

STATE OF COLORADO

Colorado Water Conservation Board Department of Natural Resources

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TO: Colorado Water Conservation Board Members

FROM: Linda J. Bassi, Chief
Kaylea M. White
Stream and Lake Protection Section

DATE: May 10, 2010

SUBJECT: **Agenda Item 13, May 18-19, 2010 Board Meeting
Stream and Lake Protection---Injury with Mitigation---Case No. 4-
03CW108; Application of Upper Gunnison River Water Conservancy
District, Lake San Cristobal**

Introduction

This agenda item addresses a proposed pretrial resolution under ISF Rule 8i. (3) (Injury Accepted with Mitigation). Rule 8i (3) requires the Board to consider an injury with mitigation proposal using a two-meeting process. This is the first meeting of the process. This proposal is to mitigate impacts of installation and operation of structures that would lower the level of Lake San Cristobal to elevations below the CWCB's decreed Natural Lake Level ("NLL") elevation. The mitigation involves operational limitations, releases of some water for instream flow purposes, and a comprehensive monitoring plan for wetlands around the lake. The proposal would allow some injury to the Lake San Cristobal NLL water right, but it appears that the operational limitations, releases and monitoring proposed by Applicant will provide the mitigation necessary to enable the CWCB to continue to preserve the natural environment to a reasonable degree in Lake San Cristobal, despite any injury that could otherwise result from new operations of the lake. Applicant's formal request to the Board for approval of this proposal is attached to this memo as **Exhibit 1**.

Staff Recommendation

Staff recommends that the Board:

- 1) Make a preliminary determination that the natural environment of Lake San Cristobal could be preserved to a reasonable degree with the proposed injury if Applicant and any successors in interest, including the lake San Cristobal Water Activity Enterprise, provide the proposed mitigation; and
- 2) Provide comments to Staff on the proposal and identify any issues that the Applicant and Staff should address before bringing the proposal to the Board for final approval.

Background

The current Applicant is Upper Gunnison River Water Conservancy District (“UGRWCD” or “the Applicant”). However, at some point in the near future, UGRWCD plans to transfer the water court application, permits, grants, etc to the Lake San Cristobal Water Activity Enterprise (“the Enterprise”) established by Hinsdale County pursuant to § 37-45.1-101, *et seq.*, C.R.S. The Enterprise will be operated by Hinsdale County, the Town of Lake City, and UGRWCD pursuant to an intergovernmental agreement signed by the parties in 2009. The Applicant has requested a water storage right in Lake San Cristobal on the Lake Fork of the Gunnison River in Hinsdale County. The stored water is to be used directly or as a replacement source in UGRWCD’s proposed plan for augmentation including exchange to replace out-of-priority depletions within a portion of the District’s boundaries in the Gunnison River Basin. Out-of-priority depletions in the reach of the Lake Fork of the Gunnison River downstream of Lake San Cristobal would be augmented directly from the lake; those depletions upstream from Lake San Cristobal or on another tributary would be augmented by exchange.

To maintain the water storage space, Applicant proposes to install a structure at the outlet of the lake that will permit Applicant to control the lake surface level between 8,992 and 8,995 feet, representing a volume of 946 acre-feet of water (6.9% of the Board’s decreed NLL water right). Reservoir operations will lower the surface level below the Board’s decreed NLL of 8,995 feet during periods of augmentation releases. The permanent control structure is designed in part to mimic the effect of temporary rock structures that have been installed annually at the lake outlet since the 1970s.

The Board filed a statement of opposition to this application to protect its Lake San Cristobal NLL water right and its instream flow (“ISF”) water rights in the plan area. Negotiations regarding potential injury to the Board’s ISF water rights are ongoing. This memo and discussion focuses solely on injury to the NLL water right and UGRWCD’s plan for mitigation of that injury. The Board’s action in this injury with mitigation proposal shall not encompass the proposed augmentation plan with exchange, but will solely address the storage right in Lake San Cristobal. The exercise of the proposed rights could adversely impact the Board’s NLL water rights shown below. The Board’s ISF water rights that could adversely be impacted by the application are numerous and are not listed here. However, CWCB staff will negotiate separate terms and conditions to assure 100% protection of the Board’s ISF water rights in the plan area.

CWCB Case No.	Stream/Lake	Elevation (ft)	Approp. Date	Watershed	County
4-77W3366	San Cristobal Lake	8,995	5/12/76	Upper Gunnison	Hinsdale

(See map attached to this memo).

UGRWCD has agreed to mitigate the impact to the NLL by: (1) utilizing the outlet structure to maintain the lake surface level at the decreed lake level of 8,995 feet as long as possible; (2) releasing stored water from the lake in dry years, which may supplement CWCB’s ISF water right on the Lake Fork of the Gunnison River by replacing un-replaced out-of-priority depletions; and (3) dedicating 100 acre-feet of storage water to CWCB for downstream ISF use until the water is needed for augmentation.

Brief history of Lake San Cristobal

In 1928, Hinsdale Mining and Development Company obtained a decree in this “Natural Reservoir” to be diverted “though the Lake City Power Company’s Pipe Line” for the purpose of “production and electrical power for general use and application as a public utility; and not for irrigation purposes.” Decree in Case No. CA3516, page 147-148. The Pipe Line water right was abandoned in 1975, but the storage right remains on the DWR tabulation although it is not used.

According to UGRWCD's Injury with Mitigation Proposal, in 1954, Hinsdale County and the Town of Lake City acquired an easement to place a small dam across the Lake Fork at the lake outlet for the purpose of re-establishing the water level of the lake that had been destroyed by flooding. In the 1950's, the County constructed a timber-crib and rock-fill regulating-weir-dam on the easement. During the 1970's and early 1980's, the maintenance consisted of annually placing rocky material on top of the wooden structure following spring runoff to restore any material washed away by the runoff and to maintain a stable lake level during the summer. By the late 1980's, the wooden structure had deteriorated significantly. About this time, annual maintenance of the lake level was accomplished by placing large boulders in the lake a few feet above the dam following spring runoff in order to maintain a higher lake level during the non-runoff time. Installation of the boulders raises the lake level by two feet or more above the remains of the 1954 dam structure. This practice has continued to the present.

In 1977, the CWCB filed an application for a water right on the natural lake level to preserve the natural environment to a reasonable degree. At the time, apparently CWCB was unaware of any previous storage decrees in the lake and no one came forward to object to CWCB's NLL appropriation. The CWCB was awarded a decree for the NLL water right with an elevation of 8,995 feet, capacity of 13,545 acre-feet, and appropriation date of May 12, 1976. The CWCB subsequently adjudicated instream flow water rights on the Lake Fork of the Gunnison River in Case Nos. 4-80CW087, 4-80CW097, and 4-80CW119.

Extent of proposed injury

Since before the Board's appropriation of the NLL in Lake San Cristobal, the lake has been controlled to some extent by various temporary structures to keep the lake level at its higher elevation as long as possible during the summer months when the lake level might otherwise drop. The proposed plan is to install a permanent Obermeyer Spillway Gate (a row of steel gate panels supported on the downstream side by inflatable air bladders) at the lake outlet. This structure will provide: (1) a more efficient means to control of the lake level at its higher level during the summer months and; (2) a permanent adjustable mechanism to store and release the proposed 950 acre-feet of water supply. The injury to the Board's NLL water right will occur when the lake level is dropped below the decreed elevation of 8995 feet, as stored water is released for augmentation under this project. Most of the augmentation water will be needed during the 5-month irrigation season during dry years, but some may be needed year-round during dry and normal years. Injury to the NLL could occur at any of these times.

Mitigation Plan

Applicant plans to utilize the outlet structure to maintain the lake surface level at the decreed lake level of 8,995 feet as long as possible each year. This will provide a better natural environment in the lake for a longer period each year than without this structure. It appears that the lake level will remain at a higher level when the augmentation water is not used.

Stored water will be released from the lake in dry years, which will supplement CWCB's ISF water right on the Lake Fork of the Gunnison River. Without this stored water, CWCB may call for its ISF water right but curtailment of some junior wells would not yield water to the river because of delayed impacts. There is no other replacement water available to augment the wells. This project will provide replacement water for those depletions that would not otherwise be replaced, including those of the Town of Lake City.

A factor to consider in the mitigation plan is the fact that augmentation replacements by UGRWCD for out-of-priority depletions in the basin are currently released from Blue Mesa Reservoir. However, under the proposed plan, augmentation replacements to calls downstream of Blue Mesa Reservoir for depletions in the basin could be made from Lake San Cristobal;

therefore, the augmentation flows would be shepherded down the Lake Fork during periods of low flows increasing the stream flows through the instream flow reach.

The Applicant has also agreed to dedicate 100 acre-feet of storage water to CWCB for downstream ISF use until such time as all of the water is needed for augmentation. Applicant would maintain control of the other 850 acre-feet for its other decreed uses. Applicant estimates that the 100 acre-feet could be made available to CWCB for a period of at least 30 years. CWCB staff is considering this mitigation component and the legal mechanisms that could provide CWCB the ability to protect releases for ISF use.

The Applicant has been working through issues with the U.S. Bureau of Land Management, which owns part of the land around the lake, the Colorado Division of Wildlife (“CDOW”) and the U.S. Army Corps of Engineers (“USACE”) on wetlands issues. The Applicant is working towards obtaining a Nationwide Permit under Section 404 of the Clean Water Act for the project which requires a special condition incorporating an extensive wetlands monitoring plan. This plan and initial approval letter are attached as **Exhibit 2**.

Benefits of mitigation

At the Board meeting, Mr. Frank Kugel, General Manager of UGRWCD and the Enterprise, will present the Applicant’s project and proposal for Injury with Mitigation and will explain the benefits to the natural environment resulting from the outlet structure operations and other mitigation efforts.

It is anticipated that mitigation efforts to maintain the lake level at its decreed level as often as possible could increase the ability of Lake San Cristobal to sustain aquatic biota and the natural environment. Mitigation efforts that add water to the Lake Fork of the Gunnison River could improve the hydraulic conditions of the stream, increasing the ability of the stream to sustain aquatic biota.

Colorado Division of Wildlife Evaluation of Proposal

CWCB and CDOW staff members have met with the Applicant’s representatives to discuss this proposal. The CDOW staff’s preliminary analysis and recommendation will be provided at the Board meeting. CDOW has evaluated the proposed mitigation plan as it relates to the impact to the fisheries of Lake San Cristobal and the Lake Fork of the Gunnison River and believes the proposed mitigation and operation plans mitigate injury to the CWCB’s NLL water right by benefitting the natural environments preserved by that right. The CDOW’s analysis and recommendation only applies to the Applicant’s Injury with Mitigation proposal regarding the CWCB’s Natural Lake Level water right decreed in Case No. 4-77W3366 for Lake San Cristobal. The CDOW is reserving the right to make additional comments on any future 404 permits issued by the USACE regarding the Lake San Cristobal Project. All parties are currently assuming the USACE will determine that there is no net loss of wetlands (function and values) by the construction and operation of the project and the USACE will be issuing Nationwide 404 Permits (#’s 5, 7, 13 and 33) for this project and that an Individual 404 Permit is not required. However, if an individual permit is required by the USACE, for any reason, the Applicant’s proposed mitigation plan would need to be approved by both the Wildlife Commission and CWCB pursuant to C.R.S. 37-60-122.2 - Impacts to Fish and Wildlife Resources.

Alternatives

Because of the location of structures to be augmented on the Lake Fork of the Gunnison River by the Applicant’s plan for augmentation in relation to the senior calling water rights, no other physical water supply alternatives are available to the Applicant. The senior calling water rights

in this case include the CWCB's instream flow water rights on the Lake Fork of the Gunnison River. Other alternative considered were:

1. Constructing an outlet works that raises the surface level to approximately 8,998 feet;
2. Modification of the Board's NLL water right decreed to Lake San Cristobal pursuant to ISF Rule 9; and
3. Inundation of the Board's NLL pursuant to ISF Rule 7.

Given the minimal impact to the Board's NLL under this proposal, Applicant submits that the proposed alternative is the most reasonable alternative.

