject: [External] Rancho San Diego Project Inquiry
Date: Wednesday, November 20, 2024 9:56:40 AM

Morning Christopher,

I'm reaching out to get an update on the Sand Mill project proposal in Rancho San Diego. Im curious if you know about the certainly of this project; or if owners could be open to other businesses opportunities.

I'm a veteran spouse, small business owner looking for some mature landscape property in East County to open up a unique private community space.

If you are able to shine a light on this as a possible opportunity if the project is not going through, I would greatly appreciate it.

Thank you for your time

Jessica Clark

From: Lori Pierce <cultleaderbravo@gmail.com>
Sent: Friday, May 9, 2025 8:25 PM
To: LUEG, GroundWater, PDS <PDS.LUEGGroundWater@sdcounty.ca.gov>
Subject: [External] cottonwood sand mine

I am inquiring if you are aware of the proposed cotton sandmine project located on willow glen rd in el cajon. i understand from the state that your agency is to be contacted regarding this project is in accordance with local laws and regulations.

According to Brian Moniz with the State SGMA

"the area that you are referencing fall within the El Cajon Valley Groundwater Basin, which is ranked as a Low Priority Basin for the Sustainable Groundwater Management Act (SGMA). This is not to say that the issues within this basin are considered low priority. The Low Priority ranking means that the basin is not subject to the mandatory requirements of SGMA and is therefore not obligated to form a Groundwater Sustainability Agency (GSA) and develop a Groundwater Sustainability Plan (GSP). One of the founding principles of SGMA is that groundwater is best managed at the local level. That said we would divert to the local jurisdictions to step in make sure that the project you are referencing is in accordance with all local laws and regulations.'

He gave me your contact info, so i guess I am asking, if you have, or will look into this project, because I cannot even believe that this is actually an issue as they would be disrupting our aquafer. How is this even being considered?
Thank you for your time and hopefully we can deem this ecological disaster null and void.
lori pierce

From: Phillip Faker
To: Jacobs, Christopher
Subject: [External] Cottonwood Sand Mine
Date: Monday, March 25, 2024 2:10:26 PM

March 25, 2024

Planning & Development Services

Attention: Christopher Jacobs

5510 Overland Avenue, Suite 310

San Diego, CA 92123

Re: Cottonwood Sand Mine

Sent by email to: Christopher.Jacobs@sdcounty.ca.gov

Dear Mr. Jacobs,

As the proposal for the Cottonwood sand mine progresses to the planning commission, it is crucial to explore promising alternatives that align with our county's commitment to environmental stewardship while meeting the demand for fine sand aggregate essential for construction concrete. The promising alternative is "manufactured sand."

Globally, there is a growing trend towards banning sand mining from environmentally sensitive areas, notably riverbeds and streams. In some locations, the construction industry has pivoted towards manufactured sand as a sustainable solution. California's own BoDean Company in Santa Rosa has successfully embraced this approach as have other California rock crushing operators. Utilizing innovative machinery from companies such as REMCO Inc., these operators produce fine sand aggregate that meets the American Standards for Testing and Materials (ASTM) standards for construction concrete.

The recent "San Diego County Construction Aggregate Market Study" underscores the urgency of addressing our sand needs sustainably. The study projects a 2,400,000-ton deficit in 2024 and a 3,000,000-ton deficit in 2030. Currently, sand deficits are met through imports from Mexico and locations north of San Diego County, incurring significant transportation costs. The proposed Cottonwood sand mine's output of 570,000 tons annually falls well short of meeting current and future deficits. However, San Diego's existing rock crushing quarries, with the incorporation of manufactured sand production, could adequately and more economically, meet the county's demand for construction sand aggregate. Moreover, they can achieve this by utilizing quarry dust and other quarry waste materials.

Encouraging San Diego's existing quarries to adopt manufactured sand processes is crucial. While initial equipment costs and a lack of awareness among quarry operators about the benefits of manufactured sand may pose initial obstacles, the long-term advantages are undeniable. The county should strive to educate operators about the

extensive civil engineering research supporting the superiority of manufactured sand over natural sand. Additionally, offering financial incentives such as low-interest loans, tax credits, or cash subsidies could incentivize operators to incorporate manufactured sand into their product lines.

It is evident that the decision facing the commission extends beyond the approval of the Cottonwood sand mine. Rather, it is about embracing sustainable practices that safeguard our environment while fulfilling our construction needs. Manufactured sand presents a viable solution to this challenge.

