

FEATURE HISTORY

EL CAPITAN DAM

VOLUME III

CONTROVERSIES - LITIGATION

CONTROVERSIES

ROCK EMBANKMENT

March 22, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

Subject: . San Diego River Project, El Capitan
Feature, rock embankment. Removal
of earth and disintegrated granite.

Gentlemen:

Before placing additional rock embankment material on El Capitan Dam, the Contractor shall remove the earthy material and decomposed granite placed by the Contractor on the rock embankment for his convenience in operating trucks and tractor equipment.

The earthy material and decomposed rock shall be removed from the surface of the dumped rock at the expense of the Contractor. The removal of this material by complete washing into the interstices of the rock embankment will be satisfactory.

The Contractor's policy and method of removing only a portion of this earth and disintegrated granite by scarifying embankments is not satisfactory.

Very truly yours,

H. N. Savage
Hydraulic Engineer.

HNS/p
cc H.W.Rohl & T.E.Connolly
El Capitan Dam
Contractor's Resident Representative
City's Resident Engineer

March 30, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

Subject: San Diego River Project, El Capitan
Feature, rock embankment, removal of
earth and decomposed granite.

Gentlemen:

By letter dated March 22, 1933 you were notified that before placing additional rock embankment on El Capitan Dam to remove the earthy material and decomposed granite placed by you on the rock embankment for your convenience in operating trucks and tractors.

You have not complied with the above instructions.

The work is not satisfactory and you are directed to immediately remove the rock embankment material placed on the downstream rock embankment above the top of the embankment about elevation 600. Because of the earthy material and decomposed granite not having been removed, the rock embankment above this elevation is not satisfactory and not in accordance with contract specifications paragraph 65, nor with directions given you by the Hydraulic Engineer in letter dated March 22, 1933, and you are hereby directed to remove and rebuild at your own expense this work in accordance with contract specifications, paragraph 30.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

HW/p

cc H.W.Rohl & T.E.Connolly
El Capitan Dam
Contractor's Resident Representative
City's Resident Engineer

March 30, 1933

From : Hydraulic Engineer

To : Resident Engineer

Subject: San Diego River Project, El Capitan Feature
Estimate No. 11 for work done during March 1933

1. You are directed to make the necessary measurements to determine quantities of materials and work accomplished by the Contractor in accordance with the contract specifications, on El Capitan Reservoir Dam, Spillway and Outlet Works during March 1933, as usual, but you will not sign this estimate as heretofore.

2. Until such time as the contractor sees fit to comply with written instructions given him to make the work conform to contract specification requirements, no estimate will be signed.

H. N. Savage
Hydraulic Engineer.

HNS/p

cc H. W. Rohl & T. E. Connolly, Los Angeles, 4351 Alhambra Ave.
H. W. Rohl & T. E. Connolly, El Capitan Dam
Contractor's Resident Representative

4-8-33

From : Hydraulic Engineer
To : City Attorney
Subject: San Diego River Project, El Capitan Feature
Compliance with contract specifications.

Enclosed are copies of official letters regarding specification contract requirements, instructions and directions issued by the Hydraulic Engineer to H. W. Rohl and T. E. Connolly, Contractors for the construction by them of El Capitan Reservoir Dam, Spillway and Outlet Works in accordance with their contract dated April 23, 1932, and the contract drawings and specifications which are a part of the contract.

Your attention is called to the following appurtenant references to the Engineer's responsibility for and authority to enforce the specifications requirements as set forth under contract specifications, general conditions, and which apply to all letters listed.

"7. ENGINEER.- The word "Engineer" used in these specifications or in the contract means the Hydraulic Engineer in Charge Bureau of Water Development of the City of San Diego. He will be represented by assistants and inspectors authorized to act for him. On all questions concerning the acceptability of material, machinery, the classification of material, the execution of the work, conflicting interests of contractors performing related work, and the determination of costs, the decision of the said engineer shall be final, and binding upon both parties."

"10. MATERIALS AND WORKMANSHIP.- All materials must be of the specified quality and equal to approved samples if samples have been submitted. All work shall be done and completed in a thorough, workmanlike manner, notwithstanding any omission from these specifications or the drawings, and it shall be the duty of the contractor to call the engineer's attention to apparent errors or omissions and request instructions before proceeding with the work. The engineer may by appropriate instructions correct the errors and supply omissions, which instructions shall be as binding upon the contractor as though contained in the original specifications or drawings. All materials furnished and all work done must be satisfactory to the engineer. Work, material, or machinery not in accordance with these specifications, in the opinion of the engineer, shall be made to conform

thereto. Unsatisfactory material will be rejected, and, if so ordered by the engineer, shall, at the contractor's expense, be immediately removed from the vicinity of the work."

"12. SUSPENSION OF CONTRACT.-, or if in the opinion of the engineer the contractor is not carrying out the provisions of the contract in their true intent and meaning, written notice will be served on him to provide within a specified time for a satisfactory compliance with the contract, and if he neglects or refuses to comply with such notice the engineer may with the written consent of the Common Council suspend the operation of all or any part of the contract, or he may in his discretion after such notice perform any part of the work or purchase any or all of the material included in the contract or required for the completion thereof without suspending the contract."

"17. INSPECTION.- All materials furnished and work done under this contract will be subject to rigid inspection. . . . Work or material that does not conform to the specifications, although accepted through oversight or otherwise, may be rejected at any state of the work."

"27. METHODS AND APPLIANCES.- The methods and appliances adopted by the contractor shall be such as will, in the opinion of the engineer, secure a satisfactory quality of work and will enable the contractor to complete the work in the time agreed upon. If at any time the methods and appliances appear inadequate, the engineer may order the contractor to improve their character or efficiency, and the contractor shall conform to such order, but failure of the engineer to order such improvement of methods or efficiency will not relieve the contractor from his obligations to perform satisfactory work and to finish it in the time agreed upon."

"30. REMOVAL AND REBUILDING OF DEFECTIVE WORK.- The contractor shall remove and rebuild at his own expense any part of the work that has been improperly executed, even though it has been included in the monthly estimates. If he refuses or neglects to replace such defective work, it may be replaced by the City of San Diego at the expense of the contractor, and the contractor and his sureties shall be liable therefor."

Following is a list of the letters to the contractor above referred to with contract specification references, giving authority for each, and indicating the contractor's non-compliance with the requirements of the specifications.

March 12, 1933. Subject: San Diego River Project
El Capitan Feature, hydraulic
fill, contract construction.

Contract specification references:

"63. HYDRAULIC FILL.- Fine materials in the central portion of the dam, as indicated on the drawings, or prescribed by the engineer, shall be sorted and placed by hydraulic means or such methods as may be acceptable to the engineer. In hydraulicking the materials, they shall be run through properly constructed transporting equipment onto the embankment. The materials, their gradation, their disposition and manner of transportation and equipment shall be subject to the engineer's approval. Materials not satisfactory in the opinion of the engineer will be rejected and the contractor shall waste such materials and they shall not be used in the dam. Hydraulic fill material shall be derived from the excavation for the dam, stripping of foundation, structures, tunnel, spillway, or borrow pits, as may be directed by the engineer."

The contractor did not comply with the following requirement of letter of March 12, 1933 ". The sand and gravel so dumped shall be sorted and placed by hydraulic means simultaneously with the dumping."

March 21, 1933. Subject: San Diego River Project
El Capitan Feature, rock embankment, placing rock surfacd.

Contract specification references:

"53. PITS AND QUARRIES.- The contractor shall carefully clear the sites of all pits and quarries of trees, roots, brush, sod, loam and other objectionable matter and shall develop and maintain them in a condition suitable for the excavation of the required materials, and in a manner satisfactory to the engineer."

"65. ROCK EMBANKMENT.- The outer portions of the dam shall be carried ahead of the central portion and shall consist of loose rock embankment placed as directed by the engineer. This rock fill shall be the most durable rock available in the opinion of the engineer. It shall be obtained from rock

excavation for structures, tunnel, spillway or borrow pits, and shall be approved by the engineer. No compacting of rock embankment will be required. The exposed surface of rock embankment shall consist of sound, hard, durable rock, carefully selected, faced, hand-placed, bedded and chinked and shall present a neat uniform appearance, all satisfactory to the engineer."

The Contractor has not complied with the requirement for facing hand-placing and chinking.

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March 22, 1933. Subject: San Diego River Project
El Capitan Feature, stripping of
abutments.

Contract specification references:

"52. CONSTRUCTION PROGRAM.- The construction program shall at all times be subject to the approval of the engineer."

"59. STRIPPING AND EXCAVATION FOR EMBANKMENT.- The entire base under the rock embankment and hydraulic fill rolled embankment shall be cleared of all rubbish, brush, scattered trees, stumps, and roots as well as all other perishable or objectionable material. These materials shall be burned or otherwise disposed of as directed by the engineer. This area shall then be stripped and excavated to such lines and grades as directed by the engineer. The material shall be wasted or otherwise disposed of as directed by the engineer. Payment for stripping will be made at the respective unit prices bid for excavation which shall include the cost of all materials, equipment and operations."

The Contractor did not comply with that portion of the letter of February 3, 1933, referred to in letter of March 22, 1933 reading as follows:

"Before the hydraulic placement of any material in the hydraulic fill or puddle core of the El Capitan dam is commenced, it is required that all overburden, including all boulders or rock fragments, which may find their way into the hydraulic fill or puddle core, be removed from both abutments."

The Contractor has not as yet accomplished the stripping of the abutments.

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March 22, 1933. Subject: San Diego River Project
El Capitan Feature, rock embankment, removal of earth and disintegrated granite.

Contract specification references:

"65. ROCK EMBANKMENT.- This rock fill shall be the most durable rock available in the opinion of the engineer. "

The Contractor has not removed the earthy material and decomposed granite from the rock embankments as referred to in the above letter.

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March 22, 1933. Subject: San Diego River Project
El Capitan Feature, rock embankment, placing rock surface.

Contract specification references: Same as letter March 21, 1933.

Requirement for facing, hand-placing and chinking has not been complied with.

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March 29, 1933. Subject: San Diego River Project
El Capitan Feature, hydraulic fill.

Contract specification references:

"63. HYDRAULIC FILL.- Fine materials in the central portion of the dam, as indicated on the drawings or prescribed by the engineer, shall be sorted and placed by hydraulic means or such methods as may be acceptable to the engineer. In hydraulicking the materials, they shall be run through properly constructed transporting equipment onto the embankment. The materials, their gradation, their disposition and manner of transportation and equipment shall be subject to the engineer's approval. Materials not satisfactory in the opinion of the engineer will be rejected and the contractor shall waste such materials and they shall not be used in the dam. Hydraulic fill material shall be derived from the excavation for the dam, stripping of foundation, structures, tunnel, spillway, or borrow pits, as may be directed by the engineer."

The Contractor has not complied with the contract specification requirement.

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March 30, 1933. Subject: San Diego River Project
El Capitan Feature, rock embankment removal of earth and decomposed granite.

Contract specification references:

"65. ROCK EMBANKMENT.- This rock fill shall be the most durable rock available in the opinion of the engineer."

The Contractor did not comply with the contract specification requirement.

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April 7, 1933. Subject: San Diego River Project,
El Capitan Feature, stripping abutments of cutoff trench material.

Contract specification references:

"61. CUTOFF TRENCH.- All suitable material, as determined by the engineer, required to be excavated in the cutoff trenches and not used for backfilling shall be placed in the dam in the locations directed by the engineer."

The Contractor has not complied with the contract specification requirement.

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April 7, 1933. San Diego River Project
El Capitan Feature, hydraulic fill material.

Contract specification references:

"63. HYDRAULIC FILL.- The materials, their gradation, their disposition and manner of transportation and equipment shall be subject to the engineer's approval. Materials not satisfactory in the opinion of the engineer will be rejected and the contractor shall waste such materials and they shall not be used in the dam. Hydraulic fill material shall be derived from the excavation for the dam, stripping of foundation, structures, tunnel, spillway, or borrow pits, as may be directed by the engineer."

This letter is a statement and not a direction.

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Your immediate consideration of the above important contract matters and your legal opinion as to how the Hydraulic Engineer shall proceed in order to secure compliance with the contract specifications is deemed fundamental before the Hydraulic Engineer may certify the monthly estimate for work done in March 1933.

H. N. Savage
Hydraulic Engineer

HNS/p

cc Special Counsel T. B. Cosgrove
encls.(9)

Copies letters to Contractor dated: March 12; 21; 22; 22; 22; 29;
March 30; April 7; April 7; 1933.

April 8, 1933

Engineer Fred D. Pyle

Hydraulic Engineer
San Diego River Project, El Capitan Feature
Inspection April 6, 1933

On April 6, 1933 at about 7:30 A.M. Resident Engineer Harold Wood telephoned from El Capitan Dam, bringing to attention the following matters:

- (a) Contractor making preparations to commence about April 9 the construction of a lift on the upstream portion of the hydraulic fill where the present dumping level is about elevation 625. Probably in the same manner as the lifts on the downstream portion of the hydraulic fill which were not properly sorted and placed by hydraulic means.
- (b) Contractor has not removed any portion of the dump of decomposed granite taken from the core wall excavation and deposited on the north abutment near the boundary of the puddle core and the hydraulic beach. A portion of the material not washed and segregated is 8 feet below the surface of the water.
- (c) Contractor not maintaining the proper ratio of decomposed spillway excavation material to borrow pit material and an excess of clayey borrow pit material is being deposited on the dam as the average was about one part spillway material to 2.5 to 3.3 parts borrow pit material instead of one part spillway material and two parts borrow pit material as instructed in letter dated March 30, 1933.
- (d) Contractor not hydraulicking the hydraulic fill material sufficiently. Mr. D. W. Albert Engineer Hydraulic Fill has been very positive that when the contractor was delivering about 8,000 cubic yards a day of hydraulic fill material, it was being properly saturated, sorted and hydraulically moved into place as it should be, but when the 14,000 cubic yards a day of hydraulic fill material was coming in it was a very bad job and everything about it was bad order. At the time the contractor was placing 8,000 cubic yards per day the ratio of water to hydraulic fill material was about 3:1 but when the 14,000 cubic yards was being placed the ratio was 1:1.5.