Terms and Conditions

Staff, the Attorney General's Office and Applicant have discussed proposed terms and conditions related to the injury with mitigation proposal. Some terms and conditions are yet to be negotiated, but injury with mitigation terms and conditions in the final decree should include the following:

1. Operational. Applicant will not take any actions that would reduce the lake level below the decreed NLL until the agreed-upon mitigation measures are in place and fully operational;
2. Maintenance. Applicant will commit to maintain the structures and improvements to the outlet works that provide the mitigation benefits, and acknowledge that any injurious releases from the lake would cease in the event the mitigation is not maintained;
3. Inspection access. Applicant will allow access for CWCB and CDOW staff to inspect the outlet structures, subject to reasonable limits and provisions for advance notice;
4. Measuring Devices. Applicant will install and maintain any measuring devices that are deemed necessary by the Division Engineer to administer the terms of the stipulation and decree implementing the Injury with Mitigation pretrial resolution; and
5. Retained jurisdiction. Applicant will include in any final decree a retained jurisdiction provision allowing the water court to enforce the provisions of the injury with mitigation stipulation as a water matter.

Staff anticipates that the parties will work to refine the above-listed terms and conditions and incorporate them into a stipulation and the resulting water court decree, along with standard protective terms and conditions.

Based upon staff and CDOW's discussions with Applicant's representatives, it appears that the Applicant's mitigation plan supports the conclusion that the natural environment of Lake San Cristobal can continue to be preserved to a reasonable degree under the conditions described herein as a result of the mitigation provided by Applicant. Staff and the Attorney General's Office have consulted with the Division Engineer on this proposal. The Division Engineer has concluded that this proposal is administrable, with one exception. Staff, Applicant, the AG's office, and the Division Engineer are working together to define the legal mechanism necessary to protect releases of the dedicated 100 acre-feet for ISF use.

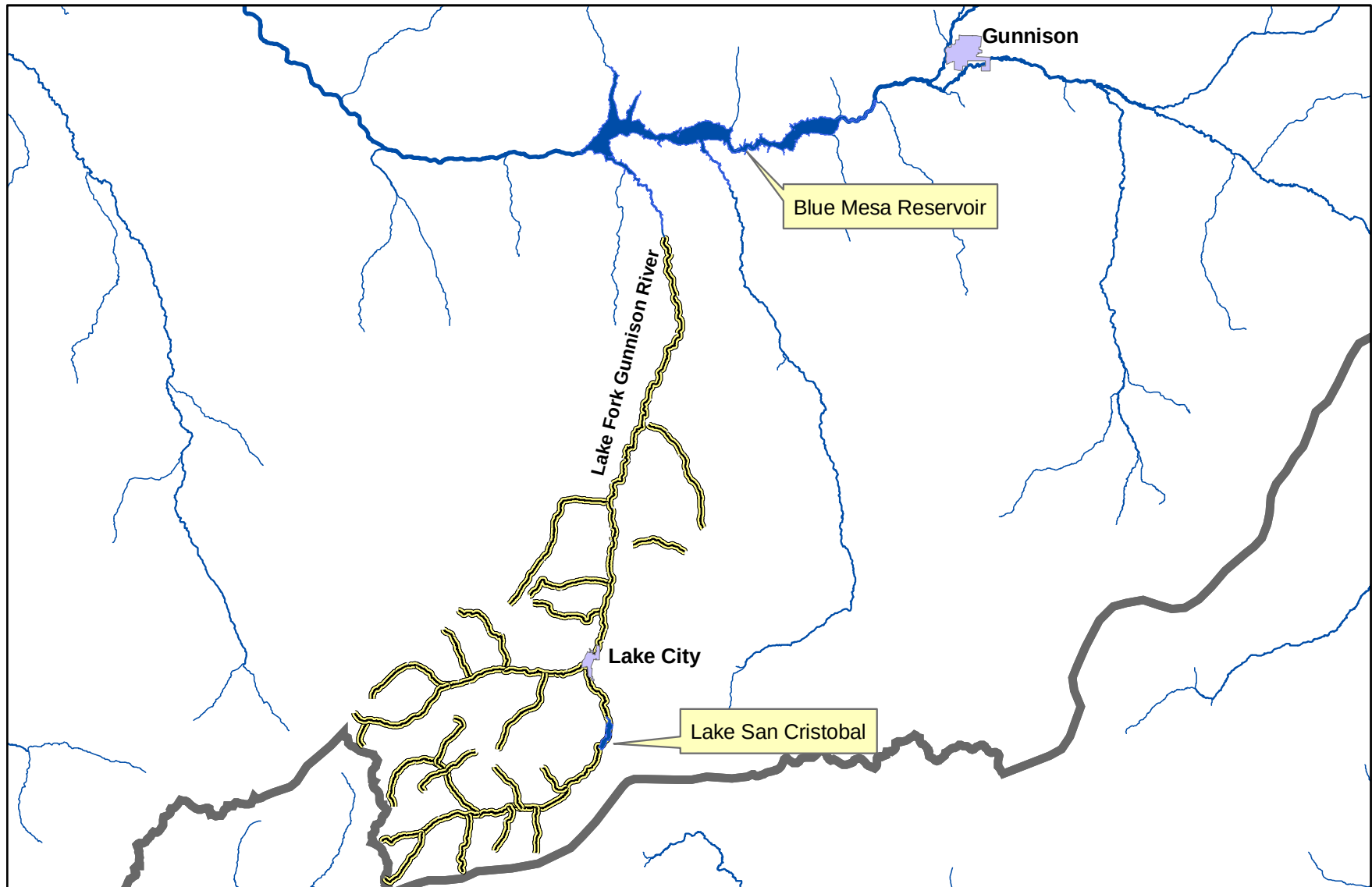
Staff Recommendation

As stated above, injury with mitigation is a two-meeting process. At the first meeting, the Board may “conduct a preliminary review of the pretrial resolution during any regularly scheduled meeting to determine whether the natural environment could be preserved to a reasonable degree with the proposed injury or interference if Applicant provided mitigation.” At a subsequent meeting, the Board may “take final action to ratify, refuse to ratify or ratify with additional conditions.”

Staff recommends that the Board:

1. Make the preliminary determination that the natural environment of Lake San Cristobal could be preserved to a reasonable degree with the proposed injury if Applicant and any successors in interest, including the Enterprise, provide the proposed mitigation; and
2. Provide comments to Staff on the proposal and identify any issues that Applicant and staff should address before bringing the proposal to the Board for final approval.

Attachments



May 18-19, 2010 Board Meeting
Agenda Item 13; Injury with Mitigation
Case No. 4-03CW108; Upper Gunnison River Water Conservancy District

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Exhibit 1

Agenda Item 13

Injury With Mitigation Proposal
for
Lake San Cristobal Outlet Works Enhancement



Upper Gunnison River Water Conservancy District
Hinsdale County
Town of Lake City

Colorado Water Conservation Board Meeting
May 18-19, 2010

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I. Executive Summary.

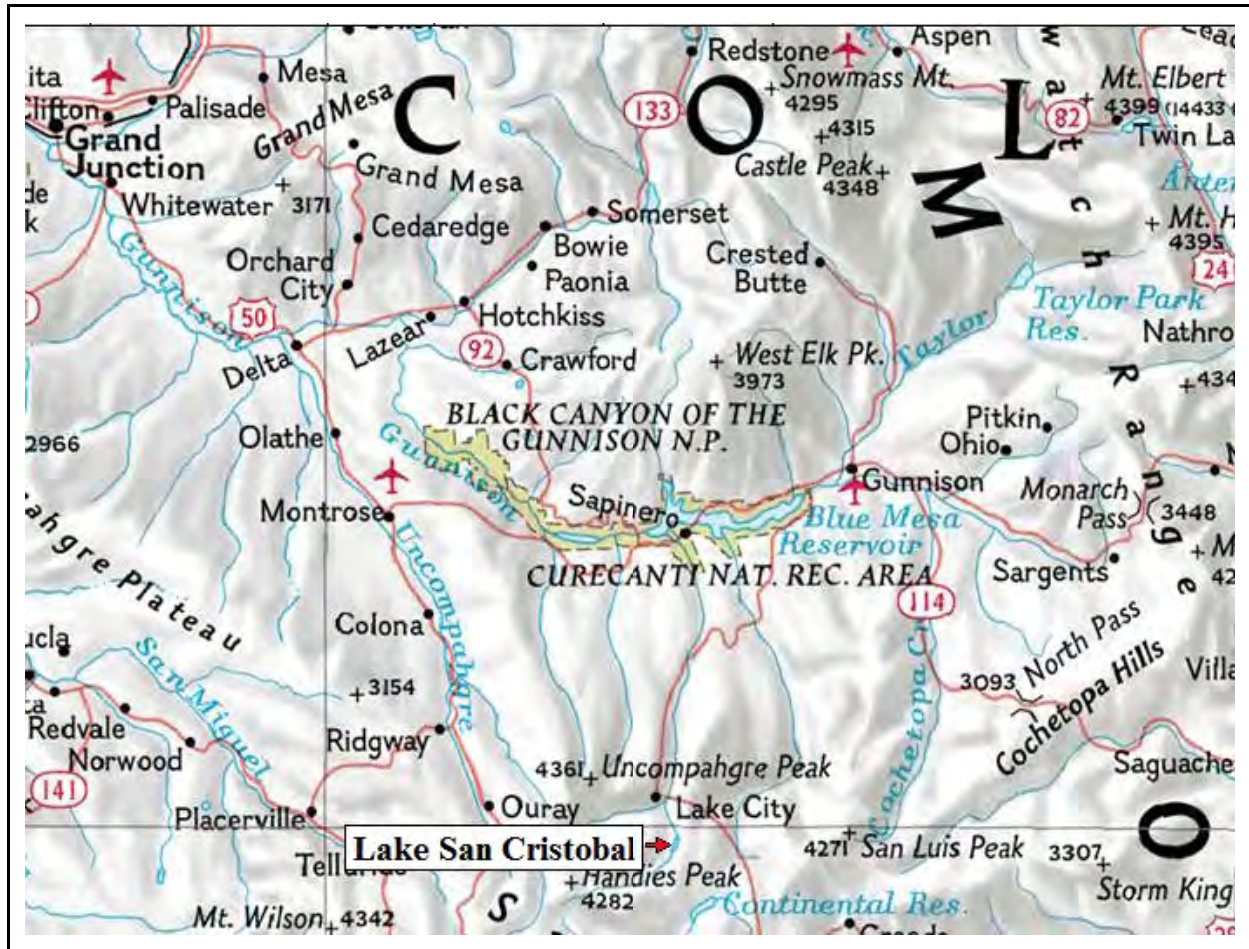
A water activity enterprise comprised of the Upper Gunnison River Water Conservancy District, Hinsdale County, and the Town of Lake City (collectively referred to as the Applicants) proposes to construct an improved outlet control structure on Lake San Cristobal (Lake). The proposed low profile outlet structure will improve existing regulation of lake levels and permit impoundment of water under a decreed storage right without altering historical conditions at the Lake. Water impounded under the storage right will be utilized for multiple purposes, including augmentation releases into the Lake Fork of the Gunnison River.

Efforts to impound water at this location began in the nineteenth century with uncertain results, but in 1954, Hinsdale County constructed a rock and timber dam at the outlet of the Lake that raised the natural lake level and was used to sustain it through Summer and Fall. When the timber structure began to deteriorate in the early 1970s, the County initiated the practice of supplementing the structure each year by placing boulders at the Lake outlet. Over time, the structure and the County's supplementation have collectively impounded enough water to raise the natural lake level approximately three feet. The new outlet works will replicate the County's historical practice more efficiently and will not raise the Lake level above the level continuously achieved by the dam and boulders during the last 55 years.