I have accumulated an abundance of research material on this topic and can share it with you or any county planner who would be interested.

I would very much like to discuss this matter further and would appreciate the opportunity for a brief telephone conversation.

Sincerely,

Phillip J. Faker

619-987-9288 (Cell)

From: Phillip Faker
To: Jacobs, Christopher
Subject: [External] Cottonwood Sand Mine
Date: Thursday, September 26, 2024 11:36:42 AM
Attachments: Phil"s Research Summary 5 Condensed Revision 1.pdf

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Dear Christopher,

I have recently completed extensive research on the feasibility of using manufactured sand as an alternative to mining sand from riverbeds and streams. I have attached a PDF document containing my findings, which I believe could be of interest to you and your team.

The environmental impact of sand mining has become a critical concern, particularly in regions like ours where rivers and streams play a vital role in our ecosystem. Manufactured sand—produced by crushing rocks and aggregates—offers a sustainable alternative that minimizes the ecological disruption caused by traditional sand extraction methods.

I have also shared a copy of this research with the East County Magazine, and they may consider publishing it or a condensed version. However, I wanted to reach out to you directly to discuss the matter further. If you have the time, I would greatly appreciate the opportunity to have a brief telephone conversation with you. Your insights and expertise would be invaluable as we explore ways to promote environmentally responsible practices in construction and infrastructure development.

Thank you for your attention, and I look forward to connecting with you soon.

Sincerely,

Phil

619-987-9288

CAN MANUFACTURED SAND SAVE SAN DIEGO'S RIVERBEDS AND STREAMS?

Phillip J. Faker
09/09/2024

BACKGROUND

Portland Cement Concrete (PCC) is vital to the construction industry and the wider community. It is widely used in infrastructure projects, commercial and residential construction, renovations, and landscape projects. PCC is used for its unique qualities of strength, durability, and low cost.

PCC consists of a Portland cement paste mixed with water and aggregates (gravel, crushed stone, and **SAND**). There are two types of sand aggregate: 1) **Alluvial or natural sand**, mined from riverbeds and streams, and 2) **Manufactured sand (M-Sand)** made from crushing larger rocks.

THE PROBLEM

The ***March 2022 San Diego Construction Aggregate Market Study***[1] projected that, due to the lack of sand aggregate production in San Diego County, over two million tons of sand will need to be imported in 2024, increasing to three million tons by 2035. Transporting the sand increases the price of sand which results in a higher price for PCC which increases construction costs.

THE ALTERNATIVES

The challenge is to produce enough sand in San Diego County to meet demand. There are two alternatives:

1) Mining natural sand from specific riverbeds and streams, which is the objective of the Cottonwood Sand Mine (CWS) proposal, currently in the planning stage, or
2) Encouraging existing rock quarry operators to install the necessary equipment to add M-Sand to their aggregate product lines.

The Natural Sand vs M-Sand

In a 02/06/2023 article for Quarry Magazine, editor William Arnott wrote: "M-Sand is the economical and environmentally friendly substitute for the natural kind. Natural sand **is** a finite resource and we're running out of it. The situation is so grave, the United Nations warned us of a global sand crisis in 2022." Arnott states, "There is a growing concern about the impact on biodiversity of our waterways and the risk to populations living close to them, and this is making it harder and more expensive to get permits for future sand mining operations."[2]

But, people ask, why can't desert sand or coastal beach sand be used in making PCC? Arnott responds, "Desert sand is worn completely round by the wind and is effectively useless for

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[1] Prepared for the Sweetwater Authority by Crystal Waters Consulting, LLC, 2214 Faraday Avenue, Carlsbad, CA 92008.

[2]'Is Manufactured Sand the Future of Concrete?", Quarry Magazine -Environmental News Material Handling, Plant & Equipment; 02/06/2023; https://www.quarrymagazine.com/2023/06/02/is-manufactured-sand-the-future-of-concrete/ William Arnott is an experienced editor for Quarry, a publication that covers the mining and quarrying industry. With a focus on providing informative and engaging content, William's articles explore topics such as safety measures, equipment optimization, industry events, and notable partnerships within the sector.

construction concrete." He notes that coastal sand mining has already been banned in many locations. (California has banned the mining of coastal sand.)[3] Arnott concludes: "Luckily, there is a solution. M-Sand is more sustainable, environmentally friendly, and economical than traditional sand mining. Manufactured sand is the way forward."