(e) Contractor has been continuing to dump decomposed granite and small rock on the upstream face of the upstream rock embankment in disregard of instructions.

(f) Contractor had, the day before (April 5) again been found taking sandy material from portion of borrow pit "A" along Chocolate Creek in disregard of the letter dated February 4, 1933, which letter states that no material should be taken from borrow pit "A" west of ordinate E 10400, and in disregard of oral agreement that width of the cut necessary to reach approved material would be limited to about 40 feet.

(g) The Contractor has made almost no progress in shooting and removing boulders outside and above the north side of the spillway excavation as requested under Extra Work Order No. 12.

Mr. Wood advised that letter should be written to the Contractor as to his responsibility for any over-shooting of spillway excavation. (See paragraphs 57 and 94 of the contract specifications.)

Mr. Wood also advised that letter should be written to the Contractor calling attention to the difficulties that may arise if the removing of boulders outside and above the north side of the spillway excavation is delayed due to material that may slide from the slope when shooting takes place and damage to Contractor's equipment, and that any such damage to the slopes or to the Contractor's equipment will not be chargeable to the City.

Proceeding in accordance with your instructions, the late forenoon was spent at El Capitan Dam in the office of the Resident Engineer with Mr. Wood and Mr. Albert preparing instructions to the Contractor on some of the matters and conditions listed above.

At noon Mr. Wood, Mr. Albert and I encountered City Attorney Byers and Deputy City Attorney Daniel at the Contractor's camp, also Gerald McKinlay, State Senior Engineer of Dam Inspection, and I. C. Steele, Chief Division of Civil Engineering Department Pacific Gas & Electric Company, who reported that he had been over El Capitan Dam work with Mr. McKinlay.

In the afternoon Mr. Byers, Mr. Daniel, Mr. Wood, Mr. Albert and myself spent about four hours on El Capitan Dam examining the work and discussing the contract specifications requirement and Contractor's policies connected with the construction of the dam.

The attention of the Attorneys was called to the lift of hydraulic fill material dumped across the downstream side of the hydraulic fill by the Contractor and to the fact that much of this material was not properly sorted and placed by hydraulic means in the opinion of the Engineer. The Attorneys' chief concern appeared to be as to

whether the safety of the dam was materially effected by the lack of sorting and placing by hydraulic means rather than whether the contract requirements and instructions of the Hydraulic Engineer thereunder had been followed, which instructions had been given in accordance with that portion of paragraph 63 of the contract specifications reading:

"Fine materials in the central portion of the dam, as indicated on the drawings, or prescribed by the engineer, shall be sorted and placed by hydraulic means or such methods as may be acceptable to the engineer. In hydraulicking the materials, they shall be run through properly constructed transporting equipment onto the embankment."

The attention of the Attorneys was called on the ground and they had the opportunity to see the cone of material that had resulted from the Contractor's improperly dumping material from outoff trench excavation on the north abutment in the vicinity of the line joining the hydraulic beach and the puddle core easterly of the axis of the dam. This material consisted of soft decomposed granite several feet thick, about 15 feet wide, and it was being covered up by the beach and puddle material at the time of the inspection. On April 1, 1933 this condition was pointed out to Mr. Daniel as he was taken across the cone of material at the beach level and was told what it was anticipated would happen, also that the Contractor had expressed a willingness to scatter this cone of material on the hydraulic beach by the proper manipulation of the hydraulic monitors. At the time of the inspection on April 6 there was nothing to indicate any effort made on the part of the Contractor to rectify conditions.

The attention of the Attorneys was called to the disregard by the Contractor of the instructions given in letter of the Hydraulic Engineer dated March 22 and 30, 1933 relative to the removal of objectionable stratified earth and disintegrated granite from the top of the downstream rock embankment, elevation about 600, and to the fact that the Contractor had proceeded with the placing of rock over this material until it was almost completely covered. Mr. Daniel because of his previous examination of the conditions on April 1, was personally familiar with the amount and condition of the objectionable material as visible on that day when only about 30 per cent of it was covered up by rock which was then being placed by the Contractor. The Attorneys indicated their attitude that the objectionable material that remained in the rock embankment as a strata of earth and disintegrated granite did not make it unsafe, that if steps were taken by the Engineer to enforce the removal of the objectionable material, the Contractor would, no doubt, stop the work and make claims that the contract was broken by the City. The Attorneys' attention was called to that portion of the contract specifications paragraph 65 stating that

". . . . This rock fill shall be the most durable rock available in the opinion of the Engineer."

The Attorneys' attention was also called to the oral requirement of the State Inspector of Dams, Mr. McKinlay to the Resident Engineer on November 3, 1932, that decomposed surface material placed on the top of the upstream rock embankment for roadway must either be more effectually scarified or removed.

The Resident Engineer advised the Attorneys that in his opinion the strata of objectionable material, consisting of earth and disintegrated granite, rendered the dam unsafe. Mr. Albert advised them that the material was objectionable and should not be left as a strata in the dam, but that he could not say that the dam would fail because this material was left in. I advised them that owing to the comparatively steep slopes of the dam it was necessary to use every precaution provided for in the contract specifications in its construction, that if it were constructed in accordance with the specifications and the instructions of the Hydraulic Engineer it would be a safe dam, that the strata of objectionable material now being left in the dam would greatly reduce the factor of safety.

The Attorneys expressed their opinion that the danger to the safety of the structure would be the greatest during the time of construction and that during that time the responsibility rested with the Contractor. I advised them that if the dam failed during construction it might have to be completed by the sureties, that the sureties had every reason to believe the City was enforcing the provisions of the contract and that in the event it was shown the failure of the dam was due to the City's negligence in enforcing the contract specifications, the sureties might make an attempt to shift the responsibility.

The Attorneys advised that rock placed since letter of the Hydraulic Engineer dated March 22, 1933, on or directly over the objectionable material on the rock embankment should be withheld from progress estimates until the objectionable material was removed by the Contractor.

The attention of the Attorneys was called to the fact that only two of the monitors were in operation and Mr. Albert advised them that with only two monitors running there was only about one part of water to four parts of material which resulted in insufficient washing. However, during most of the day three and even four monitors were in operation.

On cross examination Mr. Albert stated that with the washing that has resulted to date, while the dam might in his opinion be safe, a considerable portion of the clays and silts remained in the beaches, that if thorough washing was insisted upon and done, a very much larger proportion of spillway material could be utilized in the construction of the dam, that this would result in less material being required to be brought from borrow pits and more material being utilized from the spillway excavation, less material being wasted from the spillway and a cheaper cost of the dam to the City. Mr. Albert stated that a safe dam could be constructed from borrow pit material entirely, in which event the spillway material would have to be wasted but that the cost of the dam to the City would materially and unnecessarily be increased. Mr. Albert

stated that with proper washing the equal parts of spillway excavation and borrow pit material could be utilized and would make a satisfactory safe structure. The attention of the Attorneys was called to that portion of contract specifications paragraph 63 reading:

" Hydraulic fill material shall be derived from the excavation for the dam, stripping of foundation, structures, tunnel, spillway, or borrow pits as may be directed by the Engineer "

The Attorneys agreed that the Engineer has authority to direct that material be taken from the various sources in the proportions ordered by him and that he may require more complete washing than has so far been performed by the Contractor.

The attention of the Attorneys was called to the Contractor's in general delinquency in the placing of rock surfacing on both the upstream and downstream slopes of the embankment and particularly to that portion near the north end of the east slope of the dam about elevation 600 where pictures had been taken by the Contractor of rock surfacing purporting to show reasonable compliance with the specifications. The Attorneys were advised the rock surfacing on the upstream face of the dam would be subject to wave action and there was every reason to insist on compliance with that portion of contract specifications paragraph 65 reading:

" The exposed surface of the rock embankment shall consist of sound, hard, durable rock, carefully selected, hand-placed, bedded and chinked and shall present a neat, uniform appearance, all satisfactory to the Engineer. "

The Attorneys were then taken to that portion of borrow pit "A" in the vicinity of Chocolate Creek, and the situation explained by Mr. Albert who advised that the Contractor had been given oral permission to cut a roadway thru the sandy portion adjoining the creek to the more clayey material about 150 feet back from the creek, but that the Contractor had persisted in making a wide cut including a considerable amount of the sandy material which was placed in the dam, thereby increasing the necessity for wasting spillway excavated material and consequently increasing the cost of the dam to the City. Mr. Albert stated that he had again discovered the Contractor taking material which he had promised to refrain from taking and that at a conference on March 28 at which were present H. W. Rohl, J. B. Lippincott, E. Alan Rowe, O. C. Steves and D. W. Albert, the Contractor had again agreed to cut only a narrow channel thru into the clayey portion of the borrow pit. Later, Mr. Albert discovered the Contractor including objectionable material from the sandy portion of this borrow pit. Mr. H. W. Rohl appeared on the scene and immediately restricted the shovel to the narrow cut, but the next day it was again discovered that the Contractor had removed considerable more of the sandy material from the pit and placed it in the dam.

When the borrow pit was shown to the Attorneys the shovel was removing material from the borrow pit, cutting about 22 feet face depth, the bottom 6 feet of which was decomposed granite and no different than material which is available in the spillway excavation, and which will have to be wasted at the expense of the City if the present operations in the pit are continued. The attention of the Attorneys was called to the fact that the Contractor, in excavating over the entire area of borrow pit "A", had succeeded in removing considerable decomposed granite and by placing it in the hydraulic fill resulted in uneconomical construction of the dam. It is indicated that the Contractor intends to resist the limiting by the City of the depth of stripping from borrow pits to the clayey material.

The Attorneys advised that the Engineer has the absolute right to direct the Contractor's operations in the borrow pits as to taking certain materials and to the depths to which they are taken, that he can so advise the Contractor, place inspectors at the pits and deduct from the Contractor's earnings the equivalent of every load of material that is placed in the dam over the objections of the Inspector.

It is understood the Contractor is contemplating moving an additional shovel from the rock quarry to the borrow pits;

That another power shovel is enroute to the work;

That Mr. T. E. Connolly may be on the work for the next several months; and

That Mr. H. W. Rohl may be absent.

Fred

Fred D. Pyle
Engineer

FDP/PP
cc Resident Engineer

H. W. ROHL & T. E. CONNOLLY

CONTRACTORS

April 10, 1933

Honorable Mayor and City Council
City of San Diego, California.

Gentlemen:

Re: El Capitan Reservoir Dam
Spillway and Outlet Works

Due to the failure of the Engineer to make and sign an estimate in accordance with our Contract, we have suspended operations on the above job.

Very truly yours,

H. W. Rohl & T. E. Connolly,

By T. E. Connolly (Signed)

H. W. Rohl (Signed)

H. W. ROHL & T. E. CONNOLLY
Contractors
4351 Alhambra Ave., Los Angeles
Telephone Capitol 12161

April 11, 1938.

Honorable Mayor and City Council
City of San Diego, California.

Re: EL CAPITAN RESERVOIR DAM,
SPILLWAY AND OUTLET WORKS.

Gentlemen:

As you were advised at our conference of Nov. 14, 1938, the City has been in continuous default of its obligation to measure and pay for work performed in accordance with our contract.

Spoil bank materials originating in structure excavation have not been measured by the Engineer concurrently as work has been performed. At our conference with your Honorable Body on Nov. 14, 1938, the City Engineer admitted that spoil bank materials had not and could not be measured. The arrangement at that time made by the Council for the correction by the Engineer of the estimate has not been carried out.

We are at this time again advising you that the City is in default and that we have suspended operations on the above job on account of the existing defaults, including the failure of the City Engineer to make and sign an estimate for March work.

You are further advised that we will demand a stand-by charge for such period as we are forced to suspend operations on account of the existing default of the City.

We withdrew the notice of default which we presented to your Honorable Body under date of Nov. 14, 1938 upon the express agreement that Mr. Savage would make up a new estimate immediately upon his return from Washington, D. C. and that such new estimate would include payment for spoil bank materials in accordance with our contract.

Very truly yours,

H. W. ROHL & T. E. CONNOLLY

By T. E. Connolly

H. W. Rohl

C O P Y

April 12
19 33

Mr. A. V. Goeddel
City Manager
City of San Diego, California

Dear Sir:

After a study of the fundamental factors relative to the present El Capitan Dam controversy, we, the members of the City Water Commission, are desirous of approving your attitude in supporting the Hydraulic Engineer; and furthermore, we wish to go on record as commending and supporting the Hydraulic Engineer in his policy of consistently endeavoring to protect the City's best interests by insisting upon strict compliance with the contract specifications.

In our opinion the engineering responsibility for the safe and economical construction of El Capitan Reservoir Dam is vested fully and completely in the Hydraulic Engineer.