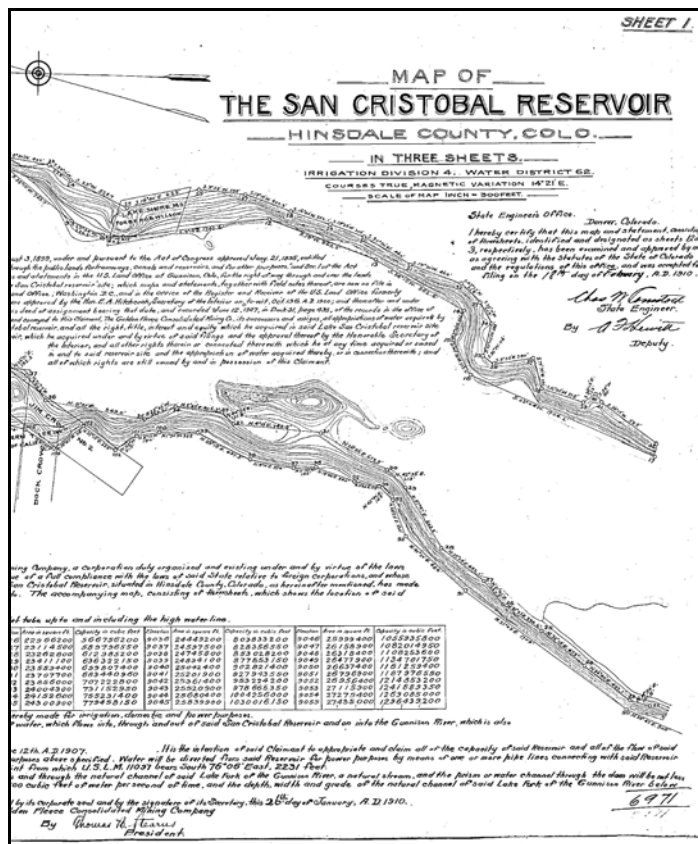
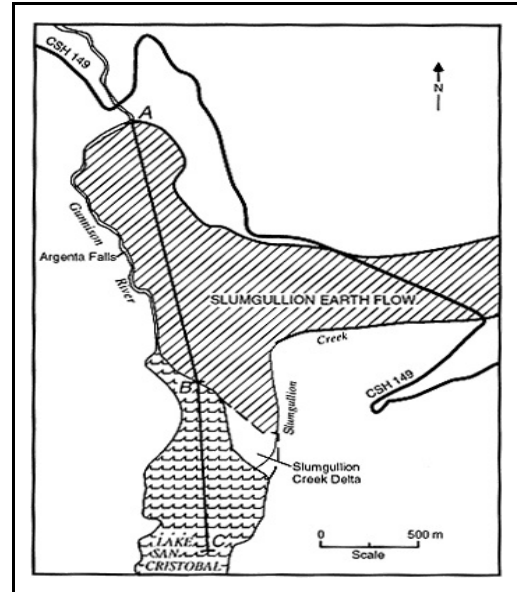
In 1976, the Colorado Water Conservation Board appropriated a water right to insure the preservation of a minimum lake level in the Lake to protect the natural environment to a reasonable degree. In 2003, the District filed an application for approval of a water storage right and plan for augmentation utilizing the Lake (Case No. 03CW108, Division 4, amended in December, 2008). The CWCB filed a statement of Opposition. The following presentation describes the history of man's interaction with the Lake and the Applicant's proposal for a pretrial resolution of that case that will allow the construction of enhanced outlet works for the Lake without adversely affecting preservation of the natural environment.

II. A Brief History of Lake San Cristobal (A.D. 1300-2004).

Lake San Cristobal is located in Hinsdale County, approximately three miles south of the town of Lake City. The Lake has a surface area of approximately 340 acres.



Approximately 700 years ago, the Slumgullion landslide dammed the Lake Fork of the Gunnison River, impounding the Lake. For many years there has been no evidence of movement of the toe of the slide forming the dam. Based on several U. S. Geological Survey studies and recent exploratory boring at the site, engineers employed by the Applicants to perform a feasibility study have concluded that the site provides a stable foundation for the proposed structure.

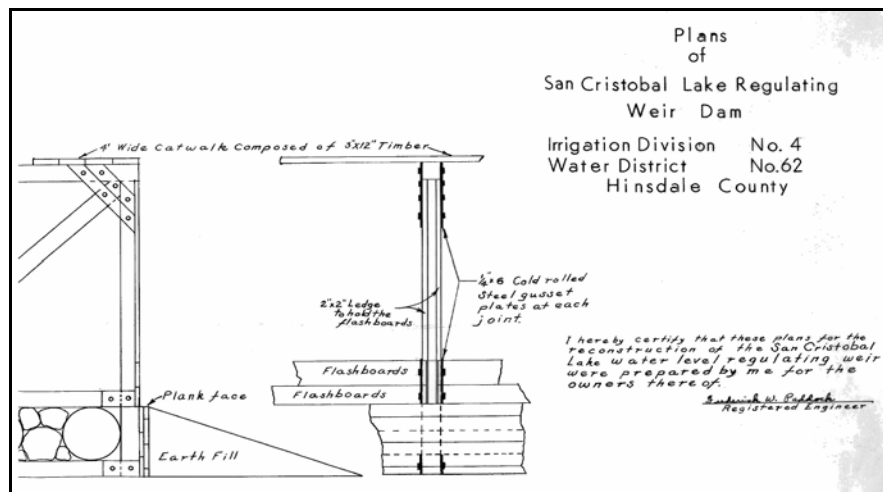


Efforts to impound the waters of the Lake Fork of the Gunnison River above the natural lake level commenced in the late nineteenth century. Court records disclose diversion of water into “Lake San Cristobal Reservoir” and application to a beneficial use as of August 3, 1898. Plans for construction of a dam and pipeline from the reservoir were filed in the office of the State Engineer on February 18, 1910. Subsequent filings reflect approval of diligent efforts to complete construction of the project.

On May 11, 1928, the district court of Montrose County entered a decree awarding the Lake San Cristobal Reservoir Priority No. 141 from the Lake Fork of the Gunnison River, determining that the reservoir had an “area [at] the high water line” of approximately 330 acres and a capacity of 9,786 acre-feet of water. The decree found that water from the river

had been stored in the reservoir and “later diverted therefrom . . . diverted and stored and applied for the generation of electrical power”. Water was to be conveyed from the reservoir to the power plant through the Lake City Power Company’s Pipe Line. The Pipe Line water right was decreed abandoned in 1975, but the storage right for the reservoir continues to be listed in the tabulation of water rights for District 62 in Water Division 4 with an appropriation date of May 11, 1906.

In the early 1950s, high water events occurred in the Lake Fork Basin, with the result that the Lake “was continuing to wash out during high water, thereby causing a danger to the lower Lake Fork area, and of losing the Lake”. In 1954, Hinsdale County and the Town of Lake City acquired an easement from the owner of the property “through which . . . runs the Lake Fork of the Gunnison River as it originates out of Lake San Cristobal” to “place a small dam” across the Lake Fork for the purpose of “re-establishing the water level” of the Lake that had been “destroyed” by flooding. Shortly thereafter, the County and the Chamber of Commerce constructed on the easement a timber crib and rock fill “regulating weir dam” across the Lake Fork utilizing plans prepared by Frederick W. Paddock, the Division Engineer.



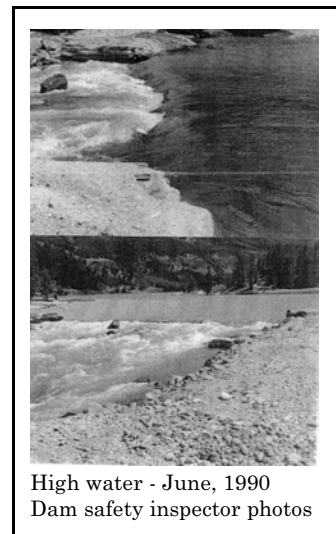
In 1956, the County sought and received from the State Engineer permission to install a baffle board on the dam for the purpose of raising the Lake level an additional eight to ten inches during low water periods in order to inundate the South end of the Lake to provide “food for the fish” and “a place for spawning”.

At that time, reservoirs with a capacity of 1,000 acre-feet or less were exempt from approval and inspection by the State Engineer, and no official state inspection record for the dam exists prior to 1971. However, since at least 1970, Hinsdale County Road and Bridge Department employees have performed annual maintenance on the dam. During the 1970s and early 1980s, the maintenance consisted of annually placing rocky material on top of the wooden structure following Spring runoff to restore any material washed away by the runoff and to maintain a stable Lake level during the Summer. By the late 1980s the wooden structure had deteriorated significantly, and the annual lake level maintenance began to be accomplished by placing large boulders in the Lake a few feet above the dam following Spring runoff in order to maintain a higher lake level during the “non-runoff time”. Various reports during this period establish that installation of the boulders raises the Lake level by two feet or more above the remains of the 1954 dam. This annual impoundment work has continued without interruption to the present.

Thus the Lake is, at least in part, a reservoir. The dam has been periodically inspected by the State Engineer since the minimum threshold for non-jurisdictional dams was reduced to a capacity of 100 acre-feet or less. Division of Water Resources records contain dam safety inspections of the wooden structure and the impoundment by boulder placement procedure from 1971 through 1990.

In December 1977, the Colorado Water Conservation Board filed an application for a water right to insure the preservation of a minimum lake level in Lake San Cristobal to protect the natural environment to a reasonable degree. The Application claimed that

“The lake in its natural condition contains approximately 13,545 acre-feet and the elevation of the natural water surface is approximately 8,995 feet, as derived from the applicable U.S.G.S. quadrangle” (which depicts 40 foot contour lines), with an appropriation date of May 12, 1976. A decree awarding that water right was entered in January, 1980. The CWCB subsequently obtained decrees awarding instream flow water rights in the Lake Fork of the Gunnison River above and below the Lake.



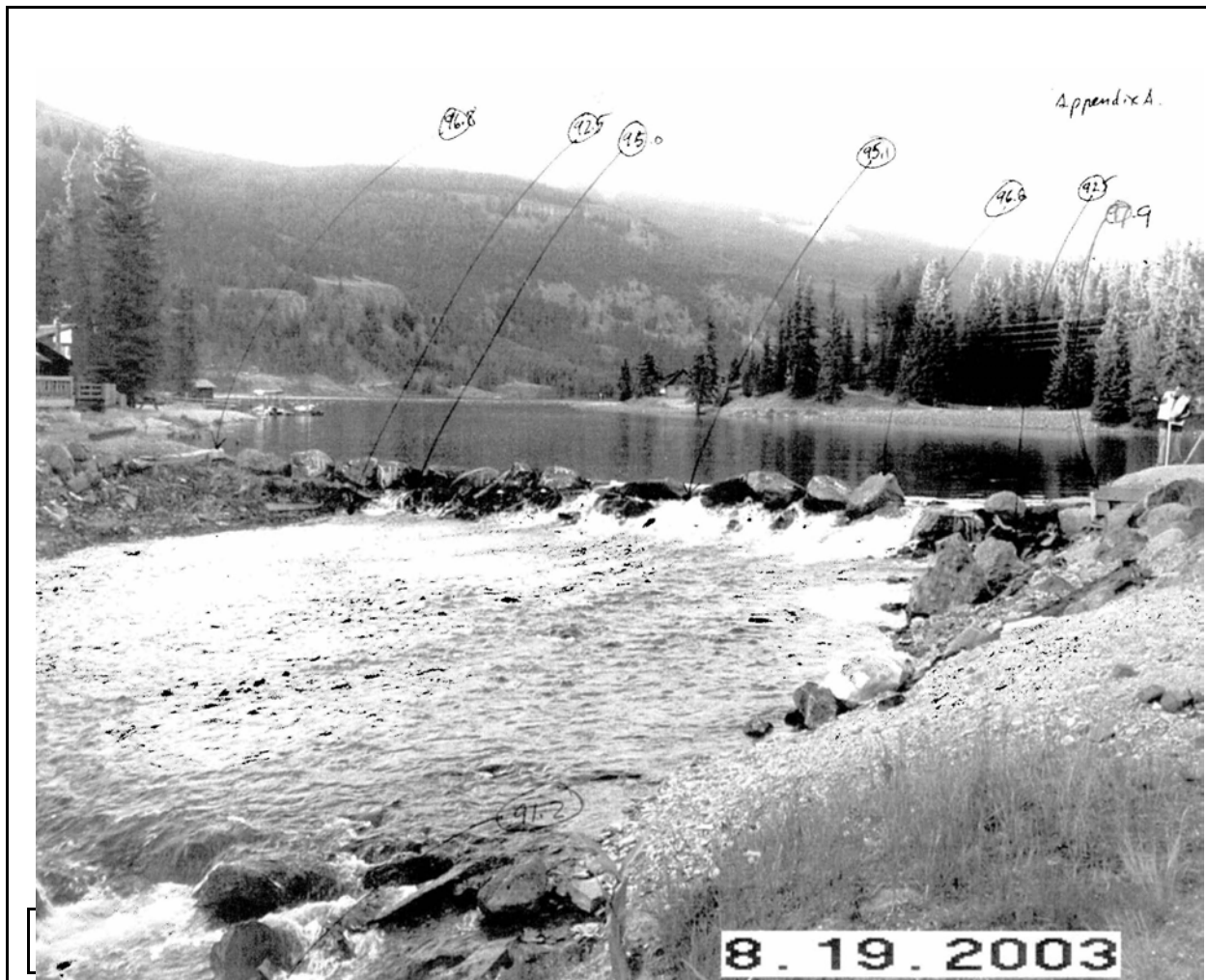
The drought of 2002 and 2003 drew local government's attention to the Lake as a potential source for augmentation water. Calls by senior downstream rights on the Gunnison River produced an increased awareness in the Lake Fork Basin of the need for a dependable supply of replacement water for augmentation of local depletions that does not require an exchange from Blue Mesa Reservoir. (CWCB instream flow water rights in the Lake Fork are senior to many diversions in the area, and interrupt the Blue Mesa exchange upon which their augmentation plans depend.) The County approached the Upper Gunnison District for assistance in developing an outlet structure for the Lake that could be operated to provide, among other things, a source for replacement water for the basin. To initiate the process, the District filed an Application for Storage Water Right seeking to appropriate 960 acre-feet of water - three vertical feet over 320 acres of surface area - to be stored in the Lake by means of an improved outlet works. The Application was based on general information and no plans had been developed for improvement of the existing outlet structure or construction of new outlet works.