With the development and technological advances of sand manufacturing equipment, M-Sand, when made properly, is now considered suitable for PCC. California's ***Standard Specifications for Public Works Construction***[4] popularly known as the "***Greenbook,"*** lists M-Sand, as authorized sand aggregate for PCC.[5] The City of San Diego, San Diego County, SDG&E and CalTrans have adopted the Greenbook specifications for sand aggregate. In many PCC design mixes, M-Sand can be used without the need to blend it with natural sand.

The Cottonwood Sand Mine (CSM)

CSM proposal involves a 10-year plan to mine 570,000 tons of sand aggregate annually from the Sweetwater River channel flowing through the Cottonwood golf course in East County. The CSM developer offers the argument that the delivered price of CWS sand will be less because transportation costs will be less than the natural sand currently being imported. This may be true, but it is equally true for M-Sand that can be produced by existing rock quarries located within San Diego County. Transportation costs in either case is not eliminated, but rather, reduced.

Another argument for the CWS is that, when compared to imported sand, CWS sand production will result in fewer vehicle miles traveled (VMT) by the heavy trucks that haul the sand, thereby reducing emission of greenhouse gases, air pollution, traffic congestion and road maintenance. Again, one can make the same argument for M-Sand.

TWO IMPORTANT QUESTIONS

1) **Can M-Sand compete in the San Diego aggregate marketplace?** The national sales director for a company that makes equipment needed to manufacture sand, thinks so. He claims that for an approximate $1,000,000 investment in his company's vertical shaft impact crusher and related equipment, rock quarry operators can make a reasonable profit and pay back the cost of the equipment in a brief period of time.[6] Moreover, M-Sand can be made using quarry dust and waste material from the rock crushing operation.
2) **How many vertical shaft impact crushers would it take to produce 570,000 tons of sand aggregate annually, which is the amount that the CWS will produce annually?** Each crusher can produce between 200-250 tons per hour. Operating the crusher 60 hours weekly for 50 weeks, one VSI crusher would produce 600,000 tons annually. Four VSI crushers could produce

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[3] State Lands Commission approves closure of last coastal sand mine in the continental U.S. | CA State Lands Commission

[4] The Greenbook is produced by a committee of public works officials and industry representatives.

[5] The Greenbook specifications for sand aggregate are found in Sections 200-1.5, 200-1.53 and 200-1.5.5 which list M-Sand as a suitable sand aggregate for PCC. The City of San Diego, San Diego County, SDG&E and CalTrans have adopted the Greenbook specifications. Section 90-1.02C(3) of the 2023 CalTrans Standard Specifications Book authorizes the use of M-Sand in PCC.

[6] He estimates the price for the undelivered M-Sand would be between $22-$28/ton. This is comparable to the current undelivered price for sand mined by Western Materials in Riverside County and the East County Sand Mine.

all of San Diego's sand aggregate needs projected in the March 2022 Construction Aggregate Market Study (cited above).

MOST IMPORTANTLY

Encouraging existing rock quarry operators to add M-Sand to their product line is vastly superior to placing a sand mining operation in a location surrounded by planned residential communities. The negative ecological impact and the negative impact on health, traffic, aesthetics, and real estate values in those communities over ten plus years of mining activity will be considerable and unnecessary.

WHAT CAN BE DONE

1. **Formation of a Joint Task Force:**
    - The County Planning Department and SANDAG (San Diego Association of Governments) could collaborate to establish a joint task force. This task force would bring together key stakeholders, including:
        - **Industry Leaders:** Representatives from the San Diego concrete and rock quarry industry and M-Sand equipment manufacturers.
        - **Planners:** Experts from San Diego County's planning districts.
        - **Civil Engineers:** Professionals specializing in concrete and aggregate materials.
        - **Environmental Advocates:** Individuals with expertise in sustainable practices.
    - The goal of the task force would be to develop a comprehensive, long-term plan to address the growing demand for concrete and concrete aggregate within the county.
2. **Global Best Practices Research:**
    - The task force should actively investigate what other districts worldwide are doing to mitigate the environmental impact of sand mining. Many places have taken steps to address this issue.[7]
    - **Banning Riverbed and Coastal Sand Mining:** Several regions have prohibited sand mining from riverbeds, streams, coastal beaches, and the ocean floor due to ecological concerns. San Diego County could learn from these examples.
    - **Alternative Sources:** Many areas have already successfully shifted toward alternative sources of aggregate. For example, Kayasand Limited, a New Zealand supplier of sand engineering equipment and technology developed by Kemco (Kotobuki Engineering and Manufacturing Co, Ltd of Japan) has opened New Zealand's first sand engineering plant. Bram Smith (CEO) says "the ***engineered sand*** produced is of high-quality and broadly meets the Japanese equivalent of ASTM C33 specifications.[8] It outperforms both manufactured and natural sand in concrete. It's of such good quality there's no need to blend it with natural sand. Additionally, it produces stronger concrete than natural sand with at least 10% less cement. Workability, pumpability, and finish of the concrete remain unaffected. The reduction of at least 10% of cement in concrete translates to a potential carbon emissions reduction of 6,000 tons per year. And the sand is made without the need for water and settling ponds.