Respectfully,

ALBERT V. MAYRHOFFER (Signature)

SAMUEL I. FOX (Signature)

CHAS. T. CHANDLER (Signature)

April 13, 1933

From : Hydraulic Engineer
To : City Attorney
Subject : San Diego River Project, El Capitan Feature
Contract Status

It is deemed fundamentally dutiful for the City of San Diego to immediately notify the principal sureties of the Contractor for the City's El Capitan Reservoir Dam, Spillway and Outlet Works of the status of the work as indicated by the following letters:

Hydraulic Engineer's letter to the City Attorney dated April 8, 1933, subject: Compliance with contract specifications;

Engineer Fred D. Pyle's letter to the Hydraulic Engineer dated April 8, 1933, subject: Inspection April 6, 1933; and

Contractor H. W. Rohl & T. E. Connolly letter to the Honorable Mayor and City Council dated April 10, 1933, advising that they had suspended operations.

Since your office has handled the entire surety matter, it is thought proper for you to notify the principal sureties of the status of the work.

Enclosed are five copies each of the letters above referred to. It is assumed that you will want to send one copy of each of these letters to the principal sureties, retaining one copy for your files.

H. N. Savage,
Hydraulic Engineer.

HNS/p

encls. (15)

5 copies letter Hydraulic Engineer 4-8-33

5 copies letter Engineer Fred D. Pyle 4-8-33

5 copies letter Rohl & Connolly 4-10-33

April 13, 1933

City of San Diego,
Water Department
Advisory Commission
San Diego, California

Subject: San Diego River Project, El Capitan
Feature, contract status

Gentlemen:

Enclosed for your information and consideration is copy of letter dated April 13, 1933 to the City Attorney in regard to notifying the principal sureties of the Contractor for the construction of the City's El Capitan Reservoir Dam, Spillway and Outlet Works, attached to which are:

Hydraulic Engineer's letter to the City Attorney dated April 8, 1933, subject: Compliance with contract specifications;

Engineer Fred D. Pyle's letter to the Hydraulic Engineer dated April 8, 1933, subject: Inspection April 6, 1933; and

Contractor H. W. Rohl and T. E. Connolly letter to the Honorable, Mayor and City Council dated April 10, 1933, advising that they had suspended operations.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

HNS/f
encls.
Letter City Attorney 4/13/33
" " " 4/8/33
" Hydraulic Engineer 4/8/33
" Rohl & Connolly 4/10/33

cc A.V. Mayrhofer
C.T. Chandler
S.I. Fox
City Manager

April 18, 1933

From : Engineer Fred D. Pyle
To : Hydraulic Engineer
Subject : San Diego River Project, El Capitan Feature
Inspection trip April 15, 1933

On the afternoon of April 15, 1933 I made an inspection of El Capitan reservoir dam construction work.

Where the contractor's road leaves the main road to cross the San Diego River just easterly of the City's engineer camp, a notice was posted reading as follows:

"POSITIVELY NO ADMITTANCE. DAM CLOSED DOWN"

Double swing board gates, closed but not locked, were installed across the road about 100 feet before reaching the contractor's office.

No work was found in progress except for repairs being made to steam shovel on the spillway excavation; one man was wetting the concrete at the north end of the core wall; and one man was removing debris from the shores of the hydraulic pool.

The quarry was in good condition except for the westerly quarter of the east half where there was an unusual amount of soil and decomposed granite mixed with the rock.

The spillway was excavated to such an extent that I drove up the spillway from the lower end, over the top and down the road on the upstream side to the dam. The material excavated shows little if any Class 1 material exposed except for detached masses of rock. While the bulk of the excavated material showed signs of shooting, the material itself broke down to a good grade of road surfacing material.

Considerable earth and decomposed granite material had been removed by bulldozers from the upstream rock embankment, the material having been crowded over onto the upper portion of the beach preparatory to placing of a lift of either rock embankment or hydraulic fill material.

The downstream rock embankment where rock had been dumped last appeared to have been reasonably well scarified, but the scarified area was nearly covered and there was considerable road area which would require treatment to prepare it for rock embankment. Considerable placing of rock on exposed surface has been made above elevation 600.

But little unwashed hydraulic fill material remained on the inside slopes of either the upstream or downstream rock embankments.

-2-

The elevation of the beaches near both rock embankments is so near the top of the rock embankments that very little room remains for placing of hydraulic fill material until additional lifts are constructed. The beaches were dry and hard and indicate a reasonable amount of washing previous to suspension of work.

The pool was surprisingly clear, showing almost no traces of colloidal material.

The small amount of water passing through the outlet tunnel permitted the examination of conditions therein to the first angle point. Unsatisfactory placing of concrete in the roof of the tunnel was apparent in several places. Close-up flashlight photographs should be taken of these conditions. It may also be advisable to construct a platform on one of the City's cars which can be taken into the tunnel to facilitate the examination and take the photographs.

No changes were noticed in the borrow pits.

The road crossing at Chocolate Creek was in reasonably good condition. The road up the San Diego River is still detoured around the borrow pit.

Fred D. Pyle
Engineer

FDP/p
cc Resident Engineer

April 19, 1934

Mr. H. N. Savage
Hydraulic Engineer
San Diego, California

My dear Mr. Savage:

It appears that work on the hydraulic fill portion of the El Capitan Dam has not progressed as rapidly as heretofore anticipated. From the contents of your letters addressed to the contractors H. W. Rohl and T. E. Connolly numbered S-47, S-93 and S-103, among others, it further appears that lack of progress has been due to several causes, among them being the improper relationship between the upbuilding of the impervious puddle core section and the beaches - which apparently has tended to result in a development of sand strata in the impervious puddle core section. Each time such sand strata is found existing, it is apparent that a delay occurs pending its removal.

It is my further understanding that it has been the opinion of yourself, Mr. Pyle, Mr. Albert, and consulting engineer Louis J. Hill, as well as the opinion of the State engineers, that the upbuilding of the impervious puddle core section to the proper relationship between beaches and puddle core could be best accomplished by the placing in the hydraulic fill of material containing not less than 50% of fines passing a 200 mesh screen.

At a conference suggested by Mr. James H. Roper, held yesterday, and at which there were present Mr. James H. Roper, Mr. Fred D. Pyle, Mr. T. E. Connolly and myself, it appeared that -

1. Mr. Pyle was of the opinion that the result desired probably could be best accomplished by using materials containing not less than 50% of fines;
2. Mr. Connolly was of the opinion that the result desired might be obtained by the use of material containing not less than 50% of fines properly placed; and
3. That the contractor s would be agreeable to obtaining material containing not less than 50% fines for use in the hydraulic fill in the event that you address a communication to them directing them to obtain such material.

It would appear, then, that in the event it is found proper to prepare and deliver such a communication that the upbuilding of the puddle core section to the proper relationship with the beaches would be immediately accomplished and a more rapid progress of the work resumed.

H. N. Savage--2

It is my understanding that from an engineering standpoint there can be no objection to the preparation and delivery of such a communication. The question arises as to whether there is any legal objection to the preparation and delivery of such a communication. In other words, would the delivery of such a letter add or detract from the contract and specifications for the construction of El Capitan dam, reservoir, spillway and outlet works? I have carefully studied the specifications, and it is my opinion that a communication of the nature indicated, properly worded, might be delivered to the contractors without in any manner adding or detracting from the contract specifications and without in any manner imposing any additional obligation upon the City. It is further my opinion that such a communication cannot be made the basis of a claim for extra work under either paragraph 13 or 14 of the specifications.

At the conference yesterday it was suggested that I prepare a rough draft of such a communication. I have done so and hand you herewith copy of same for your consideration.

Yours very truly

C. L. Byers,
City Attorney

Inc.
CLB/M

OFFICE OF
CITY ATTORNEY
CITY OF SAN DIEGO

San Diego, California

April 19, 1933.

Mr. H. N. Savage,
Hydraulic Engineer
San Diego, Calif.

Dear Sir:

Under date of April 1st I asked to be favored with a copy of past correspondence between your office and the contractors for the construction of El Capitan Dam Spillway and Outlet Works. I should very much appreciate being furnished such copies, also copy of communications between the office of the Hydraulic Engineer and the Resident Engineer in charge of El Capitan.

In view of the possible legal complications in connection with the construction of the El Capitan Dam, I deem it advisable that the Legal Department should have all the information available on the subject.

Also, in view of possible future difficulties, may I request that the Legal Department be furnished with copies of future correspondence either to or from the Hydraulic Engineer relating to the El Capitan Project.

Very truly yours,

C. L. BYERS (Signature)

C. L. Byers,
City Attorney.

CLB/M

April 20, 1933

Messrs. H. W. Rohl and T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S 2

Subject: San Diego River Project, El Capitan
Feature Rock Embankment, Removal
of Earth and Disintegrated Granite.

Gentlemen:

Under date of March 22, 1933 you were advised, before placing additional rock embankment material, to remove, at your own expense, earthy material and decomposed granite placed by you on the rock embankment for your convenience in operating trucks and tractors.

On March 30th, (the instructions of March 22nd not having been complied with), you were again notified that the work was not satisfactory, and you were directed to immediately remove the rock embankment placed on the downstream rock embankment above the top of the embankment, about elevation 600 feet, and to rebuild, at your own expense, the portion of the rock fill placed on such strata of earthy material and decomposed granite.

You have not complied with the instructions given under date of March 22, 1933 or March 30, 1933.

You are hereby directed immediately to comply with said instructions given under date of March 22, 1933 and March 30, 1933.

Very truly yours,

H. N. Savage,
Hydraulic Engineer

cc H.W.Rohl and T.E.Connolly
El Capitan Dam
Contractors' Resident Representative
City Attorney
City's Resident Engineer

April 22, 1933

TO THE HONORABLE, THE MAYOR AND COUNCIL
OF THE CITY OF SAN DIEGO, CALIFORNIA.

Subject: San Diego River Project, El Capitan Reservoir
Dam, Spillway and Outlet Works; - Design and
Materials, Construction Methods and Requirements,
Safety of Dams, Economics.

Gentlemen:

DESIGN AND MATERIALS

The rock embankment-hydraulic earth fill type of dam has been unanimously pronounced by veteran successful hydraulic engineers experienced in designing and constructing high dams and who were acquainted with the City's El Capitan dam site as being the outstanding, economically safe type for a high dam to be constructed across the San Diego River at the El Capitan dam site.

CONSTRUCTION METHODS AND REQUIREMENTS

STRIPPING OF ABUTMENTS: Attached are copies of letters to the contractor dated February 3, 1933 and March 22, 1933, regarding stripping of abutments.

It is provided by the contract specifications that the construction program shall at all times be subject to the approval of the engineer.

The stripping in advance is necessary in order to prevent rolling boulders and other unsuitable material from entering the puddle core area.

ROCK EMBANKMENT: Attached are copies of letters to the contractor dated March 22, 1933, March 30, 1933 and April 20, 1933 regarding removal of earthy material and disintegrated granite from the top of lifts of rock embankment before placing additional rock thereon.

It is provided in the contract specifications that loose rock embankment shall be placed as directed by the engineer and that the rock shall be the most durable available in the opinion of the engineer.

EXPOSED SURFACE OF ROCK EMBANKMENT: Attached are copies of letters to the contractor dated March 21, 1933 and March 22, 1933 regarding the placing of rock on the exposed surface of the rock embankment.

The contract specifications provide that the exposed surface of rock embankment shall consist of sound, hard, durable rock, carefully selected, faced, hand-placed, bedded and chinked and shall present a neat uniform appearance, all satisfactory to the engineer.

HYDRAULIC EARTH FILL: Attached are copies of letters to the contractor dated February 22, 1933, February 25, 1933, March 1, 1933, March 12, 1933 and March 29, 1933, advising the contractor of approved type and sources of material and ratio of materials from the various sources required to be used in the hydraulic fill and the requirement for sorting and placing by hydraulic means.

The contract specifications provide that the hydraulic fill material shall be derived from approved sources as directed by the engineer, and that the materials shall be sorted and placed by hydraulic means.

SAFETY OF HYDRAULIC EARTH FILL DAMS

Research has disclosed that out of the sixty-nine ranking hydraulic earth fill dams heretofore constructed, twenty-five developed difficulties, due to design, materials of construction or methods of construction. Several of these dams were seriously affected.

The El Capitan Dam now under construction is quite the highest dam of the type to be constructed.

Before completing the designs, the City's engineers researched and endeavored to ascertain and provide against the difficulties other dams of this type had experienced. Provided the El Capitan dam is constructed in proper compliance with the contract specifications, it is justified to believe and to expect that the structure will be safe and dependable.

Delinquencies on part of the contractor in complying with the contract specifications and their authorized direction by the Hydraulic Engineer, if tolerated, will reduce the safety of the structure and may, if continued, jeopardize the structure.

The contractor and his sureties will presumably be relieved of their responsibilities and receive payment for constructing the El Capitan Reservoir Dam, Spillway and Outlet Works thirty-five days after its completion and acceptance by the City of San Diego. The safety of the dam, however, will not and can not be determined until the reservoir is filled to maximum capacity, including flood discharge, which may not occur for many years after the dam is constructed.

ECONOMICS

Aside from the engineering and structural features affecting the safety of the dam there is also the important economic matter of directing the work as provided for in the contract specifications in such manner that as much material excavated for structures, including spillway, shall be put into the dam at the expense of the contractor as is consistent with the safety of the dam and not wasted at the expense of the City.