In 2003, the District awarded the County a \$60,000.00 grant to conduct a feasibility study of constructing a new outlet structure. The study, completed by URS Corporation in April 2004 (the 2004 Study), disclosed that permanently raising the Lake level three feet above 8,995 feet (the approximate elevation decreed to the CWCB water right) would create adverse impacts, the most significant of which would be inundation of wetlands at the upper end of the Lake. The concept of raising the Lake level above 8,995 feet was therefore abandoned, and the Applicants began exploring alternative means to develop the needed storage.

The 2004 Study also disclosed - based on extensive surveying - that the historical natural lake level has varied between an elevation of 8,990 feet and 8,992.5 feet since the late nineteenth century. A survey conducted in 2003, based upon accurate benchmarks, establishes the natural lake level at an elevation of 8,992.5 feet from as early as 1971. (See Table 2-1 and the photographic attachment to the surveys from the 2004 Report below.)

Table 2-1
SUMMARY OF HISTORIC LAKE LEVELS

Date	Elevation (ft)	Data Source
1882 – 1890	8990 – 8991	Photographs page A-1
1950's	8991 – 8992	Photographs pages A-2 to A-4, Appendix B, Survey
1971	8992.5	Photographs page A-5, Appendix B, and Survey
2003	8992.5	Survey, Appendix B



III. The Proposed Project.

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conducted for the past 55 years, with greater dependability and efficiency, with no resulting negative impact on the natural environment and no new inundation of the lake shore; (2) permit storage of replacement water needed for augmentation for the Town's municipal water supply and for domestic wells in the Lake Fork Basin and a small area within the Upper Gunnison Basin; (3) simultaneously provide augmentation of the CWCB instream flow water rights in the Lake Fork of the Gunnison River downstream from the proposed structure; (4) provide the opportunity to enhance recreational use of the Lake and the fishery in the Lake and in the Lake Fork downstream from the Lake and (5) improve mitigation of high flow events in the Lake Fork of the Gunnison River.

The controlled outlet structure that Applicants propose to construct is an Obermeyer Spillway Gate, a row of steel gate panels supported on the downstream side by inflatable air bladders (see Appendix). By controlling the pressure in the bladders, the water elevation maintained by the gate can be infinitely adjusted from fully open to fully closed. Because water is constantly flowing over the structure, and because other structural elements will be given a natural appearance, it will have minimal visible impact. Devices will be installed to measure the amount of storage and the rate of release.

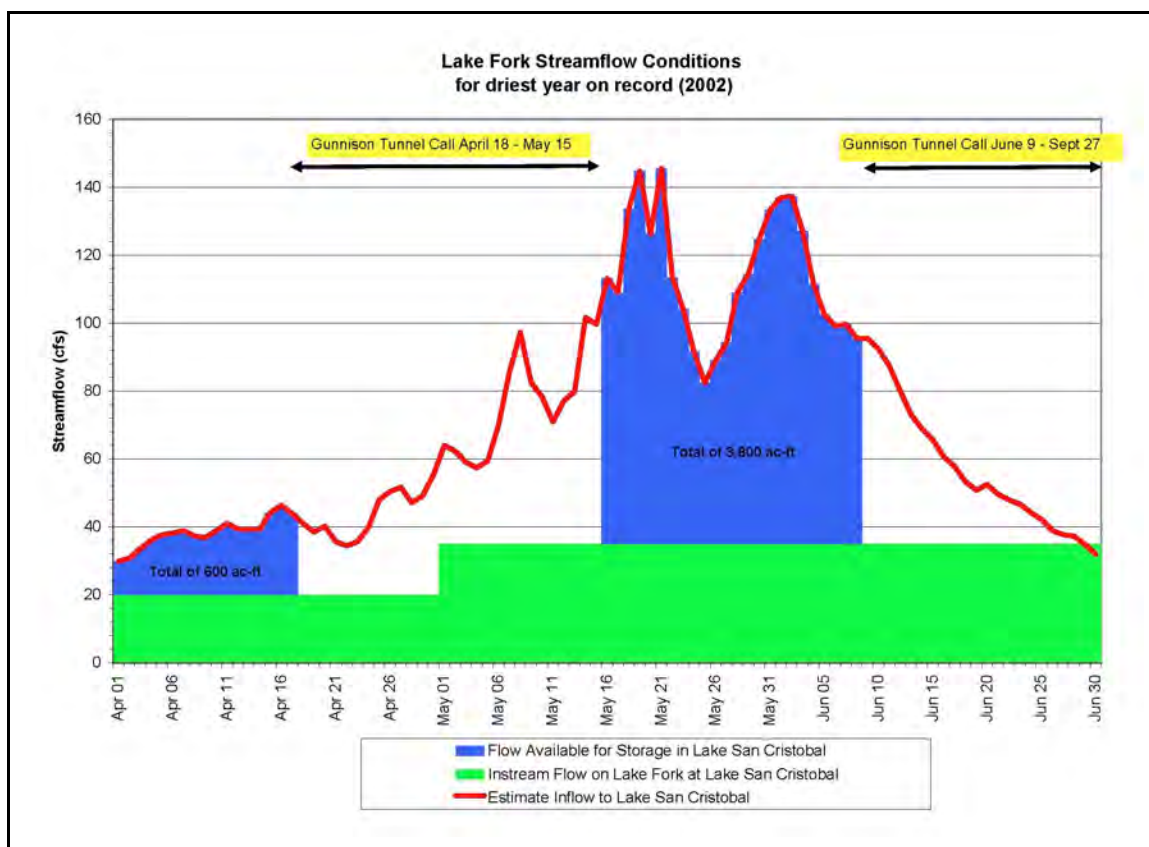


Photographic simulation of outlet structure (Buckhorn Geotech)

The structure will have a maximum height of approximately three feet, and fully elevated will impound approximately 950 acre-feet of water at a surface elevation of 8,995 feet above sea level.

Releases of water impounded by the structure will be made in accordance with a plan for augmentation approved by the Division 4 Water Court. The application filed by the District in 2003 was amended in December, 2008, based on more recent information and more specifically outlining the plan for augmentation. Each of the Applicants has a distinct interest in developing the plan for augmentation. The Town of Lake City relies on two wells for its municipal water supply, both with very junior water rights. Presently the wells are augmented by exchange utilizing replacement water stored in Blue Mesa Reservoir pursuant to a contract with the Bureau of Reclamation. The CWCB instream flow water rights in the Lake Fork of the Gunnison River are senior to that exchange, and could therefore require curtailment of the Town wells in times of shortage. In addition, because the Blue Mesa contract is for a finite term, the Town seeks to secure a future supply of replacement water to protect its existing wells and allow future growth within its boundaries. The County and the District wish to provide replacement water for augmentation of domestic wells and other junior water rights in their over-appropriated basins, both in lieu of and in addition to Blue Mesa contract water utilized for augmentation by exchange. All of these uses represent development of Colorado's entitlement under the Colorado River Compact.

A marketable yield analysis funded by the Gunnison Basin Roundtable and CWCB established that, even in the driest year on record, sufficient unappropriated water is available to achieve the anticipated amount of storage. As illustrated by the graph below, prepared by Slattery Aqua Engineering, the study concluded that 4,400 acre-feet could have been stored in priority in 2002. The analysis also concluded that the firm yield of the project would equal the total amount stored.



Assuring sufficient flow to fill the 950 acre-feet of storage under 2002 conditions may require negotiation of a power interference agreement or some other accommodation with the holder of a 1989 hydropower water right in the Lake Fork of the Gunnison River. The flume for the power plant is located on the river at Crooke's Falls approximately two river miles below the Lake, just upstream from Lake City. The hydroelectric plant is a small privately owned plant that has generated power intermittently since 1994.

The structure will be operated to store water during Spring runoff, and then maintain the surface level of the Lake at an elevation of 8,995 feet throughout the Summer and Fall through adjustments to the gate elevation. Releases for augmentation will be made as required by the Division Engineer. Applicants are seeking a second annual filling in the event that releases are required and water is available for storage in priority thereafter. This operation replicates the historical practice described above, but with greater efficiency and with provision for administration. The current estimate of the cost of the project is \$539,500, about \$570 per acre-foot.

IV. Applicants' Proposal for Injury with Mitigation.

Consulting Rule 8i(3)(e) of the *Rules Concerning the Colorado Instream Flow and Natural Lake Level Program*, the Applicants submit the following:

The injury to the natural lake level water right decreed to Lake San Cristobal in Case No. W-3366 consists of installation by Applicants of a structure at the outlet to the lake that will permit Applicants to control the lake surface level between 8,992 feet and 8,995 feet, representing a volume of approximately 946 acre-feet of water (6.9% of the decreed natural volume of the lake). Thus, reservoir operations may lower the surface level below the natural lake level decreed elevation of 8,995 feet during periods when augmentation releases are required to be made from the reservoir.

The amount, timing and frequency of the injury are defined by operation of the outlet structure. The structure will be operated in accordance with the Lake San Cristobal Operating Plan which will be incorporated into the decree approving the Applicants' plan for augmentation in Case No. 03CW108.

The water use that would cause injury is critical augmentation of present and future domestic, irrigation and evaporative consumptive use in the Lake Fork, Cebolla Creek and Upper Gunnison River basins.

The proposed mitigation consists of (1) utilizing the outlet structure to improve maintenance of the lake surface level at the decreed natural lake level of 8,995 feet, (2) storing water that will be released from the impoundment in dry years to supplement CWCB instream flow water rights in the Lake Fork of the Gunnison River downstream from Lake San Cristobal.¹ The Applicants have agreed to dedicate 100 acre-feet of water stored in Lake San Cristobal for use by CWCB, in its discretion, for any purpose that serves to preserve or improve the natural environment to a reasonable degree until such time as that water is required to meet demand for augmentation, estimated to be at least 30 years in the future. Additional mitigation is provided by releases from the impoundment to respond to calls from senior rights downstream from the instream flow reach, which will be shepherded through the

¹ The instream flow rights can legally call the river when the flows fall below the decreed level, but the junior water rights subject to curtailment are primarily wells. Without the impoundment there is no source of replacement water to respond to a call on a real time basis.

instream flow reach during periods of low flow and will help to protect the fishery in the Lake Fork.

Because the outlet structure will improve maintenance of the lake surface level at the decreed natural lake level elevation, it will enhance CWCB's ability to protect the natural environment to a reasonable degree.