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[7] India, Japan, New Zealand, Australia....

[8] ASTM (American Society for Testing and Materials). ASTM C33. This specification defines the requirements for grading and quality of fine and coarse aggregate for use in concrete. Fine aggregate shall consist of natural sand, manufactured sand, or a combination thereof. Fine aggregate shall be free of injurious amounts of organic impurities.

3. **Encouraging M-Sand:**
    - One specific recommendation is to incentivize or encourage rock quarry operators to incorporate M-Sand into their product lines. Here is why:
        - **Technical Feasibility:** Quarries can produce M-Sand alongside their rock crushing operations.
        - **Reducing Environmental Impact:** By promoting M-Sand, pressure on riverbeds is reduced which preserves sensitive ecosystems.
    - **Permit Considerations:** The task force could explore linking permit renewals or new permits for quarries to their adoption of M-Sand. This would encourage industry players to diversify their offerings.
    - **Consider Financial Incentives:** Offering quarry operators tax credits, low interest loans or cash subsidies to purchase equipment needed to manufacture sand might be considered.
4. **Public Awareness and Education:**
    - Engage the public, construction professionals, and developers in discussions about sustainable practices. Highlight the importance of responsible aggregate sourcing.
    - Promote awareness campaigns about the benefits of M-Sand and the need to protect natural sand resources.

Our collective efforts toward environmentally responsible construction practices can make a significant impact. Let us build a more sustainable future for San Diego County.

From: ht64ss <ht64ss@gmail.com>
Sent: Tuesday, September 3, 2024 7:30 PM
To: CodeCompliance, PDS <PDS.CodeCompliance@sdcounty.ca.gov>
Subject: [External] Cotton Wood Sand Mine Environmental Impact Report (EIR)

A question(s) for the CottonWood Sand Mine Environmental Impact Report (EIR).

Does the Environmental Impact Report (EIR) discuss the impact of how the removal of all the soil, sand and other
debris from the "sand mine" will have on the structure of the hillside that separates west of Willow Glen and east of wind river road.
Just like every oceanfront cliff or other landslide area of California, digging 50 feet into the ground will cause that whole hillside
to fall/slide causing damage to all of the homes along that ridge. Please look at this from the overlook just north of 2506 Wind River Rd and then from
willow glen as you look up at those homes. You would need to build structural protection to prevent this. We see it with our Surfliner train that travels up to LA.

Has great thought been looked at on the effects this will have on the sweetwater water supply and to those communities that rely on that water. The water travels from the mountains, through that golf course and then to the sweetwater reservoir.

I understand you are just now in review of the latest version.

Thank you,
Robert Jacques

-----Original Message-----
From: Steve Purkey <stevepurkey@yahoo.com>
Sent: Wednesday, February 5, 2025 6:17 PM
To: Jimenez, Ann <Ann.Jimenez@sdcounty.ca.gov>
Subject: [External] Cotton wood

Steve Purkey this should never happen.Just another example of the rich paying off the right people.No one would want to live near it.

Attachment C – Public Documentation
Petitions

christopher.jacobs@sdcounty.ca.gov

Planning & Developments Services, Attn: Christopher Jacobs,
5510 Overland Avenue, Suite 310
San Diego, CA 92123

Petition in Opposition to the Cottonwood Sand Mining Project

We, who have signed below, are opposed to the approval of a Special Use Permit for Cottonwood Sand Mining Project in Rancho San Diego. We own and board horses in the area and ride the trails in the National Wildlife Refuge. We would be put in danger by the large, loud, moving machinery that would be operating in near proximity to the riding trails. Horses and heavy equipment are not compatible. The noise and movement of heavy equipment naturally frightens horses and can cause them to bolt and run putting them and their riders in danger of injury and/or death. We have ridden these trails for decades in relative safety, and most of us have no other trail riding options. So, we urge you to reject the proposed project.