ENGINEER

The contract specifications, paragraph 7 "ENGINEER" provides that the Hydraulic Engineer's decision shall be final and binding on both parties (principal, City of San Diego and Contractor, H. W. Rohl and T. E. Connolly) regarding acceptability of materials, classification of materials, the execution of work, etc.

Respectfully,

H. N. Savage
Hydraulic Engineer.

HNS/f
Encls. (12)

4-24-33

From : Hydraulic Engineer
To : City Attorney
Subject: San Diego River Project, El Capitan Feature
Compliance with contract specifications

Your attention is invited to my letter to you, dated April 8, 1933, calling your attention to certain appurtenant references in the contract specifications for the construction of El Capitan Reservoir Dam, Spillway and Outlet Works, to the Engineer's responsibility for and authority to enforce the specification requirements; and

To certain letters to the contractor calling attention to the contract specifications and/or giving instructions or directions in compliance therewith; and

Indicating the contractor's non-compliance with the specifications and these letters; and

Requesting your immediate consideration and legal opinion as to how the Hydraulic Engineer should proceed in order to secure compliance with the contract specifications.

In view of the contractor's previous non-compliance with the contract specifications and directions of the Hydraulic Engineer, it is of increasing importance that your legal opinion be furnished at the earliest practical date as to how the Hydraulic Engineer should proceed in order to secure compliance with the contract specifications.

H. N. Savage,
Hydraulic Engineer

HNS/p

April 25, 1933

TO THE HONORABLE, THE MAYOR AND COUNCIL
OF THE CITY OF SAN DIEGO, CALIFORNIA.

Subject: San Diego River Project, El Capitan Feature
Rock embankment - inspection of decomposed
granite not removed from top of rock
embankment.

Gentlemen:

Having been advised by the City Attorney and Special Counsel of the importance of adequate inspection of findings relative to earthy material and decomposed granite not removed from the top of the downstream rock embankment at elevation about 600 at El Capitan Dam by the Contractors H. W. Rohl and T. E. Connolly, I am constrained to request your consideration of the appointment of a competent disinterested consulting engineer to review the material which will be disclosed by removal of rock embankment above elevation about 600.

The importance of the inspection of the conditions disclosed upon removal of the rock by a competent and disinterested engineer is evident, as upon the facts disclosed will depend the City's responsibility, in accordance with Resolution No. 60012, for payment or non-payment for removal of a portion of rock embankment.

It is, therefore, my duty to recommend and earnestly urge your Honorable Body to appoint a competent disinterested veteran consulting engineer of recognized standing and prestige to make inspection as the rock is removed to determine whether or not the placing of the rock embankment had been in accordance with the contract specifications, and the Hydraulic Engineer's responsibilities.

Very respectfully,

H. N. Savage
Hydraulic Engineer.

HNS/p

El Capitan Dam
May 9, 1933

El C. 1

Messrs. H. W. Rohl & T. E. Connolly
Contractors
El Capitan Dam.

Subject: San Diego River Project, El Capitan Feature,
Rock Embankment, Downstream.

Gentlemen:

You are hereby notified to place no rock on the downstream
rock embankment above elevation 600.

Harold Wood
Resident Engineer

L. H. Hill
Inspector

cc Hydraulic Engineer

May 11, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-10

Subject: San Diego River Project, El Capitan Feature
Rock embankment, removal of earthy material
and disintegrated granite.

Gentlemen:

Your attention is invited to requirements set forth in my letters to you dated April 20, 1933 (S-2), directing you to immediately comply with the instructions given you under date of March 22, 1933 and March 30, 1933, these letters being specifically referred to in my letter dated April 20, 1933, relative to the removal of earthy material and disintegrated granite placed by you on top of the downstream rock embankment of El Capitan Dam, and not removed by you before placing additional rock embankment thereon.

Your attention is also invited to Resolution No. 60012 adopted by the Council of the City of San Diego on April 21, 1933, copy attached, directing you to comply with the Hydraulic Engineer's requirements for the removal of earthy material and disintegrated granite as set forth in the above mentioned letters dated March 22, March 30 and April 20, 1933.

You are directed to first remove the rock embankment from the downstream rock embankment from above elevation about 600 from a stall about 30 to 40 feet wide and located at about ordinate N 3700. This stall to extend upstream from the upstream edge of the berm at about elevation 600 and at right angles therefrom as directed by the Engineer. The rock removed from this stall may be placed on the upstream rock embankment when the top of the latter is properly prepared in accordance with contract specifications and letter dated March 22, 1933.

It is not the desire nor intent of the Hydraulic Engineer at this time to dictate to you the specific methods to govern your removal of the rock embankment, placed by you in disregard of my instructions, for the purpose of exposing earthy material and disintegrated granite.

It is of paramount importance, and is a mandatory requirement that in removing the rock from the stall, you do not remove any earthy material or disintegrated granite from the top of the rock embankment at elevation about 600 upon which you placed rock embankment after being formally directed not to do so by

Messrs. H. W. Rohl & T. E. Connolly -2

5/11/33

my letters dated March 22 and 30, 1933, until it has been properly inspected by the City and you are given permission to remove such material.

The purpose of the excavation of the stall is to determine your compliance or non-compliance with the instructions of the Hydraulic Engineer given in letter dated March 22, 1933 requiring the contractor, before placing additional rock embankment material, to remove the earthy material and decomposed granite placed by the contractor on the rock embankment.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

HNS/p

encl. Resolution No. 60012
cc H.W.Rohl & T.E.Connolly, El Capitan Dam
Contractor's Resident Representative
City's Resident Engineer

On May 9, 1933 at 10:00 A.M. a meeting of the Council with Contractors H. W. Rohl and T. E. Connolly was held at the dam-site. This meeting was in the nature of a conference, rather than a formal executive session. Those present were Mayor John F. Forward Jr., Councilmen A. W. Bennett, LeRoy Goodbody, Wayne Hood, Harry Warburton, Dan Rossi and A. V. Anderson; President of the Water Commission Albert Mayrhofer; Hydraulic Engineer H.N.Savage; City Attorney C. L. Byers; State Senior Engineer of Dam Inspection Gerald McKinlay; Assistant Hydraulic Engineer Fred D. Pyle; Resident Engineer Harold Wood; Contractors El Capitan Dam H.W.Rohl & T.E.Connolly.

The conference was for the purpose of acquainting the Council on the ground with the condition of the work, especially as to the controversy between the City's engineers and the contractors about the layer of earth on the downstream rock embankment at elevation about 600, which had been placed there by the contractor for trucking operations and not removed to the satisfaction of the Hydraulic Engineer.

The contractors objected to removing, in order to ascertain the condition at the 600 foot elevation, the about 38,000 cubic yards of rock embankment which had been dumped on top of this layer of earth, stating it would endanger the structure and that they had pursued the methods properly used in standard construction. However, they were ready to open up the rock fill, but stated it would be impractical and a waste of the City's money.

Mr. Savage stated that there was no provision in the specifications for the placing of anything other than hard durable rock in the rock embankment; that the contractor, for his own convenience, had brought earthy material from the quarry and disintegrated granite from other sources, thus introducing an earth strata through the rock embankment; that in the opinion of the engineer, this not only reduced the safety of the dam but jeopardized its safety; that it was not the dumping of a railroad embankment but, in his opinion and belief, the most technical type of dam to be built in the world; that before recommending the award of the contract he had advised the contractors it would be essential that they provide themselves with a veteran construction superintendent with a reputation in building this type of dam; that there had been a continuous lack of compliance of the contractor with the specifications or stop orders; that the contractor had been asked to comply with a reasonable requirement; that he had been told to refrain from placing rock on the strata of earth and proceeded to do it anyway.

Mr. Savage recommended that an outside engineer, L. C. Hill, be called in to show them where to remove the rock and how to do it, estimating that it would cost about \$5,000 to remove the rock. Mr. Savage's recommendation was informally approved.

The conference terminated without any official action.

On May 13, 1933, another conference was held in the Mayor's office, relative to the controversy between the City's engineers and the contractors concerning the rock embankment. The meeting was attended by Mayor John F. Forward Jr., Councilmen A. W. Bennett, Dan Rossi, LeRoy Goodbody, Wayne Hood, Harry Warburton and A. V. Anderson; Special Water Counsel T.B. Cosgrove; Hydraulic Engineer H.N. Savage; State Senior Engineer of Dam Inspection Gerald McKinlay; Water Commissioners Albert Mayrhofer, President, and Samuel I. Fox; M. M. O'Shaughnessy and Patrick Francis O'Rourke.

Mr. O'Shaughnessy, who had visited the work on May 12, was questioned as to his reaction and stated that he thought the rock on both embankments complied with the specifications; that he did not believe a layer of earth existed at the 600 foot elevation on the downstream embankment and that the strength of the dam was not impaired in the slightest degree. He stated that if a layer of earth did exist it should have been removed.

Mr. McKinlay assured the Council that if there was not a proper condition existing, the State would have stopped the work.

Mr. Cosgrove was of the opinion that the City might have difficulty in supporting its claim if the question were disputed in Court.

Mr. Savage recommended excavating a stall to determine if there was quite some soft material there.

Mr. McKinlay thought the State might object; that he was satisfied as to the stability of the structure at that time and would not like to see it interfered with.

It was recommended that Mr. Cosgrove prepare a resolution rescinding the resolution previously followed which ordered the contractor to uncover the work, and eliminate from the controversy the 600 foot elevation on the downstream slope, conditional on the contractor's waiving standby charges.

OFFICE OF
CITY ATTORNEY
CITY OF SAN DIEGO

San Diego, California

May 20, 1933

Mr. H. N. Savage,
Hydraulic Engineer,
San Diego, Calif.

My dear Mr. Savage:

Under date of April 8th you favored me with a communication entitled, "From Hydraulic Engineer to City Attorney. Subject: --San Diego River Project, El Capitan Feature. Compliance with Contract Specifications." I am informed you also forwarded a copy of same to Special Water Counsel Mr. T. B. Cosgrove.

In your letter you refer to sections 7, 10, 12, 17, 27, 30, 63, 53, 65, 52, 59 and 61 of the specifications and refer to various letters from the Engineer to the contractors, dated as follows: March 12th, 21st, 22nd, 22nd, 22nd, 29th, 30th, April 7th and April 7th. Shortly after you had written me this letter operations at the dam were suspended and various and many conferences held thereafter between yourself and Special Water Counsel Mr. T. B. Cosgrove, the City Attorney and members of the Council and others, during which these various matters mentioned in your communication were discussed and decision arrived at, which, as I understood it, settled all difficulties between the City and the contractors as of date April 1st. Inasmuch as these various matters were discussed in detail at various times, and as I thought the controversy, at least up until April 1st, had been ironed out, I assumed that you would not care to have any written opinion on the subject.

However, under date of April 24th, I received another communication from the Hydraulic Engineer, entitled, "San Diego River Project, El Capitan Feature, Compliance with contract specifications", in which you request as follows:

"Requesting your immediate consideration and legal opinion as to how the Hydraulic Engineer should proceed in order to secure compliance with the contract specifications.

In view of the contractor's previous non-compliance with the contract specifications and directions of the Hydraulic Engineer, it is of increasing importance that your legal opinion be furnished at the earliest practicable date as to how the Hydraulic Engineer should proceed

in order to secure compliance with the contract specifications".

Immediately thereafter, and on date of April 26th, I addressed a communication to Mr. T. B. Cosgrove, Special Water Counsel, a copy of which I attach hereto. In view of the prominent part which Mr. Cosgrove was invited by myself to assume in aiding and assisting the City in the settlement of the controversies arising between the Hydraulic Engineer and the contractors, I deemed it wise and proper to request further aid and assistance in answering your communication of April 24th. Under date of May 2nd Mr. Cosgrove addressed a communication to me in relation to the subject and in answer to my letter, a copy of which I attach hereto.

Trusting the above contains the information you desire, I am,

Very truly yours,

C. L. BYERS (Signature)

C. L. Byers,
City Attorney.

CLB/M

H. W. ROHL & T. E. CONNOLLY
CONTRACTORS

May 24, 1933

Honorable Mayor and
City Council
City of San Diego, Calif.

SUBJECT: El Capitan Reservoir Dam,
Spillway & Outlet Works

Gentlemen:

Due to the failure of the Hydraulic Engineer to make and sign an estimate in accordance with our contract for the month of March, we suspended operations on the above job on April 10, 1933. The work is still practically at a stand-still as we have worked only where it was possible to work without violating orders of your Hydraulic Engineer.

To date we have received no instructions to proceed with the work and it is impossible to proceed with the work in accordance with our contract unless there is someone on the job, representing the City, who is competent and vested with complete authority to approve or disapprove the work on the structure as it progresses and to give instructions in accordance with the terms of our contract.

If the dam is not completed so that the spillway will function before any major flood occurs, there will be the danger of the dam being over-topped by the flood and destroyed, resulting not only in the loss of the dam itself but also of enormous damage to property below the dam.

It is therefore essential that the work should be resumed immediately so that every effort may be made to complete the dam before the rainy season.

A flood passing over the dam prior to its completion would involve destruction of all of the work that had been done up to the time of the flood.

This delay for which the City is responsible greatly increases the flood hazard and will relieve the Contractor, from all obligation to deliver a completed structure insofar as this hazard is concerned.

The City will also be liable for any property damage or loss of life which may occur below the dam by reason of the destruction of the dam.

The delay in the completion of the dam until the end of the next rainy season will involve the loss of the year's water crop which has been estimated to be worth the sum of \$500,000 to the City.