Given the location of the structures to be augmented by the Applicants' plan for augmentation in relation to the calling senior rights, no other physical water supply alternatives are available to Applicants. Existing plans for augmentation in the Lake Fork basin rely on an exchange from Blue Mesa Reservoir. Drought conditions in 2002 demonstrated that CWCB instream flow rights in the Lake Fork prevent operation of that exchange when the instream flow rights are not being satisfied. Other alternatives considered, and rejected after consultation with CWCB staff, were: (1) constructing an outlet works that raises the surface level to approximately 8,998 feet; (2) modification of the natural lake level water right decreed to Lake San Cristobal pursuant to Rule 9; and (3) inundation of the natural lake level water right pursuant to Rule 7.

Given the minimal impact of the proposed injury, Applicants submit that it is the most reasonable alternative.

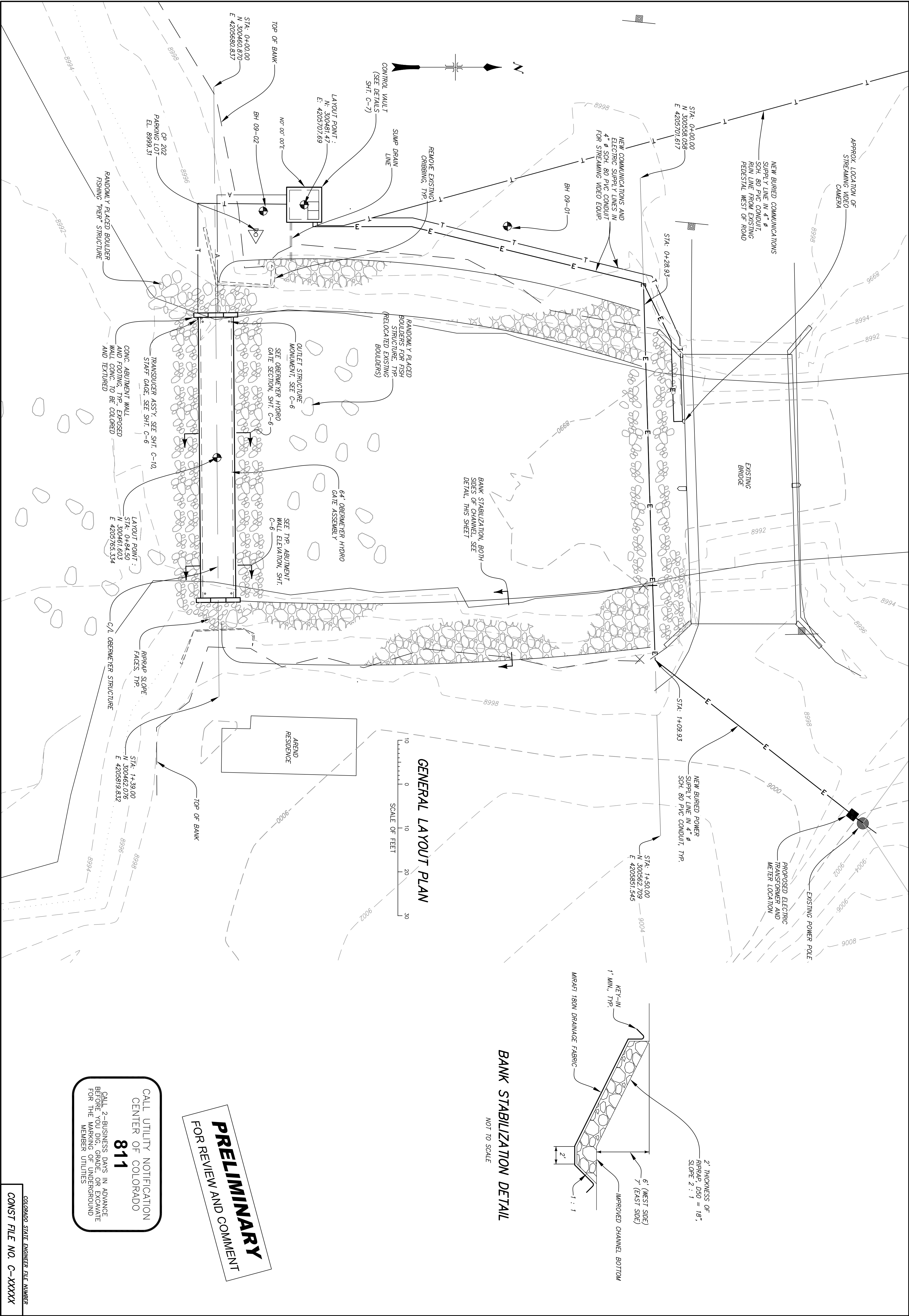
Exhibit 2

Agenda Item 13

Appendix

General Layout Plan

Structure Layout Plan and Details



REVISIONS	DATE

LAKE SAN CRISTOBAL
OUTLET PROJECT
GENERAL LAYOUT PLAN

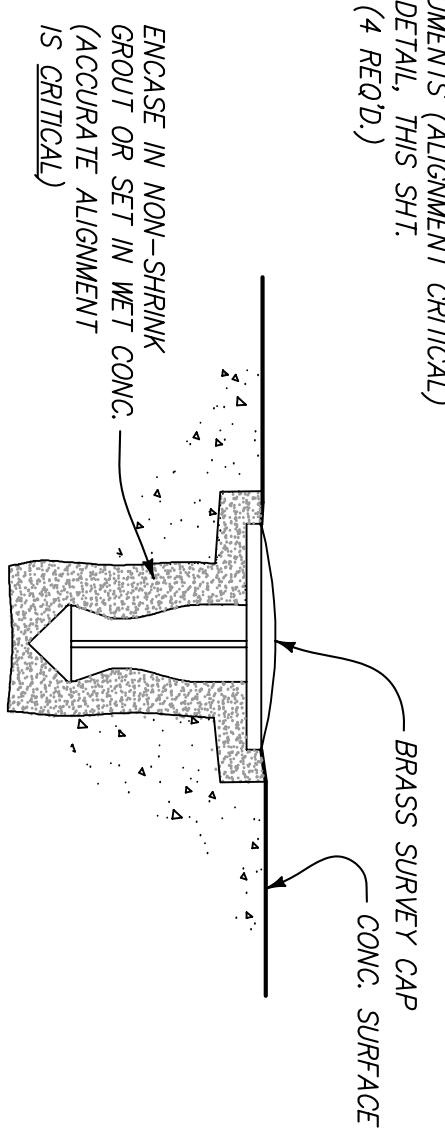
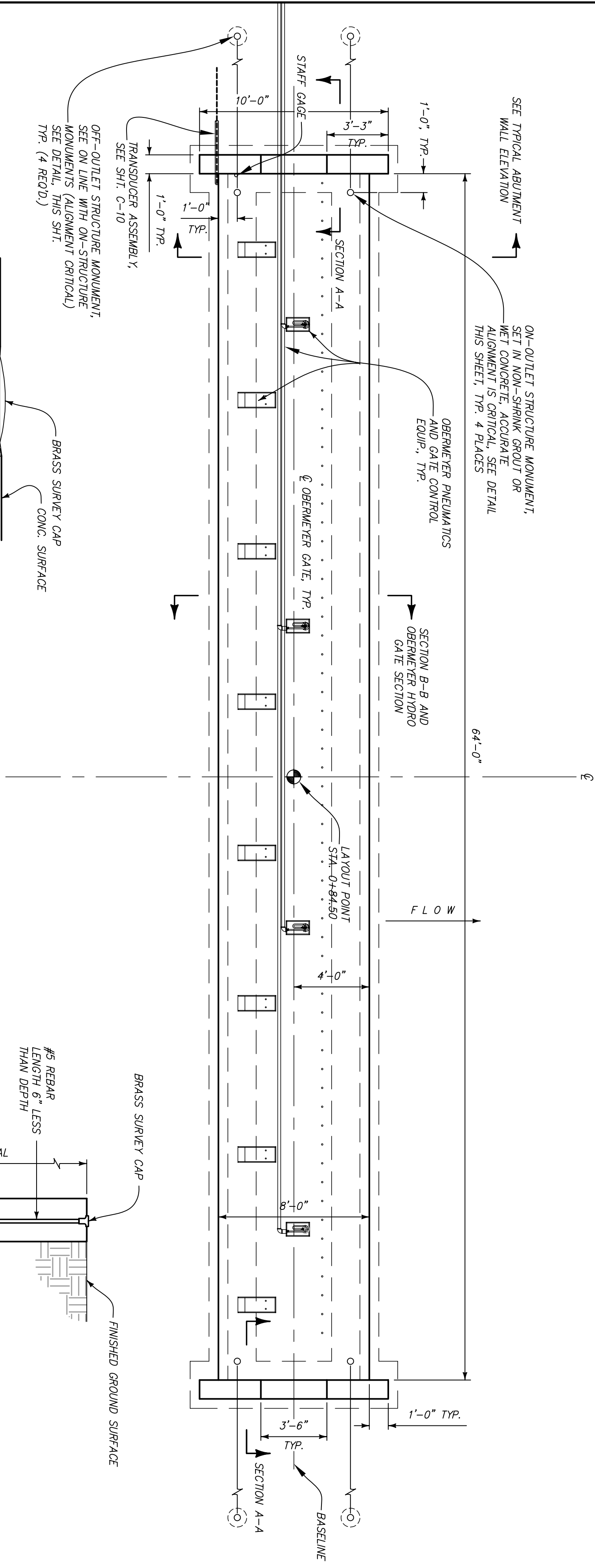
DESIGNED
ELK

DRAWN
DJP

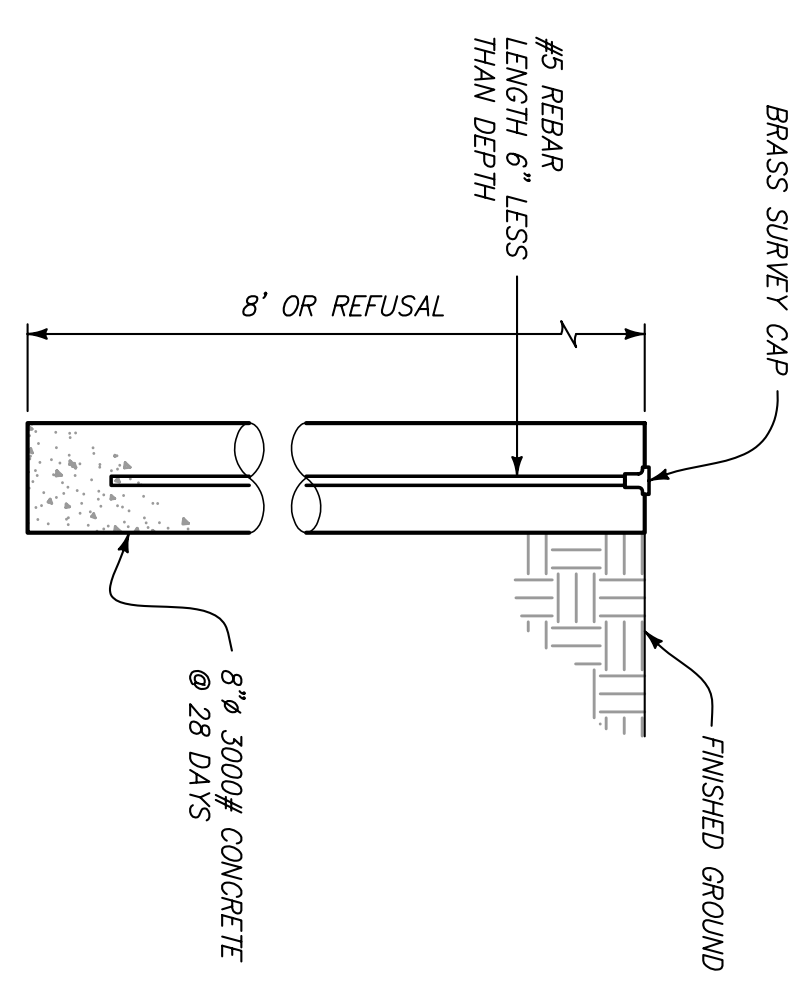
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PROJ. NO.
06-101CIV