Name *(signed and printed)* Susan Leslie Susan Leslie

Address 7314 Stanford Ave City La Mesa Zip 91942

Phone 619 464 8869 Email souzzzle@gmail.com

Name *(signed and printed)* KT KURT GRUBE

Address 1831 CACHE CREEK ST. City EL CAJON CA Zip 92019

Phone 619 368-5600 Email KurG22599@gmail.com

Name *(signed and printed)* Mary Kerrebrock Marie Kerrebrock

Address 11019 Explorer Rd City LaMesa Zip 91941

Phone 619-993-6589 Email mkerrebrock@sandi.net

Name *(signed and printed)* Shawn McNeil S McNeil

Address 662 E CAMDEN AVE City EL CAJON Zip CA

Phone 619-379-2087 Email PatMcNeil1@COX.NET

(continued on page 2)

Name *(signed and printed)* Pamela McNeil Pamela McNeil

Address 662 E. Camden Ave City El Cajon Zip 92020

Phone 619-709-2135 Email pammcneil1@cox

Name *(signed and printed)* Kathleen Pryor KATHLEEN PRYOR

Address 10417 MOORPARK ST. City SPRING VALLEY Zip 91978

Phone 848 299-1380 Email KATHLEENPRYOR@gMAIL

Name *(signed and printed)* Patrick Garcia PATRICK GARCIA

Address 10417 MOORPARK ST. City SPRING VALLEY Zip 91978

Phone 619 670-2310 Email burgie6@cox.net

Name *(signed and printed)* Patricia Garcia PATRICIA GARCIA

Address 10417 MOORPARK ST. City SPRING VALLEY Zip 91978

Phone 619 670-2310 Email burgie6@cox.Net

Name *(signed and printed)* Amanda Garcia AMANDA GARCIA

Address 12 MAPLEVIEW ST. City LAKESIDE Zip 92040

Phone _____ Email _____

Name *(signed and printed)* Pamela Tarrel Pamela Tarrel

Address 12021 Calle DeMontara, #191 City El Cajon Zip 92019

Phone (619) 670-2336 Email nova12021@cox.net

(continued on page 3)

Name *(signed and printed)* Kun Ja Keeler Mauzy

Address 726 Carlsbad St. City Spring Valley, CA 91977 Zip

Phone Email

Name *(signed and printed)* Gillian Ryan

Address City Zip

Phone Email

Name *(signed and printed)*

Address City Zip

Phone Email

Name *(signed and printed)*

Address City Zip

Phone Email

Name *(signed and printed)*

Address City Zip

Phone Email

Name *(signed and printed)*

Address City Zip

Phone Email

christopher.jacobs@sdcounty.ca.gov

Planning & Developments Services, Attn: Christopher Jacobs,
5510 Overland Avenue, Suite 310
San Diego, CA 92123

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Name *(signed and printed)* Linda Michael LINDA MICHAEL

Address 10123 Grandview Dr.

City La Mesa Zip 91941

Phone (619) 251-7022 Email LRMICHAEL@COX.NET

Name *(signed and printed)* Leslie Baker Leslie Baker

Address 702 Broadway #2204

City San Diego CA Zip 92101

Phone 619-347-1386 Email lesalthof1@gmail.com

Name *(signed and printed)* Paula R. Kimball PAULA R. KIMBALL

Address 11525 FURY LN #91

City SAN DIEGO Zip 92019

Phone 619-507-9810 Email

(continued on page 2)

Name *(signed and printed)* GARY J AMARAL

Address 3916 Allen Sch Rd

City Bonita CA Zip 91902

Phone 619-267-7775 Email gary@garyjamaral.com

Name *(signed and printed)* ~~Megan Clark~~ Megan Clark

Address 12310 Spring Valley

City Spring Valley Zip

Phone 580-749-0157 Email IKnowImAWriter@gMail.com

Name *(signed and printed)* Julie Meyers

Address 4178 S. Tropico Dr

City LaMesa Zip 91941

Phone 619-507-2263 Email Julie Meyers6198@gmail.com

Name *(signed and printed)* Randy Meyers

Address 4178 S. Tropico Dr

City LaMesa Zip 91941

Phone 619 507-2210 Email Julie Meyers619@gmail.com

Name *(signed and printed)* Lauren Klepper

Address 1869 Elva St. ~~El Cajon, Ca~~

City El Cajon Zip 92019

Phone (619) 579-3442 Email lklepper@cox.net

(continued on page 3)