Mayor & City Council #2

May 24, 1933

The failure of the City to provide the Contractor with necessary information and instructions for proceeding with the work has caused the Contractor direct and unavoidable extra cost for delay, idle equipment, general overhead expense, disorganization of forces and loss as a result of inability to work during favorable weather. The exact amount of extra cost to the Contractor occasioned by this delay will be furnished the City as soon as the same can be ascertained.

We respectfully request the City for specific instructions relative to proceeding with the work in accordance with our contract.

Very truly yours,

H. W. ROHL & T. E. CONNOLLY

By T. E. CONNOLLY (Signature)

El Cebifan Dem Project.

Hohl & Connolly relative to

Communication from

By Fred W. Rick Deputy

Allen H. Wright City Clerk

Filed May 22, 1933

Document No. 583024

The failure of the City to provide the Contractor with necessary information and instructions for proceeding with the work has caused the Contractor direct and unavoidable extra cost for delay, idle equipment, general overhead expense, disorganization of forces and loss as a result of inability to work during favorable weather. The exact amount of extra cost to the Contractor occasioned by this delay will be furnished the City as soon as the same can be ascertained.

We respectfully request the City for specific instructions relative to proceeding with the work in accordance with our contract.

Very truly yours,

H. W. ROHL & T. E. CONNOLLY

BY T. E. CONNOLLY (Signature)

Document No. 283054

Filed May 25, 1933

Allen H. Wright City Clerk

By Fred W. Sick Deputy

Communication from

Rohl & Connolly relative to

El Capitan Dam Project.

El Capitan Dam

June 2, 1933

El C. 2

Messrs. H. W. Rohl & T. E. Connolly
Contractors
El Capitan Dam

Subject: San Diego River Project, El Capitan
Feature, rock embankment, downstream.

Gentlemen:

Since you now have the Hydraulic Engineer's letter dated May 26, 1933, and numbered S-12, you may disregard my letter to you dated May 9, 1933, numbered El C. 1 and reading as follows:

"You are hereby notified to place no rock on the downstream rock embankment above elevation 600."

Harold Wood
Resident Engineer

HW/p
cc Hydraulic Engineer

5-26-33

From : Hydraulic Engineer
To : City Clerk
Subject: San Diego River Project, El Capitan Feature, Rock
Embankment, removal of earth and disintegrated granite
Resolution No. 60118.

In compliance with direction by the City Council of the
City of San Diego, Resolution No. 60118, handed to you is
my communication addressed to Messrs. H. W. Rohl & T. E.
Connolly, 4351 Alhambra Avenue, Los Angeles, California,
subject: San Diego River Project, El Capitan Feature, Rock
Embankment, removal of earth and disintegrated granite,
dated May 26, 1933.

H. N. Savage,
Hydraulic Engineer.

HNS/p
encl.

May 26, 1933

Messrs. H. W. Rohl & T. E. Connolly
4351 Alhambra Avenue
Los Angeles, California.

S-12

Subject: San Diego River Project, El Capitan
Feature, Rock embankment, removal
of earth and disintegrated granite.

Gentlemen:

I have been directed by the Council of the City of San Diego (Resolution No. 60118) copy herewith, to notify you in compliance therewith and you are hereby notified that letters dated March 22, March 30, April 20 and May 11, 1933 subject: San Diego River Project, El Capitan Feature, Rock Embankment removal of earth and disintegrated granite; are hereby withdrawn and the instructions given therein are hereby countermanded.

Very truly yours,

H. N. Savage
Hydraulic Engineer.

HNS/p

May 31, 1933.

Honorable Mayor and
City Council
City of San Diego, Calif.
H. N. Savage, Hydraulic Engineer.

SUBJECT: El Capitan Reservoir Dam,
Spillway & Outlet Works

Gentlemen:

Supplementing our letter of May 24, 1933, we present herewith a written itemized statement setting forth the amount of the direct and unavoidable extra cost to the Contractor to date caused by the suspension of work under date of April 10, 1933, due to the failure of the Hydraulic Engineer to make and sign an estimate for the month of March, 1933, and the failure of the City to provide the Contractor with necessary information and instructions for proceeding with the work in accordance with our contract.

In addition to the sum of \$131,289.83 as set forth in the itemized statement enclosed herewith, the delay caused by the City and the inability of the Contractor to work on account thereof will result in a very substantial increase in the cost to the Contractor of performing such portion of the work as is delayed into the rainy season. The exact amount of this extra cost which is due to the City's delay will be furnished you as soon as ascertained.

Very truly yours,

H. W. ROHL & T. E. CONNOLLY

By T. E. CONNOLLY (Signature)

SUMMARY OF STATEMENT OF EXTRA COST TO THE CONTRACTOR ON ACCOUNT
OF STAND-BY CHARGES FOR THE PERIOD FROM APRIL 11 to MAY 31, 1933,
INCLUSIVE

	<u>Daily Expense</u>	<u>No. Days Down</u>	<u>Amount</u>
Office	\$ 34.50	47	\$ 1,621.50
Foreman	27.50	47	1,292.50
Elec. Dept.	16.33	47	767.51
Cook House	34.06		1,600.82
Watchman			500.00
Maintain Roads	7.00	5	35.00
General Overhead, Insurance, Interest, etc.			9,000.00
As per accompanying itemization			<u>116,472.50</u>
		Total	\$131,289.83

EL CAPITAN DAM

Inventory of Equipment and costs for idle time.

5	"60" Caterpillars	205	Days at \$	40.00	\$8200.00
1	"30" "	41	"	24.00	984.00
2	30-40 Cletrace with bulldozers	82		24.00	1968.00
1	34 Allis Chalmers	41		24.00	984.00
2	McMillan Scrapers	82		10.00	820.00
1	LeForeneau Bulldozer	41		8.00	328.00
1	Master "	41		8.00	328.00
1	McMillan "	41		8.00	328.00
1	10' Gallion Blade Rd. Maintainer	41		7.00	287.00
2	10' " " Gallion	82		5.00	410.00

Compressors:

1	1365 Sullivan Stationary Compressor	41		45.00	1845.00
2	550 " " "	82		20.00	1640.00
1	310 " Portable "	41		10.00	410.00
1	310 Gardner " "	41		10.00	410.00
3	310 Ingersoll Rand "	123		10.00	1230.00
2	250 " " "	82		8.00	656.00
1	220 " " "	41		8.00	328.00

Receivers

1	5' x 15' Receiver)				
1	5' x 16' ")				
2	4' x 12' ")	41		3.00	123.00
1	4' x 10' ")				

Water Tanks

1	500 Gal. Galvanized Water Tank)				
3	3000 " " " ")				
1	2500 " " " ")	41		2.00	82.00
2	2000 " " " ")				
1	#300 Pioneer Crushing Plant	41		90.00	3690.00
1	180 Horsepower LeRoi Stat. Gas Engine	41		15.00	615.00
1	120 " H.D.Waukesha Stat."	41		12.00	492.00
1	10 " Buda	41		7.00	287.00
3	650 Steel Gas Tanks	123		1.00	123.00
1	Barbara Greene Loader	41		12.00	492.00
1	Madsen Concrete Plant (2 Mix. & Mot.)	41		50.00	2050.00
1	Jaeger 2 Sack Mixer with motor	41		4.00	164.00
1	Electric Sack Cleaner	41		2.00	82.00
2	6 wheel trailers - 1500 tank & pumps	82		1.00	82.00
2	Fairbanks Morse 2" Cent. Pumps comp.	82		2.00	164.00
1	Gardner Denver Steam Pump 4x2½x4	41		1.00	41.00
1	Fairbanks Steam Pump 6x4x6	41		1.00	41.00
1	2" Gould Triplex Water Pump	41		2.00	82.00
1	Worthington Air Pump	41		.50	20.50
1	2" Fairbanks Morse Cent. Water Pump	41		1.00	41.00
1	3" " " " " "	41		1.00	41.00

Brot Fwd.

\$29,868.50

Starters

1	85 H.P.	440 Volt	41 Days at	2.00	82.00
1	75 " "	" "	41	2.00	82.00
1	35 " "	" "			
3	25 " "	" "			
1	50 " "	" "	205	1.50	307.50
2	10 " "	" "			
1	7 $\frac{1}{2}$ " "	" "			
3	5 " "	" "	410	1.00	410.00
3	2 " "	" "			
1	2 " "	220			
1	35 " "	" "	41	1.50	61.50

Pumps

1	250 H.P.	440 Volt D.C. Con.	41	10.00	410.00
1	250 " "	" "	41	6.00	246.00
1	25 " "	" "	41	6.00	246.00
1	40 " "	" "	41	7.00	287.00
1	5 $\frac{1}{2}$ " "	" "			
1	7 " "	" "	82	3.00	246.00
1	35 " "	" "	41	7.00	287.00
1	75 " "	" "	41	8.00	328.00
1	1 " ")			
1	2 " ")			
1	6" x 8" Triplex Pump	D.C. 40 H.P.	41	5.00	205.00

Barges:

3	Complete with 100 H.P. V. Motor D.C. to 8" U. Pump, 6' - 8" suction hose, 3-8" ellis, 24' - 8" pipe, 1-8" gate valve, 1 house, 1 pitcher pump, 2-3/4 valves, 1 starting compensator and 1 Hendy Giant	123	15.00	1845.00
2	Complete with 75 H.P. 440 V. motor d. c. to 5" Byron Jackson Pump, 1-6" gate valve 1-5"x8" reducers, 10'-6" hose 15'-6" pipe, 1 pitcher pump, 3- $\frac{1}{2}$ valves and 1 Hendy Giant	82	12.50	1025.00

Trucks

14	4 Cylinder Sterlings	574	25.00	14350.00
8	6 " "	328	30.00	9840.00
5	6 " Autocars	205	25.00	5125.00
10	4 " Whites	410	28.00	11480.00
4	4 " Fords 1 $\frac{1}{2}$ ton	164	12.00	1968.00
4	4 " " $\frac{1}{2}$ "	164	12.00	1968.00
1	6 " Mack	41	25.00	1825.00

\$ 83016.50

Brot. Fwd.

\$83016.50

SHOVELS & PARTS

2	Marions Type 480	82	Days at	83.00	6806.00
2	Northwests Model 6	82		60.00	4920.00
3	Thew Lorraines 75B	123		40.00	4920.00
1	Lima Model 101	41		40.00	1640.00
3	No.W. Dragline Booms Complete	123		7.00	861.00
1	Lime " " "	41		7.00	287.00
1	2 Yds. Dragline Bucket	41		8.00	328.00
2	Dragline Fairleads	82		5.00	410.00

DRIFTERS

18	Gardner Denver Drifters Mod.17	738		2.00	1476.00
2	Ingersoll Rand " " F-70	82		2.00	164.00
1	" " " X-71	41		2.00	82.00
4	Chicago Pneumatic "	164		2.00	328.00
1	Gardner Denver Stoper Model 773	41		2.00	82.00
3	Ingersoll Rand Pneu. Hammers	123		1.50	184.50
1	" " " " 57	41		1.50	61.50
2	Gardner Denver Model 28A	82		1.50	123.00
2	Ingersoll Rand Pave. Breakers CC35	82		1.50	123.00
2	Gardner Denver Jackhammers	82		1.50	123.00
21	Ingersoll Rand Jackhammers S49	861		1.50	1291.50
2	#50 Ingersoll Rand Sharpeners	82		8.00	656.00
5	Drifter Tripods	205		.50	102.50
1	Ingersoll Rand Furnace	41		1.00	41.00
1	Gardner Denver "	41		1.00	41.00
2	Ingersoll Rand Grinders #8	82		.50	41.00

Steel

2600	Ft. 1" Hex. Drill Steel)				
1400	" 7/8" " " ")				
4570	" 1 1/8" Ro. Leyner ")	41		10.00	410.00
1800	" 1" Air Hose)				
900	" 3/4" " " ")				
800	" 1 1/8" " " ")	41		2.00	82.00

Pipe

15800	Ft. 2" Black Pipe)			
3200	" 1" " " "))			
1850	" 3/4" " " "))			
1400	" 2 1/2" " " "))			
800	" 3" " " "))			
3200	" 4" " " "))			
4800	" 5" " " "))			
120	" 6" " " ")	41		20.00	820.00
1000	" 15" Casing	41		3.00	123.00
1000	" 8" " "	41		1.50	61.50

\$109,605.00

Brot Fwd.

\$109,605.00

SHOP

2	Blacksmith Forges)		
1	" Power Hammer)		
1	Shaping Machine)		
2	Lathes)		
1	Radial Drill 4')		
1	Stationary Drill)		
1	Bolt Threading Machine)		
1	Power Saw)		
1	Boring Machine)	41 Days at \$150.00	6,150.00
1	Cylinder Grinding Machine)		
1	Arc Welding Machine Stat.)		
1	" " " Portable)		
4	Sets Cutting and Welding Outfits)		
2	Emery Grinding Machines)		

TRANSFORMERS

3	150 K.V.A.	2300	to	440	123	2.00	246.00
3	100 " " "	" "	" "	" "	123	1.50	184.50
2	50 " " "	" "	" "	" "	82	1.00	82.00
2	15 " " "	" "	" "	" "			
1	10 " " "	" "	" "	110			
2	5 " " "	" "	" "	" "			
1	37½ " " "	" "	" "	" "			
3	5 " " "	440	" "	110			
6	2 " " "	" "	" "	" "	41	5.00	<u>205.00</u>

Total on Equipt.