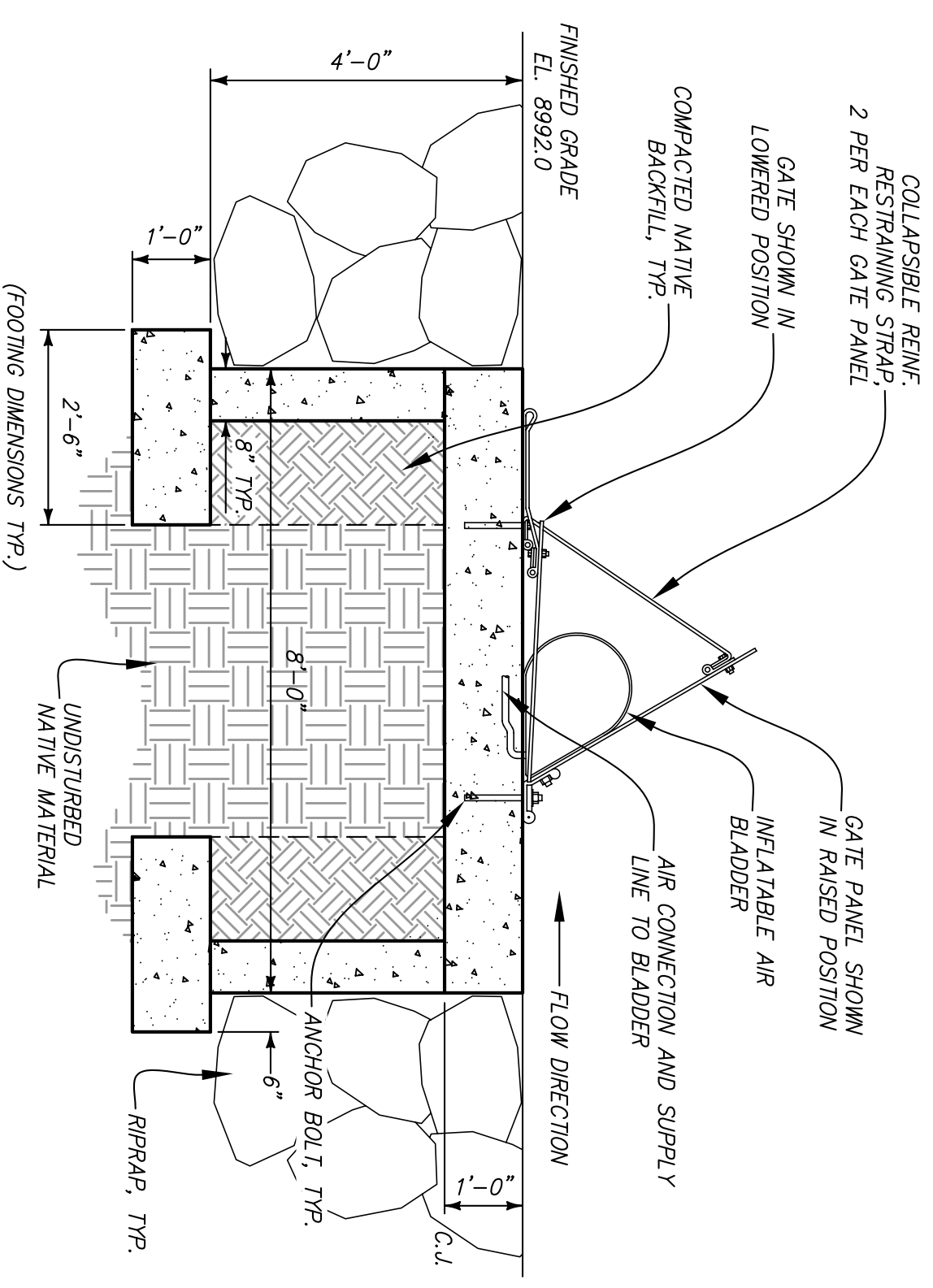
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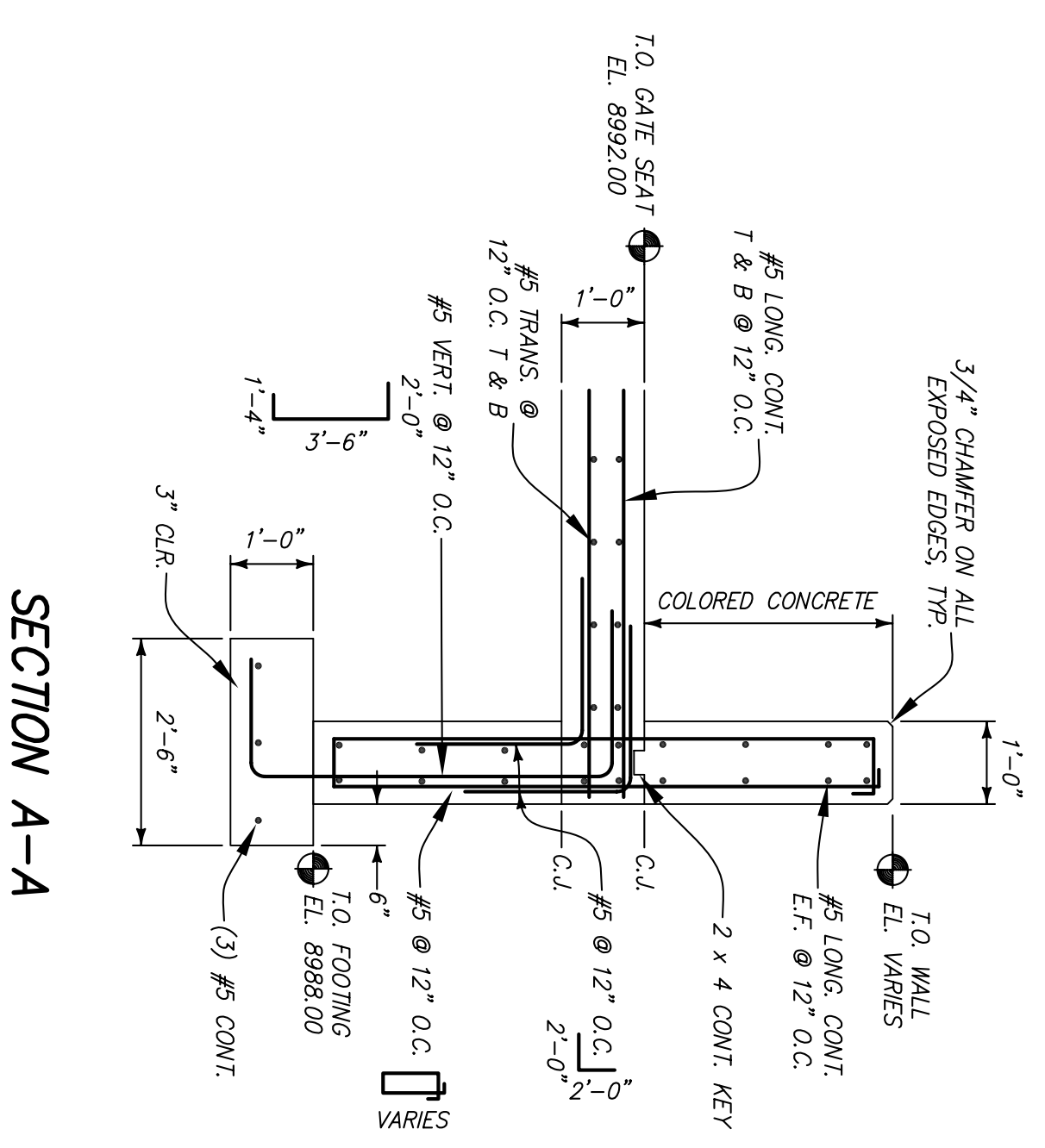
STRUCTURE LAYOUT PLAN
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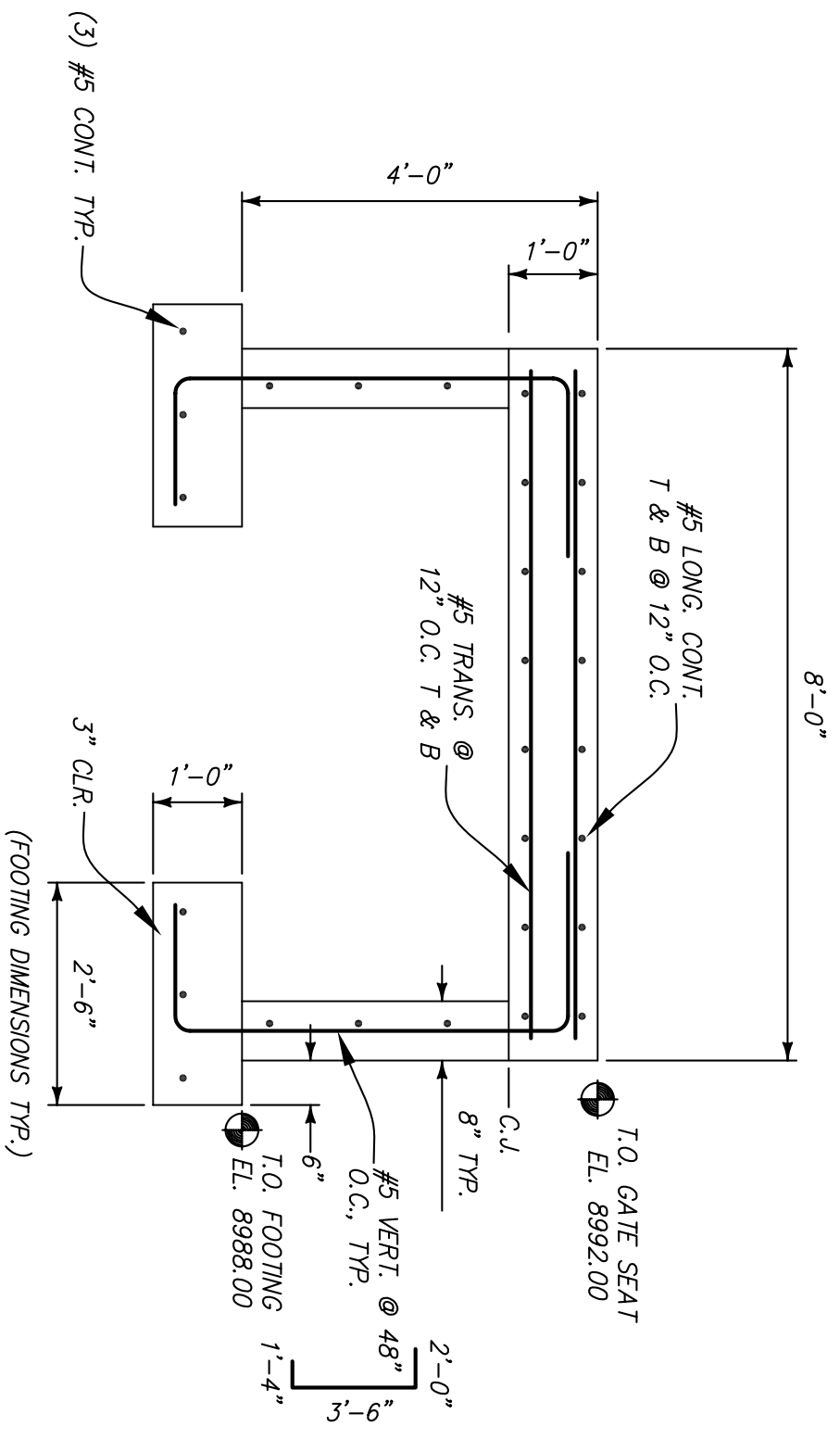
OFF-OUTLET STRUCTURE
MONUMENT DETAIL
NOT TO SCALE