Name *(signed and printed)* P.B. Youngberg P.B. YOUNGBERG

Address 12020 Via Felicia, #

City El Cajon Zip CA 92019

Phone (619) 995-5023 Email pennyby12@att.net

Name *(signed and printed)* Veronica Thompson Veronica Thompson

Address 3179 Fair Acres Ln

City Spring Valley Zip 91975

Phone 858-761-7160 Email Veronicacsr@aol.com

Name *(signed and printed)* Carol Kubie CAROL KUBIE

Address 7711 Homewood Pl

City La Mesa CA Zip 91942

Phone 619-303-0821 Email QBSERVICES1@AOL.COM

Name *(signed and printed)* Connie Hegey

Address 7653 Sawgrass St

City El Cajon Zip 92019

Phone 6196749560 Email Cassieh2cox.net

Name *(signed and printed)* Erin E. Millikin

Address 1582 Paseo Aurora

City San Diego Zip 92154

Phone 619 863-5044 Email rin15@cox.net

christopher.jacobs@sdcounty.ca.gov

Planning & Developments Services, Attn: Christopher Jacobs,
5510 Overland Avenue, Suite 310
San Diego, CA 92123

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Name *(signed and printed)* Shannon Howard Shannon Howard

Address 506 Kempton ST City Spring Valley Zip 91977

Phone 619-778-0755 Email Shandgwrks@Hotmail.Com

Name *(signed and printed)* Shannon Howard Nicole Files Nicole File

Address 506 Kempton ST City SV Zip 91977

Phone 619-519-3800 Email nicolehoward1996@gmail.com

Name *(signed and printed)* Lauren White

Address 6622 Cartwright City San Diego Zip 92120

Phone (619) 820-1340 Email lewhite1010@aol.com

Name *(signed and printed)* Doreen A. Balinger (Doreen Balinger)

Address 4815 51st St City SD Zip 92115

Phone (619) 255-5519 Email EDOREEN@COX.NET

(continued on page 2)

Name *(signed and printed)* [signature] EDWIN L RALINGER

Address 4815 51st St City SAN DIEGO Zip 92115

Phone (619) 255-5519 Email EDOREEN@COX.NET

Name *(signed and printed)* Yolanda Sargent / Yolanda Sargent

Address 1432 Corte de las Rosas City El Cajon Zip 92019

Phone (619) 318-5076 Email Yolsarge@gmail.com

Name *(signed and printed)* Anna Marie Bartlett Anna Marie Bartlett

Address 10439 Celestial Waters Dr. City Spring Valley Zip 91977

Phone 619 922-1457 Email mbartlett619@yahoo.com

Name *(signed and printed)* Barry Rice BARRY RICE

Address 11523 FURY LN #108 City EL CAJON CA Zip 92019

Phone 619 647-7401 Email BARRYR3199@YAHOO.COM

Name *(signed and printed)* [signature] Cassie Ossingsen

Address 6878 Navajo Rd Unit 103 City SD Zip 92119

Phone 619 772-9063 Email OCassie2002@gmail.com

Name *(signed and printed)* Kathy Warrington KATHY WARRINGTON

Address 8220 Vinceta Dr City La Mesa Zip 9194-

Phone 619.994.7011 Email KATHY3WARRINGTON@yahoo.co

(continued on page 3)

Name *(signed and printed)* Leslie Wallis Leslie L

Address 3579 Alta Loma Dr. City Jam

Phone 361-877-8012 Email law

Name *(signed and printed)* Scott E. Wallis Scott

Address 3579 Alta Loma Dr. City Jam

Phone 361-813-8909 Email sew

Name *(signed and printed)* Traci Traci

Address 1810 Marlinda Way City El C

Phone 619.449.3944 Email tw

Name *(signed and printed)* JC James

Address 1810 Marlinda Way City El C

Phone 619-449-3944 Email har

Name *(signed and printed)* S R Simone

Address 8387 University Ave City La M

Phone 619 457 9974 Email roge

Name *(signed and printed)* Ann Ann

Address 5951 Estelle St. City San

Phone ~~619~~ 858-254-6681 Email ann

christopher.jacobs@sdcounty.ca.gov

Planning & Developments Services, Attn: Christopher Jacobs,
5510 Overland Avenue, Suite 310
San Diego, CA 92123

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Name *(signed and printed)* Linda Michael LINDA MICHAEL

Address 10123 Grandview Dr.