\$ 116,472.50

May 31, 1933

Honorable Mayor and
City Council
City of San Diego, Calif.
H. N. Savage, Hydraulic Engineer.

SUBJECT: El Capitan Reservoir Dam,
Spillway & Outlet Works.

Gentlemen:

We have been advised by the City Clerk that he is in receipt of a communication from the Hydraulic Engineer addressed to the Contractors contermining certain previous orders issued us by the Hydraulic Engineer, which letter has been signed and delivered to the City Clerk in accordance with the directions of the City Council as set forth in Resolution No. 60118.

The amount of the damages and extra unavoidable cost occasioned by the Hydraulic Engineer's failure to make and sign in accordance with our contract, an estimate for the month of March 1933 and the failure of the City to furnish necessary instructions for proceeding with the work are so substantial that we in fairness to ourselves cannot file with the City Clerk a waiver and release of our claim against the City for such damages and stand-by charges.

We are ready, willing and able to proceed with the performance on our part of all obligations to be performed by us under the terms of our contract and respectfully request specific instructions from the City in order that we may at once proceed with the work as contemplated by our contract.

Very truly yours,

H. W. ROHL & T. E. CONNOLLY

By T. E. CONNOLLY (Signature)

June 2, 1933

From : City Clerk
To : Hydraulic Engineer
Subject: El Capitan Matters

- 1 In pursuance to the directions of Resolution No.60227 (Copy thereof herewith), I am handing you Documents Nos. 283178 and 283179, being, respectively, communication from H.W.Rohl and T.E.Connolly re resumption of work at El Capitan Dam and Communication from H.W.Rohl and T.E.Connolly submitting itemized statement re Delay in Work at El Capitan Dam.
- 2 Also enclosed is certified copy of Res.60226, repealing Res. 60012, and directing the City Clerk to deliver to H.W.Rohl and T.E.Connolly communications addressed to them and signed by H.N.Savage, Hydraulic Engineer, and also directing the Hydraulic Engineer to immediately proceed and continue his instructions to the contractors, as more fully set out in said resolution.

ALLEN H. WRIGHT (Signature)

June 2, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-13

Subject: San Diego River Project, El Capitan
Feature, rock for embankment

Gentlemen:

Your attention is invited to those portions of the contract specifications for the construction of El Capitan Reservoir Dam, Spillway and Outlet Works, reading as follows:

"53. PITS AND QUARRIES.- The contractor shall carefully clear the sites of all pits and quarries of trees, roots, brush, sod, loam and other objectionable matter and shall develop and maintain them in a condition suitable for the excavation of the required materials, and in a manner satisfactory to the engineer."

"65. ROCK EMBANKMENT.- The outer portion of the dam shall be carried ahead of the central portion and shall consist of loose rock embankment placed as directed by the engineer. This rock fill shall be the most durable rock available in the opinion of the engineer. It shall be obtained from rock excavation for structures, tunnel, spillway or borrow pits, and shall be approved by the engineer."

You may place in the rock embankment above elevation 600 in the downstream portion of the dam; and

Above elevation about 625 in the upstream portion of the dam, only the most durable rock available, so that the interlocking continuity of the rock embankment as dumped shall be maintained and not be broken by layers of earthy and/or disintegrated granite material.

You are hereby directed to refrain from placing earthy material and/or disintegrated granite in the rock embankment portion of El Capitan Dam.

You are hereby directed to so treat the top surface of the successive lifts of rock embankment that any and all earthy material and/or disintegrated granite will be removed and the interlocking continuity of the loose rock embankment will not be broken.

Messrs. H. W. Rohl & T. E. Connolly -2

6/2/33

S-13

No rock for embankment shall be dumped or placed upon stripped foundation or on top of other rock embankment until such stripped foundation or rock embankment is approved by the Engineer.

Very truly yours,

H. N. Savage
Hydraulic Engineer.

HNS/p

June 3, 1933

BULLETIN FOR PRESS

Subject: San Diego River Project, El Capitan
Reservoir Dam, Spillway and Outlet Works

Contractor H. W. Rohl and T. E. Connolly resumed contract construction work on the El Capitan Dam "full steam ahead" at 5:00 P.M. last night (June 2, 1933). Previous to which they had been employing about 100 men, a portion of whom had been repairing construction equipment, automobile trucks, etc.

At the present time there are employed 5 power shovels, 18 automobile trucks.

Rock is being hauled from the quarry and placed in the rock embankment.

Stripping of overburden is being carried on from the north abutment.

About 150 men are now employed.

Work has also been resumed on the outlet tower excavation.

Preparations have been made to resume concrete lining of the tunnel.

H. N. Savage
Hydraulic Engineer

HNS/f

June 8, 1933

From : Hydraulic Engineer
To : City Attorney
Subject: San Diego River Project, El Capitan Feature,
Contractors H. W. Rohl & T. E. Connolly,
Correspondence.

In compliance with your requisition dated April 19, 1933, enclosed are copies of letters from the Hydraulic Engineer to Contractor H. W. Rohl and T. E. Connolly; and

Copies of letters from Contractor H. W. Rohl and T. E. Connolly to the Hydraulic Engineer from the signing of the contract April 21, 1932 for the construction of El Capitan Reservoir Dam, Spillway and Outlet Works, which have not already been furnished you;

Also copies of letters from the Hydraulic Engineer to the Resident Engineer and from the Resident Engineer to the Hydraulic Engineer, pertaining to the contract construction of El Capitan Reservoir Dam, Spillway and Outlet Works.

H. N. Savage,
Hydraulic Engineer.

F/f

Encls.

9-8-33

From : Hydraulic Engineer
To : City Attorney
Subject: San Diego River Project, El Capitan Feature, removal and replacement of portion of downstream rock embankment Contractor's charges.

Enclosed are copies of bills for \$93.41 from H. W. Rohl and T. E. Connolly, Contractor for El Capitan reservoir dam, spillway and outlet works for removing a portion of the downstream rock embankment which had been improperly placed by the Contractor at elevation about 600, and \$41.97 for replacing the portion of material removed.

The work of removing the rock material which had been improperly placed was begun by the Contractor in accordance with Resolution No. 60012 adopted by the City Council on April 21, 1933, which made mandatory the Hydraulic Engineer's instructions to the Contractor dated May 11, 1933, letter S-10, copy enclosed.

At an informal conference between the Mayor, Councilmen, Water Commissioners and other City Officials and the Contractor in his El Capitan Dam office May 9, 1933, the Hydraulic Engineer was informally authorized to secure for the City the services of Consulting Engineer L. C. Hill to assist in determining the location at which the work of uncovering the earthy material and disintegrated granite, mentioned in Resolution No. 60012, should be undertaken. Mr. Hill and the Hydraulic Engineer made an examination on May 10, 1933 and decided what work should be done, which resulted in a letter of instructions to the Contractor dated May 11, 1933.

On May 12, 1933, the Contractor, in compliance with the instructions of May 11, commenced work with power shovel and three automobile trucks. After the equipment had been assembled and had worked several hours in making a roadway by widening a berm at elevation about 600 toward the location designated for actual uncovering of the improperly remaining material, the site of the work was visited (May 12, 1933) by the Mayor, Councilmen and other City Officials accompanied unofficially by M. M. O'Shaughnessy, C.E. of San Francisco and the Contractor was told by City Officials to discontinue the work. At the time the work was discontinued by the Contractor, the reach of roadway approaching the point designated for uncovering operations was only about one-half completed.

On May 13, the City Council, by Resolution No. 60118, officially directed the Hydraulic Engineer to deliver to the City Clerk a letter addressed to the Contractor countermanding the Hydraulic

Engineer's directions and orders to the Contractor dated March 22, March 30, April 20 and May 11, 1933, which Hydraulic Engineer's letter was to be delivered by the City Clerk to the Contractor upon the Contractor's filing with the City Clerk a waiver and release of any claim against the City for damages or standby charges growing out of the controversy over the conditions in the downstream rock embankment, whereupon Resolution No. 60012 was to be repealed.

On June 2, 1933 the Council, by Resolution No. 60226 repealed Resolution No. 60012, and directed the City Clerk to unconditionally deliver to the Contractor the Hydraulic Engineer's letter to the Contractor countermanding the directions and orders of March 22, March 30, April 20 and May 11, 1933, and directed the Hydraulic Engineer to immediately proceed and continue his instructions to the Contractor under and pursuant to the terms of the contract specifications, without regard to the failure of the Contractor to file a waiver or release of damages or standby charges claimed because of partial suspension of work.

The Contractor submitted to the City of San Diego with letter dated May 31, 1933 an itemized statement totaling \$131,289.83 which the Contractor alleged was the amount of direct and unavoidable extra cost caused by his suspension of work on April 10, 1933. The Contractor's letter and itemized statement was referred to the Hydraulic Engineer by Resolution No. 60227 dated June 2, 1933.

The Contractor's bills for \$93.41 and \$41.97 for work performed by him in partially removing and replacing rock embankment, respectively, are reasonable for the work he performed in this connection.

The Contractor has repeatedly called attention to the City's neglect to pay the amounts - \$93.41 and \$41.97.

Provided the payment of the two amounts will not tend to support the Contractor's statement for \$131,289.83 which he alleged was the amount of direct and unavoidable extra cost caused by the suspension of the work, and/or jeopardize the City's justified and legal resistance to this claim, no reason is known to this office why the bills for \$93.41 and \$41.97 should not be paid.

Your early reaction and legal opinion is respectfully invited.

H. N. Savage
Hydraulic Engineer.

HNS/p

ROHL CONNOLLY

Daily Extra Work Report
to the Client

Location: El Capitan Dam

Date: 7/10/33

Expenditure for labor and material on this date on work not included in our contract with you as follows:

Nature of work: Removal of rock for full inspection at elevation 600

Work authorized by: _____

LABOR					
Emp.No.	Name	Occupation	Hours	Rate	Amount
1	Foreman		4	.87½	3.50
1	Shovel operator		8	1.25	10.00
1	Shovel oiler		8	.62½	5.00
3	Truck drivers		8	"	5.00
1	60 Cat driver		2	.90	1.80
1	Laborer		3	.62½	1.88
					27.18
Plus Comp. Ins. at 12.44					3.38
					30.56

MATERIAL			
Quantity	Items	Price	
32	gallons gasoline	at .134 gallons	4.29
1	gallon oil	.725 "	.73

EQUIPMENT			
1	Gas shovel	4 hours	20.00
3	5-yd. dump trucks	8 "	24.00
1	60 Best cat	2 "	12.00
Total			91.58
Performance bond 2%			1.83
Grand Total			\$ 93.41

Certified correct

ROHL CONNOLLY

Approved _____

By (Signed) L. T. Wetzel

By _____

ROHL CONNOLLY

Daily Extra Work Report
to the Client

Location: El Capitan Dam

Date: 7/11/33

Expenditures for labor and material on this date on work not included in our contract with you as follows:

Nature of work: Replacing rock removed for inspection on May 12

Work authorized by:

LABOR						
Emp.No.	Name	Occupation	Hours	Rate	Amount	
1	Foreman		2	.875	1.75	
1	Shovel operator		2	1.25	2.50	
1 S	Shovel oiler		2	.625	1.25	
1	Laborer		2	.625	3.75	
3	Truck drivers		6	.625	3.75	
						10.50
		Plus Comp.Ins. at		12.59		1.32
						11.82

MATERIAL

Quantity	Items	Price	
8	gallons gas	.144	1.15
1	quart oil	.72	.18

EQUIPMENT

1	gas shovel	2 hrs. at	5.00	10.00
3	5-yd trucks	6 " "	3.00	18.00

Total 41.15
Performance bond 2% Plus .82

Grand Total 41.97

Certified correct

ROHL CONNOLLY

By (Signed) L. T. Wetzel

Approved _____

By _____

OFFICE OF
CITY ATTORNEY
CITY OF SAN DIEGO

San Diego, California

Sept. 13, 1933.

Mr. H. N. Savage,
Hydraulic Engineer,
San Diego, Calif.

Dear Sir:

With reference to your communication of September 8th concerning the bills for \$93.41 and \$41.97 for the removal and replacing respectively of certain portions of the downstream rock embankment under the authority of Resolution No. 60012 and letter of instructions from the Engineer addressed to the contractors under date of May 11, 1933, please be advised that in my opinion, providing the amounts are correct, that they should be included in the next estimate. The work was accomplished under an extra work order, and in my judgment has no reference and no connection with any claim filed by the contractors for alleged damages by reason of any alleged suspension of work.

Yours very truly,

C. L. BYERS (Signature)

C. L. Byers,
City Attorney.

Inc. 1
CLB/M

September 13, 1933

TO THE HONORABLE, THE MAYOR AND COUNCIL
OF THE CITY OF SAN DIEGO, CALIFORNIA.

Subject: San Diego River Project, El Capitan Feature
Contractor's statement of extra cost for
suspension of work, Resolution No. 60227.

Gentlemen:

In accordance with Resolution No. 60227, reading as
follows:

"That the communication, together with an
alleged claim for damages, dated May 31, 1933,
from H. W. Rohl and T. E. Connolly, filed with
the City Clerk and addressed to the Honorable
Mayor and City Council, be, and it is hereby
referred to H. N. Savage, Hydraulic Engineer.