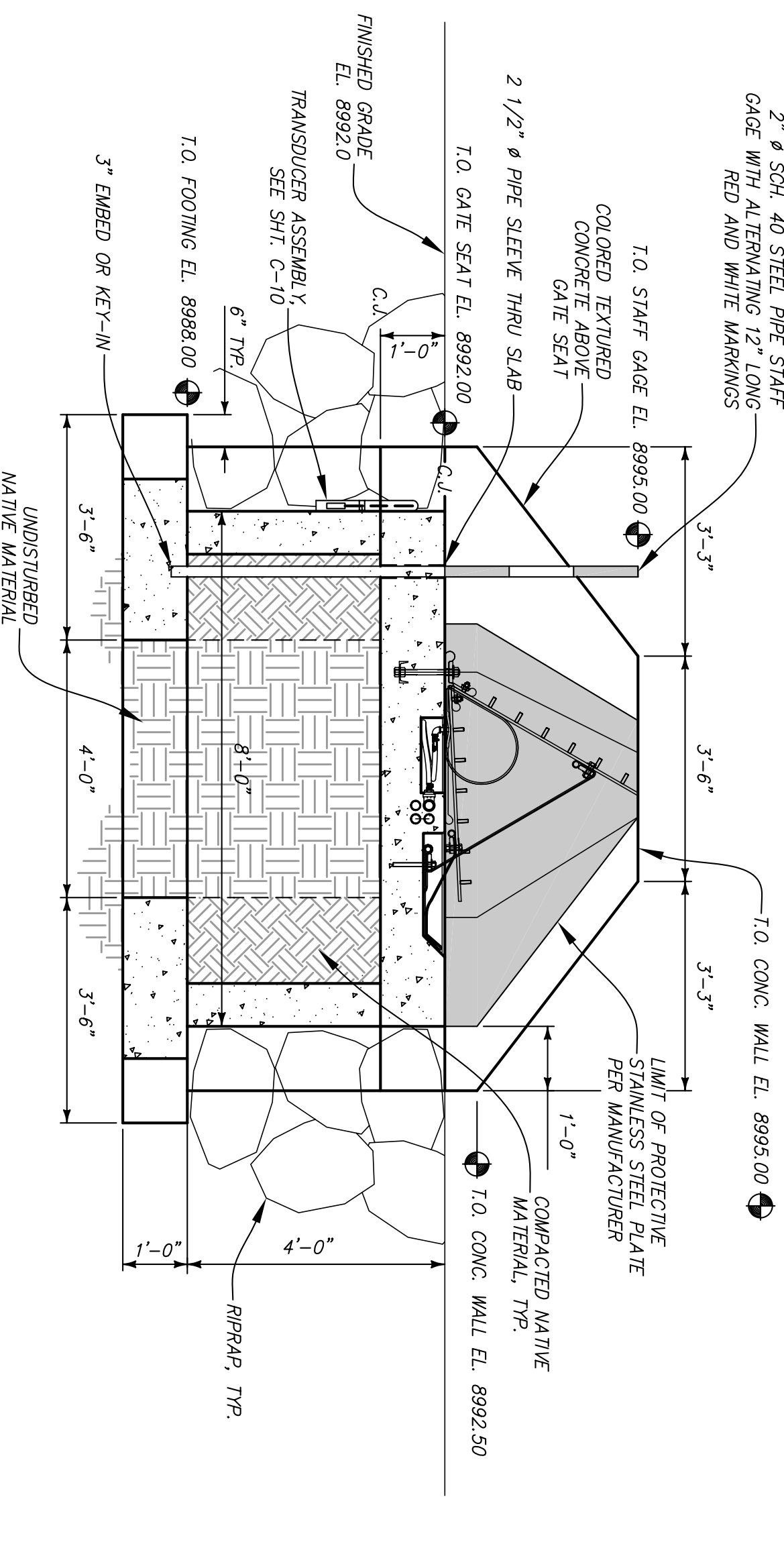
OBERMEYER HYDRO GATE SECTION
NOT TO SCALE



SECTION A-A



SECTION B-B



TYPICAL ABUTMENT WALL ELEVATION
NOT TO SCALE

PRELIMINARY
FOR REVIEW AND COMMENT

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
811

CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

January 11, 2010

Regulatory Division SPK-2009-00066-CW

Chris Hazen
The Terra Firm
Post Office Box 362
Telluride, Colorado 81435

Dear Mr. Hazen:

We are responding to your request, sent on behalf of Mr. Frank Kugel, for a preliminary jurisdictional determination (JD) of waters of the United States as they relate to the proposed installation of an outlet control structure on Lake San Christobal. The site is located south of the Town of Lake City, Section 15, Township 43 N, Range 4 W, Latitude 37.9809°, Longitude - 107.2878°, Hinsdale County, Colorado.

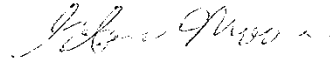
Based on available information, we concur with the estimate of waters of the United States as depicted in the Buckhorn Geotech wetland delineation map titled *Lake San Christobal Wetland Exhibit Site Aerial Photo*, sheets one through five. These waters are regulated under Section 404 of the Clean Water Act.

We've reviewed the conceptual wetland monitoring plan discussed in your December 28, 2009 email and believe it will provide an acceptable means for monitoring the size and composition of existing wetlands in Lake San Christobal. We anticipate that we'll be able to authorize the installation of the outlet control structure via Nationwide permits with a special condition which will incorporate the final wetland monitoring plan.

As discussed previously, we cannot verify permits or otherwise authorize this work until the Bureau of Land Management (BLM), acting as Lead Federal Agency, completes their NEPA process. We request that you develop and provide us with a comprehensive wetland monitoring plan, to include an overhead plan depicting the locations of monitoring transects, gauges, data loggers and any other information pertinent to the monitoring plan. The early submission of a comprehensive wetland monitoring plan will help expedite our verification of the Nationwide permits once BLM completes their NEPA process.

Please refer to identification number SPK-2009-00066-CW in any correspondence concerning this project. If you have any questions, please contact me by email at Stephen.A.Moore@usace.army.mil, or by telephone at 970-243-1199 x13. For more information regarding our program, please visit our website at www.spk.usace.army.mil/regulatory.html.

Sincerely,



Steve Moore
Project Manager, Colorado West Regulatory
Branch

Copy furnished without enclosure(s)
Ms. Marnie Medina, Bureau of Land Management, 216 North Colorado St.
Gunnison, CO 81230
Mr. Frank Kugel, 234 N. Main Street, Suite 3C, Gunnison, Colorado 81230

From: Christopher Hazen [chrishazen@gmail.com]
Sent: Wednesday, May 05, 2010 11:22 AM
To: Dan Quigley
Subject: LSC conceptual monitoring plan

Dan,

The following narrative is an excerpt from a 12/28/09 email I sent to Steve Moore of the USACE, which he references in his 01/11/10 letter addressed to The Terra Firm. This email exchange coupled with the 01/11/10 Army Corps letter jointly represent the approved conceptual monitoring plan. The comprehensive final monitoring plan will be submitted in the coming weeks to the Army Corps for review. Once accepted by the Army Corps, we should be in a position to provide the approved final plan to the other regulatory agencies interested in the Corps' monitoring requirements.

Thank you.

Chris Hazen

Steve,

Following up on our Dec 18 meeting and the items we discussed, I wanted to get you my thoughts on monitoring of the wetlands at Lake San Cristobol relative to the post-construction operation of the lake level and the associated releases.

For starters, it would seem reasonable and important to try and establish some type of baseline for the wetlands and associated water depths prior to the construction of the outlet control structure.

This would mean collecting data during the summer of 2010. With some baseline information we will have a meaningful place to begin discussions of wetland health and function once the operation plan is implemented after the structure is built. After construction, monitoring would continue and data collected in 2011 would represent the first year of the operation plan's influence on the wetlands.

Monitoring should include 2-3 wells with continuous read data-loggers and the establishment of photo-points with a set timeline for photo acquisition (say 30 and 60 days after after peak runoff).

Additionally, monitoring plots or transects could be established at the well locations for a species level analysis. I think that these approaches are fairly standard and will yeild the monitoring data we are looking for. Hopefully this information helps as you contemplate the project's Nationwide Permit applications you have on file.

US Army Corps of Engineers – Sacramento District DRAFT Wetland Monitoring Plan (May 7, 2010) Lake San Cristobol – Lake City, Colorado

Applicant	Consultant
-----------	------------

Lake San Cristobol Water Activity Enterprise c/o UGRWCD attn. Frank Kugel 234 N. Main Street, Suite 3C Gunnison, Colorado 81230 970.641.6065	The Terra Firm Christopher Hazen PO Box 362 Telluride, Colorado 81435 970.708.1221
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Report Contents

Project Description	Page 1
Methods	Page 2
Plan Exhibit	Page 3

Project Description

The Lake San Cristobol Water Activity Enterprise (“the Enterprise”) has made application for a series of Nationwide Permits from the United State Army Corps of Engineers (“USACE”) as advocates for an outlet control structure proposed for Lake San Cristobol (“LSC”). The purpose of the outlet control structure is to retain and regulate discharges from LSC to provide augmentation water for senior water rights downstream of Lake City. USACE has assigned Corps Identification number SPK2009-66 to the project. Although no Nationwide Permits have yet been issued, the USACE has indicated that any approvals will be conditioned on a monitoring plan for the wetland areas identified in the approved Preliminary Wetland Delineation for the project area.

The wetland communities associated with LSC are largely concentrated at its south end, where the Lake Fork of the Gunnison River enters the lake. Wetland #4 as identified on the approved Preliminary Wetland Delineation is approximately 80 acres of mixed vegetation communities dominated by *Carex sp.* in the herbaceous layer and *Salix sp.* in the shrub layer. This wetland area is representative of 1. the species found at other wetland communities surrounding the lake, 2. the hydrologic regime created by the lake, and 3. the potential for impacts to wetlands at the lake created by installation/operation activities of the proposed project. Therefore, all monitoring of the lake’s wetland communities are proposed for sites contained within Wetland #4 on lands owned by Hinsdale County (see Plan Exhibit 1).

Methods

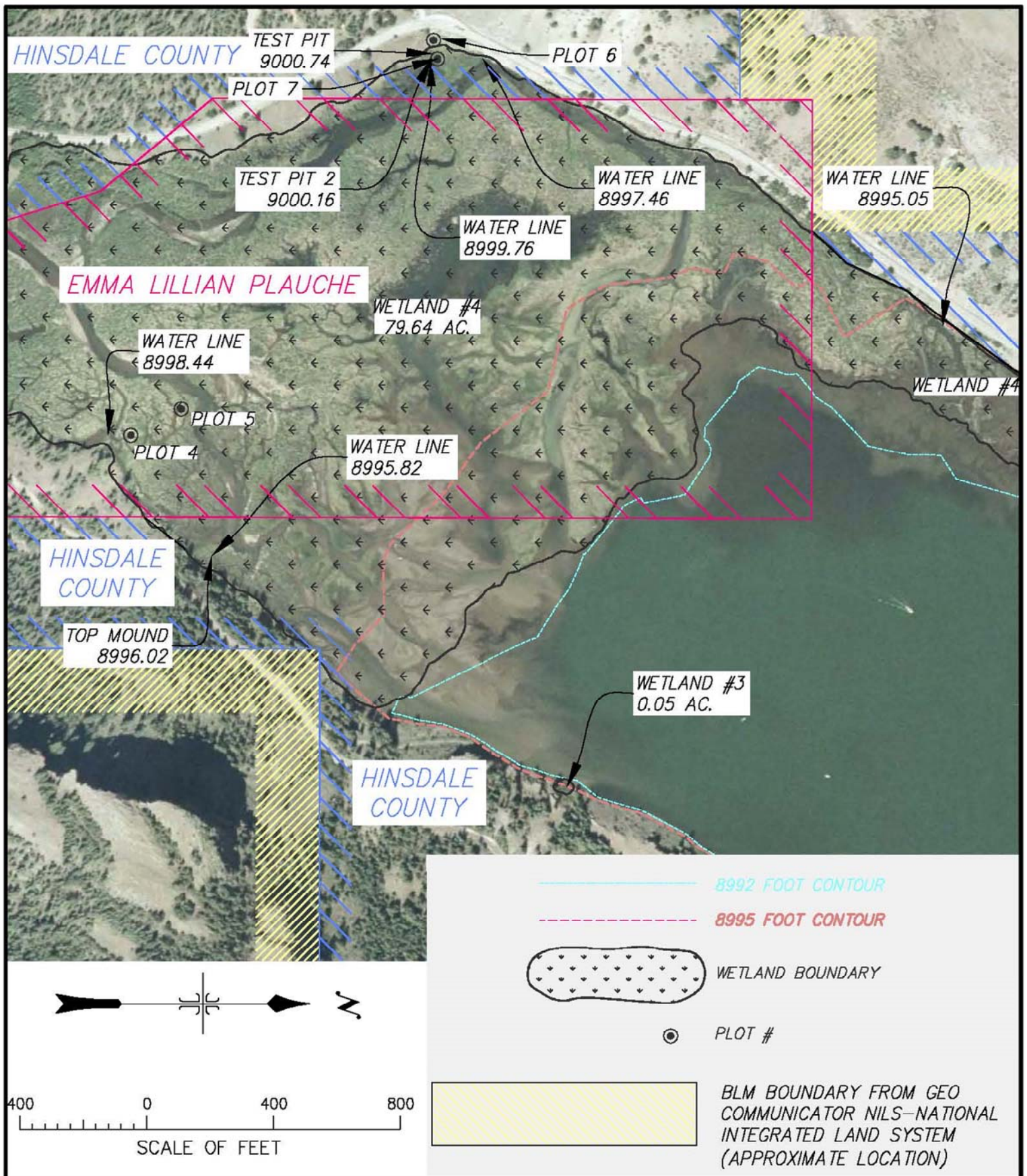
Successful and meaningful monitoring of the wetland communities at LSC will require the establishment of baseline conditions for the site whereby the vegetation communities will be assessed and pre-construction “natural-condition” hydrologic data is collected and evaluated. Following construction activities, a comprehensive, multi-year evaluation of both plant community health and an evaluation of the associated annual hydrologic patterns for the site - correlating data collected within the monitoring wells with the release data from the lake - will be necessary to assess site conditions.