City La Mesa Zip 91941

Phone (619) 251-7022 Email LRMICHAEL@COX.NET

Name *(signed and printed)* Leslie Baker Leslie Baker

Address 702 Broadway #2204

City San Diego CA Zip 92101

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christopher.jacobs@sdcounty.ca.gov

Planning & Developments Services, Attn: Christopher Jacobs,
5510 Overland Avenue, Suite 310
San Diego, CA 92123

Petition in Opposition to the Cottonwood Sand Mining Project

We, who have signed below, are opposed to the approval of a Special Use Permit for Cottonwood Sand Mining Project in Rancho San Diego. We own and board horses in the area and ride the trails in the National Wildlife Refuge. We would be put in danger by the large, loud, moving machinery that would be operating in near proximity to the riding trails. Horses and heavy equipment are not compatible. The noise and movement of heavy equipment naturally frightens horses and can cause them to bolt and run putting them and their riders in danger of injury and/or death. We have ridden these trails for decades in relative safety, and most of us have no other trail riding options. So, we urge you to reject the proposed project.

Name *(signed and printed)* Shannon Howard Shannon Howard

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Name *(signed and printed)* Shannon Howard Nicole Files Nicole File

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Name *(signed and printed)* Ann S. Dayes

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Attachment D –
Environmental Findings

COITTONWOOD SAND MINE

PDS2018-MUP-18-0023; PDS2018-RP-18-001; PDS2018-ER-18-19-007
ENVIRONMENTAL FINDINGS
July 9, 2025

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) FINDINGS

1) Find that the California Environmental Quality Act (CEQA) does not apply to Projects that a public agency rejects or disapproves, pursuant to Section 21080(b)(5) of the Public Resources Code.

2) Find that the proposed project is consistent with the Resource Protection Ordinance (RPO) (County Code, Section 86.601 et seq.).

3) Find that plans and documentation have been prepared for the proposed project that demonstrate that the project complies with the Watershed Protection, Stormwater Management, and Discharge Control Ordinance (County Code, Section 67.801 et seq.).

4) Find that the project is consistent with the Multiple Species Conservation Plan (MSCP), the County Subarea Plan and the Biological Mitigation Ordinance (County Code, section 86.501 et seq.) as explained in the MSCP Conformance Statement dated June 13, 2025, on file with Planning & Development Services as Environmental Review Number PDS2018-ER-18-19-007.

Attachment E–
Ownership Disclosure

County of San Diego, Planning & Development Services

APPLICANT'S DISCLOSURE OF OWNERSHIP INTERESTS ON APPLICATION FOR ZONING PERMITS/ APPROVALS

ZONING DIVISION

Record ID(s): PDS2018-MUP-18-023, PDS2018-RP-18-001, PDS2018-ER-18-19-007

Assessor's Parcel Number(s) See attached sheet

Ordinance No. 4544 (N.S.) requires that the following information must be disclosed at the time of filing of this discretionary permit. The application shall be signed by all owners of the property subject to the application or the authorized agent(s) of the owner(s), pursuant to Section 7017 of the Zoning Ordinance. **NOTE:** Attach additional pages if necessary.

A. List the names of all persons having any *ownership interest* in the property involved.

Cottonwood Cajon ES, LLC

B. If any person identified pursuant to (A) above is a corporation or partnership, list the names of all individuals owning more than 10% of the shares in the corporation or owning any partnership interest in the partnership.

Michael Schlesinger

C. If any person identified pursuant to (A) above is a non-profit organization or a trust, list the names of any persons serving as director of the non-profit organization or as trustee or beneficiary or trustor of the trust.

NOTE: **Section 1127 of The Zoning Ordinance defines *Person* as:** "Any individual, firm, copartnership, joint venture, association, social club, fraternal organization, corporation, estate, trust, receiver syndicate, this and any other county, city and county, city, municipality, district or other political subdivision, or any other group or combination acting as a unit."

Michael Schlesinger

Signature of Applicant

Print Name

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