Consideration has been given to the above referred to
communications from H. W. Rohl and T. E. Connolly, contractors
for the construction of El Capitan Reservoir Dam, Spillway and
Outlet Works, dated May 24, 1933, May 31, 1933 and May 31,
1933, with itemized statement totaling \$131,289.83 which the
contractors allege is the amount of direct and unavoidable
extra cost caused by their partial suspension of work under
date of April 10, 1933.

It is found that such claim is incorrect;

It is further found that no extra cost of construction has
been incurred, and

It is further found that no sum whatsoever is due said
contractor as actual extra cost.

Said claim is disapproved in its entirety, and it is
recommended that the decision of the engineer herein set
forth shall be approved by the Council.

Returned herewith are Documents No. 283178 and 283179.

Respectfully,

H. N. Savage
Hydraulic Engineer.

HNS/f
Encls. (2)

Office of
CITY ATTORNEY
CITY OF SAN DIEGO

San Diego, California

November 29, 1933.

To the Honorable, the Mayor and Council,
of The City of San Diego, California.

Gentlemen:

Pursuant to your resolution directing the City Attorney to furnish a report relative to the claim filed by the contractors on El Capitan Dam for alleged damages claimed by virtue of an alleged suspension of operations last April and May, I hand you herewith the following statement:

In the first place there seems to be quite some misunderstanding relative to the facts and law in connection with said claim. This is due principally to the fact that statements have been published purportedly emanating from persons who have not the slightest understanding of the facts and have no knowledge of the law applicable thereto.

Both the Hydraulic Engineer and the City Attorney have heretofore recommended denial of said claim in toto, and the Council has heretofore adopted said recommendations and denied said claim in toto. There is not the slightest rhyme or reason in any statement which purports to infer that the City will pay any portion of said claim.

The facts are that under the provisions of the contract between the City and the contractors for El Capitan Dam, the City is obligated to at the end of each month pay to the contractors 75% of the monthly earnings for work which has been properly executed according to the specifications and approved by the Hydraulic Engineer. In connection with the said contractual provision, it has been the custom to prepare the estimate for the month's earnings and make payment therefor on or about the 10th of the following month. This is due to the time necessary to compute the quantity of work done and the price therefor.

On April 10, 1933, due to differences of opinion among engineers, the estimate for the construction earnings for work done during the month of March was not signed and delivered. The City Council had absolutely nothing whatever to do with the preparation, execution, delivery or failure of delivery of the estimate for such month.

On April 11th, the contractors on the dam addressed a letter to the Honorable Mayor and City Council stating in substance that the City had been in continuous default of its obligation to measure and pay for certain work performed in accordance with the contract; that "we are at this time again advising you that the City is in default, and that we have suspended operations on the above job on account of the existing defaults, including the failure of the City Engineer to make and sign the estimate for March work. You are further advised that we will demand a standby charge for such period as we are forced to suspend operations on account of the existing default of the City." That communication was the first notice which the Council had of the controversy existing, and the Council thereupon immediately passed a resolution calling for an executive session in the Mayor's office to consider the matter, and invited the Hydraulic Engineer, City Attorney, City Manager, contractors and representatives of the press to attend the session. Special Counsel Mr. T. B. Cosgrove was thereafter called in to aid and assist the City in straightening out the controversy existing; and about April 20th, after many conferences with members of the Council, with the Hydraulic Engineer and the attorney for the contractors, an estimate for the earnings for work performed during the month of March was duly and properly signed, delivered and paid to the contractors.

On April 21st a resolution was passed and adopted by the Council, bearing signatures as to approval of form of C. L. Byers, City Attorney, and T. B. Cosgrove, Special Water Counsel, which resolution in effect ordered that certain rock on the downstream rock embankment at elevation about 600 be removed in accordance with the orders of the Hydraulic Engineer, so that certain alleged earthy material claimed to have been placed in said rock embankment be exposed; providing, however, that in the event upon completion of the work it should be determined that the earthy material placed on said rock embankment had been removed by said contractors and that said rock embankment had been placed in accordance with the contract specifications, that the contractors should then be compensated for the cost of removing such portion of the rock embankment. Various estimates were made as to the cost of removing such rock embankment in order to determine whether or not any earthy material had been placed therein, the estimates running from \$5000 to \$25,000. This was the first time that the Council took any official action in a connection with the matter, and, as you will notice, an alleged suspension of operations had been in effect for more than ten days. After the adoption of said resolution and about May 1st, the Hydraulic Engineer addressed a communication to the Council in which he stated that the City Attorney and Special Counsel requested the appointment of a consulting engineer of outstanding and successful practice in the design and building of dams to make inspection of the rock embankment at El Capitan Reservoir Dam as the contractor proceeded to remove earthy material and decomposed granite in accordance with the orders of the Engineer

and to determine whether or not the placing of the rock embankment had been in accordance with the contract specifications. Thereafter, and on May 11th, the contractors were ordered by the City's engineer, pursuant to the resolution heretofore referred to as follows:

"Your attention is also invited to Resolution No. 60012 adopted by the Council of the City of San Diego on April 21, 1933, copy attached, directing you to comply with the Hydraulic Engineer's requirements for the removal of earthy material and disintegrated granite as set forth in the above mentioned letters dated March 22, March 30 and April 20, 1933.

You are directed to first remove the rock embankment from the downstream rock embankment from above elevation about 600 from a stall about 30 to 40 feet wide and located at about ordinate N 3700. This stall to extend upstream from the upstream edge of the berm at about elevation 600 and at right angles therefrom as directed by the Engineer. The rock removed from this stall may be placed on the upstream rock embankment when the top of the latter is properly prepared in accordance with contract specifications and letter dated March 22, 1933.

It is not the desire nor intent of the Hydraulic Engineer at this time to dictate to you the specific methods to govern your removal of the rock embankment, placed by you in disregard of my instructions, for the purpose of exposing earthy material and disintegrated granite.

It is of paramount importance, and is a mandatory requirement that in removing the rock from the stall, you do not remove any earthy material or disintegrated granite from the top of the rock embankment at elevation about 600 upon which you placed rock embankment after being formally directed not to do so by my letters dated March 22 and 30, 1933, until it has been properly inspected by the City and you are given permission to remove such material.

The purpose of the excavation of the stall is to determine your compliance or non-compliance with the instructions of the Hydraulic Engineer given in letter dated March 22, 1933 requiring the contractor, before placing additional rock embankment material, to remove the earthy material and decomposed granite placed by the contractor on the rock embankment."

You will note that so far the only resolution of the Council with respect to the matter was one which was passed pursuant to the advice given by the City Attorney and the Special Water Counsel for the purpose of maintaining status quo while the rock embankment was being removed in an effort to determine whether or not such earthy material was present. The Council were advised that after the rock was removed if it were discovered that the earthy material was not there, the City would be forced to pay the bill for the earth removed; and, on the other hand, if when the rock was removed it was found that the earth was there, the contractors would have to pay the cost of removing said rock.

Some time after May 11th various conferences were held; a report was furnished by Consulting Engineer D. C. Henny of Portland, Oregon, who was the engineer for that territory for the Reconstruction Finance Corporation at that time; and a meeting was held at the site of the structure, at which time the contractors placed a steam shovel on the north side of the rock embankment at about elevation 600 and commenced to remove rock from the berm in order to provide access for a steam shovel at the point directed by the Hydraulic Engineer.

A report of the Consulting Engineer was filed, indicating that it was useless expense to remove the rock from said rock embankment and that the safety of the structure was not endangered. The State Engineer also had approved the rock embankment as to safety. The Council, at the meeting at the dam site, requested the contractors to cease removing rock; and thereafter passed a resolution on the 15th day of May referring to the first resolution passing on the 21st day of April, and recited in said resolution that -

WHEREAS, pursuant to said resolution said contractors undertook and at the request of members of the Council subsequently stopped the work provided for and directed in said resolution of the Council and in said letter of the Hydraulic Engineer dated May 11th; and

WHEREAS, after several conferences and after hearing the available evidence, this Council believes that the abandonment of the work provided for in said resolution will advance and appreciably progress further construction work upon said El Capitan Dam without in any manner affecting the stability or safety of said structure, and in addition thereto will tend to promote co-operation between City engineering forces and the contractors' forces upon such work, and that the withdrawal of the letters of the Hydraulic Engineer addressed to said contractors under date of March 22nd, March 30th, April 20th and May 11th, and the rescinding of the resolution of the Council numbered 60012 as a compromise of the controversy relating thereto between the City and said contractors, is at this time advisable; NOW, THEREFORE,

BE IT RESOLVED By the Council of The City of San Diego, as follows:

That the Hydraulic Engineer be, and he is hereby directed to address a communication to Messrs. H. W. Rohl and T. E. Connolly, contractors, El Capitan Dam, countermanding the directions and orders contained in said letters dated March 22nd, March 30th, April 20th and May 11th, 1933, and to deliver said countermanding letter to the City Clerk of The City of San Diego who shall hold the same subject to further orders as herein set forth;

BE IT FURTHER RESOLVED, that said Hydraulic Engineer be, and he is hereby further directed to immediately assign an engineer to reside at the dam with complete authority under the terms of the contract to approve or disapprove the work on the structure as it progresses from hour to hour.

BE IT FURTHER RESOLVED, that when said communication from the Hydraulic Engineer, addressed to the contractors, countermanding said previous orders, shall have been delivered to the City Clerk of The City of San Diego, the contractors shall thereupon, in writing, file with the City Clerk their waiver and release of any claim, enforceable or not, against said City for damages or standby charges growing out of or in any manner dependent upon the controversy concerning the conditions in the downstream rock embankment of said El Capitan Dam, as referred to in said Resolution No. 60012 and the letters of the Hydraulic Engineer herein referred to.

BE IT FURTHER RESOLVED, that when said countermanding order from the Hydraulic Engineer and the waiver and release from the contractors shall have been filed with the City Clerk, Resolution No. 60012 shall thereupon be rescinded and repealed and thereafter be of no force and effect.

BE IT FURTHER RESOLVED that immediately thereafter said contractors be, and they are hereby directed and authorized to proceed with the construction of said El Capitan Dam as provided in the contract between said City and said contractors."

That after the adoption of said resolution negotiations were opened with the contractors relative to their waiving of any claim, which negotiations terminated in a refusal of the contractors to waive any such alleged claim. Also, on the same day, the Council passed Resolution No. 60119 as follows:

"WHEREAS, differences and controversies existing between the City and the contractors on the El Capitan Dam have resulted in conditions that have a tendency to delay, if they have not actually delayed, the progress of work on said structure; and

WHEREAS, the Council of said City is concerned because of the occurrence of such controversies with consequent interruption in the work on said structure; and

WHEREAS, said Council is desirous of making definite and certain its intention and purpose to require of the contractors a strict compliance with the terms of the contract specifications for such work; and

WHEREAS, it is the desire of the Council to make known its intentions and policies in the premises; NOW, THEREFORE,

BE IT RESOLVED By the Council of The City of San Diego, as follows:

That the construction work of the El Capitan Dam must be carried on by the contractors in strict compliance with the contract specifications, and that the provisions of said contract specifications relating to the authority of the Hydraulic Engineer and his representatives on the work shall be strictly and rigidly enforced by the City and adhered to by the City and adhered to by the contractors.

BE IT FURTHER RESOLVED, that the Hydraulic Engineer is directed to report immediately, and within a period of not to exceed twenty-four hours after the occurrence thereof, any failure or refusal of the contractor to comply with directions, written or oral, of the Hydraulic Engineer regarding the work on said structure."

The matter then ran along, work still being partially suspended, until May 24th, at which time there was addressed to the Honorable Mayor and City Council a communication from Rohl and Connolly as follows:

"Due to the failure of the Hydraulic Engineer to make and sign an estimate in accordance with our contract for the month of March, we suspended operations on the above job on April 10, 1933. The work is still practically at a stand-still as we have worked only where it was possible to work without violating orders of your Hydraulic Engineer.

To date we have received no instructions to proceed with the work and it is impossible to proceed

with the work in accordance with our contract unless there is someone on the job, representing the City, who is competent and vested with complete authority to approve or disapprove the work on the structure as it progresses and to give instructions in accordance with the terms of our contract.

If the dam is not completed so that the spillway will function before any major flood occurs, there will be the danger of the dam being over-topped by the flow and destroyed, resulting not only in the loss of the dam itself but also of enormous damage to property below the dam.

It is therefore essential that the work should be resumed immediately so that every effort may be made to complete the dam before the rainy season.

A flood passing over the dam prior to its completion would involve destruction of all of the work that had been done up to the time of the flood.

This delay for which the City is responsible greatly increases the flood hazard and will relieve the Contractor from all obligation to deliver a completed structure insofar as this hazard is concerned.

The City will also be liable for any property damage or loss of life which may occur below the dam by reason of the destruction of the dam.

The delay in the completion of the dam until the end of the next rainy season will involve the loss of the year's water crop which has been estimated to be worth the sum of \$500,000 to the City.

The failure of the City to provide the Contractor with necessary information and instructions for proceeding with the work has caused the Contractor direct and unavoidable extra cost for delay, idle equipment, general overhead expense, disorganization of forces and loss as a result of inability to work during favorable weather. The exact amount of extra cost to the Contractor occasioned by this delay will be furnished the City as soon as the same can be ascertained.

We respectfully request the City for specific instructions relative to proceeding with the work in accordance with our contract."