Pre-construction monitoring should be initiated at minimum one year prior to commencement of the project’s installation. A minimum of three 3 meter by 5 meter monitoring plots should be established in sites representative of the vegetation communities found in the wetlands at LSC. Conversely, three 20 meter transects could be established in place of the monitoring plots. Each transect or plot will have a groundwater monitoring well installed to a depth sufficient to monitor water depths during low-water times of the year. It is expected that these monitoring wells can be installed with a hand-auger to reach sufficient depths. Each well should be outfitted with a continuous-read data logging instrument to provide accurate measurements of water depths across a wide spectrum of hydrologic and temporal conditions.

Vegetation monitoring should be completed one to two times annually at prescribed periods such as thirty and sixty days after peak runoff. By tying vegetation monitoring to runoff conditions we can avoid data anomalies created when monitoring is tied solely to a calendar date. Vegetation monitoring will include a complete survey of those species present in the plot or along the monitoring transect. Additional measures of health will include an annual count of *Carex sp.* shoots found in established sub-plots, yielding an annual shoot density total. *Salix sp.* will be evaluated for annual stem growth lengths by measuring annual growth of three stems on tagged plants within the plot.

Additionally, photo-points will be established during the pre-construction phase of monitoring and be replicated in subsequent monitoring years for a visual photo-log to be used with the monitoring data for analysis of the sites’ conditions.

An annual report will be provided to the Enterprise including all raw data, analysis and conclusions. After three-years of post-construction monitoring, the annual report will include any conclusions regarding the overall health of the wetlands during the operation period of the outlet control structure, and will provide opinions on required mitigation if impacts to the site’s wetlands have been identified.



DRAWING
NUMBER

1

OF 1

DESIGNER DCQ

DRAFTER RWG

DATE 05.05.10

JOB NO. 08-101CIV

LAKE SAN CRISTOBAL WETLAND MONITORING PLAN EXHIBIT SITE AERIAL PHOTO

BUCKHORNGEOTECH

Civil, Structural & Geotechnical Engineers
222 So. Park Ave. Montrose, Colorado 81401
970-249-8828 Fax. No. 970-249-0845
www.buckhorngeo.com

STATE OF COLORADO

Bill Ritter, Jr., Governor
 DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE

AN EQUAL OPPORTUNITY EMPLOYER

Thomas E. Remington, Director
 6060 Broadway
 Denver, Colorado 80216
 Telephone: (303) 297-1192
wildlife.state.co.us



*For Wildlife-
For People*

May 17, 2010

Ms. Linda Bassi
 Colorado Water Conservation Board
 Stream and Lake Protection Section
 1313 Sherman Street, Room 723
 Denver, Colorado 80203

Re: Upper Gunnison River Water Conservancy District Injury with Mitigation Proposal

Dear Linda,

The purpose of this letter is to transmit the Colorado Division of Wildlife's (CDOW) preliminary recommendation regarding the Upper Gunnison River Water Conservancy District's (District) Injury with Mitigation Proposal regarding Lake San Cristobal in Hinsdale County. The Colorado Water Conservation Board has requested the CDOW to provide an analysis of the Injury with Mitigation Proposal received from the District. As you know, this proposal is to mitigate impacts to the Colorado Water Conservation Board's (CWCB) decreed Lake San Cristobal natural lake level water right. The construction and operation of a new outlet structure on Lake San Cristobal will change the historic natural lake level fluctuations.

Extent of proposed injury

The CWCB holds the following natural lake level ("NLL") water right that could be injured by the new operation:

CWCB Case No.	Stream/Lake	Elevation (ft)	Approp. Date	Watershed	County
4-77W3366	San Cristobal Lake	8,995	5/12/76	Upper Gunnison	Hinsdale

To maintain the water storage space, applicant proposes to install a structure at the outlet of the lake that will permit applicants to control the lake surface level between 8,992 and 8,995 feet, this three feet of elevation change represents a volume of 946 acre-feet of water (6.9% of the Board's decreed NLL water right). Reservoir operations will lower the lakes surface level below the Board's decreed NLL of 8,995 during periods of augmentation releases. Historically the natural lake level elevation has varied between these two elevations seasonally. The permanent control structure is designed in part to mimic the effect of natural conditions and the relatively recent practice of annually installing temporary rock structures in the lake's outlet. The stored water will be used directly or as a replacement source in UGRWCD's proposed plan for augmentation including exchange to replace out-of-priority depletions within a portion of the District's boundaries in the Gunnison River Basin. Out-of-priority depletions in the reach of the

DEPARTMENT OF NATURAL RESOURCES, Mike King, Executive Director
 WILDLIFE COMMISSION, Tim Glenn, Chair • Robert Streeter, Vice Chair • Mark Smith, Secretary
 Members, David R. Brougham • Dennis Buechler • Dorothea Farris • Allan Jones • John Singletary • Dean Wingfield
 Ex Officio Members, Mike King and John Stulp

Lake Fork of the Gunnison River downstream of Lake San Cristobal would be augmented directly from the lake; those depletions upstream from Lake San Cristobal or on another tributary would be augmented by exchange and will be covered in a separate stipulation.

Applicant's plan to capture and maintain the level of Lake San Cristobal longer may have an effect on the existing wetland community located around the lake. The applicant's proposed injury with mitigation plan includes wetland monitoring pre and post construction of the outlet structure to determine the affects of the new operations. This monitoring will include continuously recording data loggers to determine depth and length of inundation of the wetlands. In addition, photo-points and monitoring plots will be established to monitor the quality and quantity of the wetland's species composition.

The CDOW has evaluated the impacts of the future lake level operations on the fisheries associated with Lake San Cristobal and the Lake Fork of the Gunnison River downstream of the lake and believes there would be little to no impact to the fisheries. Applicants have agreed to dedicate 100 acre-feet of storage water to the CWCB for downstream ISF use until such time as all of the water is needed for augmentation. Applicants estimate that the 100 acre-feet could be made available to CWCB for a period of at least 30 years. This water will be used primarily to ensure the CWCB's downstream instream flows on the Lake Fork of the Gunnison River (see below) are met to preserve the natural environment. The CDOW plans to determine how available released water could be used to also improve the natural environment in the Lake Fork of the Gunnison. In addition, the upper reaches of the Lake Fork of the Gunnison will benefit with increased flows from augmentation water released to cover downstream depletions.

CWCB Case No.	Stream/Lake	Amount (cfs)	Approp. Date	Watershed	County
80CW097	Lake Fork Gunnison	35 (5/1-9/30) 20 (10/1-4/30)	3/17/80	Upper Gunnison	Hinsdale
80CW118	Lake Fork Gunnison	45 (5/1-9/30) 25 (10/1-4/30)	3/17/80	Upper Gunnison	Hinsdale Gunnison

Mitigation Improvements to Lake San Cristobal and the Lake Fork of the Gunnison River

Applicant's proposed mitigation and operation plans will utilize the outlet structure to maintain the lake surface level at the decreed lake level of 8,995 feet for as long as possible each year. The CDOW believes that this could provide a better natural environment for the fishery in the lake, provided that there is no net loss of the wetlands surrounding the lake or their functions and values. In addition, stored water will be released from Lake San Cristobal to augment junior out-of-priority depletions, this released water will benefit the segments of the Lake Fork of the Gunnison River upstream of those depletions. There is currently no other stored augmentation water available to augment these junior wells. This project will provide replacement water for those depletions that would otherwise not be replaced.

Applicants have also agreed to dedicate 100 acre-feet of storage water to the CWCB for downstream ISF use until such time as all of the water is needed for augmentation. As was discussed above, this water will be used primarily to ensure the CWCB's downstream instream flows on the Lake Fork of the Gunnison River are met. This valuable storage water will provide some insurance against future dry year flows that could impact the downstream Lake Fork fishery. In addition, opportunities to use available stored water to improve the natural environment of the Lake Fork could be highly advantageous to the downstream fishery.

Discussion

Applicants have been working through issues with the U.S. Bureau of Land Management (BLM), the CDOW and the U. S. Army Corps of Engineers (ACOE) regarding this project. However, all issues relating to the project have not yet been completely resolved. Mainly, what types of 404 permits the ACOE will issue for this project (i.e. Nationwide or Individual). All parties are currently assuming the ACOE will be issuing Nationwide 404 Permits (#'s 5, 7, 13 and 33) with conditions to require a wetland monitoring study be conducted to fully evaluate wetland impacts for this project. The CDOW is currently reviewing a "draft" monitoring plan submitted by the Applicant's (see attached) and will provide comments regarding the wetland monitoring plan to the Applicants as soon as that review is complete. Because no 404 permits have been issued to date and no one knows exactly what type of 404 permits will be issued, the CDOW is reserving its right to make additional comments on any future 404 permits issued by the Army Corps of Engineers (ACOE) regarding the Lake San Cristobal Project. It should be noted that if an individual permit is required by the ACOE, for any reason, the Applicant's proposed mitigation plan would need to be reviewed and approved by both the Wildlife Commission and CWCB as per C.R.S. 37-60-122.2 - Impacts to Fish and Wildlife Resources.

The CDOW has evaluated the proposed mitigation plan as it relates to the impact to the fisheries of Lake San Cristobal and the Lake Fork of the Gunnison River and believes the proposed mitigation and operation plans will mitigate the injury to the natural environments protected by the CWCB's decreed water rights. The CDOW's analysis and recommendation only applies to the Applicant's Injury with Mitigation proposal regarding the CWCB's Natural Lake Level water right decreed in Case No. 4-77W3366 for Lake San Cristobal.

CDOW Preliminary Recommendation

The CDOW recommends that the CWCB make the preliminary determination that the natural environment of Lake San Cristobal could be preserved to a reasonable degree if the Applicants provide the proposed mitigation with the understanding: the CDOW may provide additional comments on any other permits issued relating to this project; and, if an individual permit is required the mitigation plan may need to be approved by the Wildlife Commission. In addition, the CDOW is currently reviewing the "draft" monitoring plan submitted by the Applicants and may request that additional studies be included into that monitoring plan. Also if the results of the wetland monitoring plan indicate that the identified wetlands are being impacted further mitigation may be required.

If you have any questions regarding this letter please give me a call.

Sincerely,



Mark Uppendahl
Colorado Division of Wildlife
Instream Flow Program Coordinator

Cc: Jay Skinner, CDOW Water Resources Unit Manager – w/o attachments
John Alves, CDOW Senior Fish Biologist – Southwest Region – w/o attachments
Dan Braugh, CDOW Aquatic Biologist – w/o attachments
J Wenum, CDOW Area Wildlife Manager – w/o attachments
Paul Jones, CDOW Area Conservation Biologist – w/o attachments