Thereafter, and on June 2nd, the Council after being advised by myself that there was no possible legal method which the City could adopt to compel the contractors to waive any alleged claim, and after being further advised by myself that Mr. T. B. Cosgrove, Special Water Counsel, had written me as follows:

"Confirming long distance conference a few minutes ago, agree that executive session of Council should take place today, and that the procedure outlined by you re reference of contractor's letters to Hydraulic Engineer and decision of Hydraulic Engineer should be followed; also, that resolution of Council should be adopted directing Clerk to deliver Hydraulic Engineer's communication to contractors waiving requirement of contractor's waiver of claim;"

and in an effort to get the work progressing, passed and adopted Resolution No. 60226, a portion of which is as follows:

"BE IT FURTHER RESOLVED, that H. N. Savage, Hydraulic Engineer in charge of construction of El Capitan Dam, be, and he is hereby directed to immediately proceed and continue his instructions to the contractors under and pursuant to the terms of the contract specifications, without regard to the failure of Messrs. H. W. Rohl and T. E. Connolly to file a waiver or release of any damage or stand-by charge claimed by them as a result of a partial suspension of work by them on the construction of said dam, spillway and outlet works."

I again reiterate that no official of the City can prevent any person from filing any alleged claim against the City, whether it is for contract damages, damages due to defective streets, or claimed damages for any act on the part of the City. The filing of a claim, however, is a long way short of collecting on any such claim; and it is my opinion that the contractors on El Capitan Dam will be unsuccessful in any attempt to collect said claim, even though the matter goes through all the courts of the State of California.

For your information, the amount of the alleged claim is out of all proportion, and means absolutely nothing. After April 21, 1933, there is absolutely no legal possibility of any enforcement of such alleged claim. Up until such time the Council of the City had absolutely nothing whatever to do with the controversy existing. The only argument which the court might possibly listen to at all would be for any alleged claim arising during that period of time from April 10th to April 21st when the contractors failed to receive payment for work properly done and accepted during the month of March. In my judgment, the most that the contractors could even contend for in a court proceeding would be not to exceed approximately \$10,000, and, as I said before, it is my opinion that even that sum cannot be collected.

Respectfully submitted,

C. L. Byers,
City Attorney.

CLB/M

CONTROVERSIES**HYDRAULIC FILL**

June 30, 1934

Honorable Mayor
and City Council of
the City of San Diego,
Hydraulic Engineer for
the City of San Diego.

Gentlemen:

Answering the letter of the Hydraulic Engineer, 8-111, wherein he claims "progress of the work has been already arbitrarily delayed by the contractor"; permit me to advise that the contractor has never delayed the work in any manner but has constantly pressed for instructions and directions that would enable him to proceed with his contract at the greatest possible speed. Because of the issuance of wrong, arbitrary and unreasonable orders by the Hydraulic Engineer a great deal of unnecessary wastage of time has occurred, due to no fault of the contractor.

From April 18 to June 14, 1934 inclusive there was no valid reason why work should not have been going on in constructing the hydraulic fill portion of the Dam. Simply running an agitator up and down the puddle section was a direct and arbitrary delay in construction work proper and the result was simply to delay progress and the result of such agitating was neither needed nor required in order to have a core that filled the requirements of the specifications. For this arbitrary delay enforced upon the contractor of some 57 days, which will necessitate holding plant and equipment on this job that much longer, I hand you herewith our bill in the amount of \$129,247.50.

Yours very truly,
H. V. Rohl & T. E. Connolly

by T E Connolly (signature)

City Attorney
Hydraulic Engineer

Summary of Statement of Extra Cost to the Contractor on account
of Stand-by Charges for the period from April 18 to June 14,
1934, Inclusive

	Daily Expense	No. Days Down	
Field office	\$22.00	57 days	1,254.00
General overhead, insurance, interest, etc.	200.00	57 "	11,400.00
As per accompanying itemization			<u>116,593.50</u>
Total			\$ 129,247.50

BL CAPITAN DAM

June 30, 1934

Equipment and Cost for Idle Time

3 - Sixty Caterpillars	171 days at	\$40.00	\$	6,840.00
1 - Thirty Caterpillars	57 "	24.00		1,368.00
2 - 30-40 Cletracs	114 "	24.00		2,736.00
1 - 35 - Allis Chalmers Tractor	57 "	24.00		1,368.00
2 - McMillan scrapers	114 "	10.00		1,140.00
3 - Bulldozers	171 "	8.00		1,368.00
1 - 10' Maintainer	57 "	7.00		399.00
1 - 10' Galien blade	57 "	5.00		285.00
Compressors				
1 Sullivan - stationary	57 "	45.00		2,565.00
5 310' Portable compressors	285 "	10.00		2,850.00
Receivers				
1 5 x 15'	57 "	3.00		171.00
Water Tanks				
5 2500 to 3000 gals	57 "	2.00		114.00
1 Barber Green Loader	57 "	12.00		684.00
1 Concrete plant	57 "	50.00		2,850.00
1 Sack cleaner	57 "	2.00		114.00
3 Concrete mixers	171 "	10.00		1,710.00
Pumps				
1 2" Triplex pumps	57 "	2.00		114.00
1 20" - 400 H.P.	57 "	10.00		570.00
1 8" - 40 H.P.	57 "	7.00		399.00
1 25 H.P. 440 Volt D.C. Con	57 "	6.00		342.00
1 75 H.P.	57 "	8.00		456.00

1	6x8 Triplex Pump D.C. 40 H.P.	57 days at	5.00	285.00
2	6" 75 H.P. D.C. Con	114 "	12.50	1,425.00
1	12" Dredge Pump with 200 HP	57 "	20.00	1,140.00

Barges

4	Complete with all fittings and 8" pumps D.C.	228 "	15.00	3,420.00
3000'	12" Dredge pipe	}	57 "	10.00
2000'	15" " "			

Trucks

8	6 Cylinder Sterlings	456	30.00	13,680.00
4	4 " "	228	25.00	5,700.00
4	6 " Autocars	228	25.00	5,700.00
10	4 " Whites	570	28.00	15,960.00
1	1-1/2 ton Ford	57	12.00	684.00
3	Ford pickups	171	10.00	1,710.00
1	6 Cylinder Mack	57	25.00	1,425.00
4	6 " Pageols	228	30.00	6,840.00

Shovels

2	Northwest Model 6	114 "	60.00	6,840.00
3	Thew-Lorain	171 "	40.00	6,840.00
1	Lima 101	57 "	40.00	2,280.00
2	Northwest Dragline Booms	114 "	7.00	798.00
1	Lorain " "	57 "	7.00	399.00
1	Lima " "	57 "	7.00	399.00
2	2 Yard " Buckets	114 "	8.00	912.00
2	1 " " "	114 "	4.00	456.00
4	Ingersoll-Rand Drifters	228 "	2.00	456.00
12	Jackhammers	684 "	1.50	1,026.00
2	#50 I-R Steel sharpeners	114 "	8.00	912.00
2	Furnaces	114 "	1.00	114.00
1	I-R Grinders #8	57 "	1.00	57.00

Drill Steel

1600'	1-1/4" Drill steel	}	57 "	5.00
1200'	1" " "			
1600'	7/8" " "			

Pipe

15000'	2" pipe	}	57 "	15.00
2000'	1" " "			
1200'	3/4" " "			
7000'	4" " "			
200'	6" " "			
3000'	8" Casing			

Shop equipment

2	Lathes	}	57 "	100.00
1	4" Radial Drill			
1	Power saw			
1	Boring machine			
1	Cylinder grinder			
1	Arc welder-Sta			
1	" " Port			
1	Cut & Weld outfits			
1	100 ton press			
1	Forge & tools			
2	Grinders	5,700.00		

Transformers

6	150KVA 2300-440	342 days at	2.00	684.00
3	100KVA "	171 "	1.50	256.50
3	50KVA "	171 "	1.00	171.00
10	2-15KVA	57 "	3.00	<u>171.00</u>

Total on Equip.

116,593.50

7/16/34
copy /f

COPY 1537

OFFICE OF
CITY ATTORNEY
CITY OF SAN DIEGO

San Diego, California

July 5, 1934.

To the Honorable, The Mayor and Council
of The City of San Diego, California.

Gentlemen:

In re El Capitan Dam.

You have referred to me for attention communication addressed to the Mayor and City Council from H. W. Rohl and T. E. Connolly, contractors on the El Capitan Dam, together with a purported itemized claim for alleged damages due to delay in the work.

Please be advised that paragraph 15 of the Contract Specifications requires such claims to be referred to the Hydraulic Engineer in charge. For your information I quote paragraph 15:

"15. DELAYS - NO EXTRA COMPENSATION. - The contractor shall receive no compensation for delays or hinderances to the work except, when in the judgment of the engineer, direct and unavoidable extra cost to the contractor is caused by the failure of the City of San Diego to provide necessary information, material, right of way, or site for installation. When such extra compensation is claimed a written itemized statement setting forth in detail the amount thereof shall be presented by the contractor not later than thirty days after the close of the calendar month during which extra cost is claimed to have been incurred. Unless so presented the claim shall be deemed to have been waived. Any such claim, if found correct, will be approved and the amount found due as actual extra cost will be covered by the next estimate thereafter paid under the contract. The decision of the engineer whether extra cost has been incurred and the amount thereof, subject to approval by the Common Council, shall be final."

It is my opinion that there is no legal liability on the part of the City for the payment of any such claim, but nevertheless in view of section 15 the matter should be referred to the Engineer for his decision.

Respectfully submitted,

C. L. BYERS (Signature)
C. L. Byers
City Attorney

CLB/S

July 16, 1934

M E M O R A N D U M

Subject: San Diego River Project, El Capitan Feature
Claim of H. W. Rohl and T. E. Connolly
Contractor, for standby charges.

H. W. Rohl & T. E. Connolly, Contractor for the construction of the El Capitan Reservoir Dam, Spillway and Outlet Works, under date of June 30, 1934 filed a letter with the City Clerk addressed to the Mayor and Council purporting to answer the Hydraulic Engineer's letter of May 29, 1934, S-111, in reference to arbitrary delays by the contractor and submitting an alleged bill of \$129,247.50 for standby charges for the period from April 18 to June 14, 1934 inclusive.

The contractor claims that there were no valid reasons why the work of constructing the hydraulic fill portion of the dam could not have proceeded during this period and that the work required by the Hydraulic Engineer was not needed or required.

On September 23, 1933, the contractor was notified by letter S-47 that the upbuilding of the puddle core was lagging behind the upbuilding of the beaches.

The contractor was directed by letter dated October 16, 1933 S-55 to discontinue semi-hydraulic method of placing hydraulic fill material and to use full hydraulic process.

The contractor was notified by letter dated October 20, 1933, S-57 to immediately secure, furnish and place suitable fines of silt and clay material in the hydraulic fill portion of the dam to accomplish the upbuilding of the impervious puddle core.

Between November 29 and December 5, 1933, the contractor placed about 16,000 cubic yards of local borrow pit material in the hydraulic fill portion of the dam by the full hydraulic method without having complied with the requirements as to the accomplishment of the upbuilding of the impervious puddle core section, and without having provided suitable fines.

This resulted in sand strata revealed by extensive sampling of the puddle core section between December 9, 1933 and January 7, 1934. This sand strata was from 12 inches to 18 inches in thickness extending through practically all of the southerly two-thirds of the puddle core area.

Between January 5 and February 8, 1934 the removal of the sand strata was accomplished by the Contractor by excavating a considerable amount of the puddle core section and depositing it onto the beaches by means of dragline buckets operating on a slack line. The fines were then re-washed back into the summit pool. Some of the coarse material was piled on the hydraulic fill side of the rock embankments, and a considerable amount of it was also removed from the beaches and wasted outside the section of the dam.

Memorandum

--2

7/16/34

From February 9 to March 21, 1934 the contractor placed select local borrow pit material by full hydraulic method. Some excess sand was removed from the beaches and some coarse material from the hog box and from a blowoff in the pipe line transporting material from the hog box to the dam. There were still insufficient fines deposited in the puddle core to bring the puddle core into proper relation with the beaches and during this time the contractor was repeatedly warned of the lagging puddle core and danger of sand strata forming.

Sand strata again began to appear between N 3200 and N 3400 on March 10, 1934 and gradually worked northerly until March 21, 1934 when the contractor was notified to discontinue placing hydraulic fill material until the unsatisfactory condition of the impervious puddle core section due to the excess of sand strata had been corrected.

Soon after discontinuing the placing of the hydraulic fill material, the contractor undertook the disperson of the sand strata by operating a puddle core mixing machine longitudinally along the puddle core for a few days and then worked crosswise of the puddle core until about April 18, 1934.

On May 1, 1934 the contractor was verbally advised by the Hydraulic Engineer that the sand strata or lenses still projected into the impervious puddle core section on both the upstream and downstream sides contrary to the specific requirement of the specifications; also that provided the contractor operated the core mixing machine, or other mixing machine, effectively in depth to elevation 672, or to a lesser depth, as directed, for the entire length of the summit pool and on both sides of the central alignment of the structure, the Hydraulic Engineer would approve the work subject to the State Engineer's deeming the structure to be safe. This was confirmed by letter dated May 12, 1934, S-108.

This work was undertaken on May 28, 1934 and completed June 15, 1934.

The specifications provide that: "The contractor shall receive no compensation for delays or hinderances to the work except, when in the judgment of the engineer, direct and unavoidable extra cost to the contractor is caused by the failure of the City of San Diego to provide necessary information, material, right of way, or site for installation."

The City notified the contractor repeatedly what was expected and if the contractor had complied directly with the specifications and the instructions of the Hydraulic Engineer instead of arbitrarily delaying, there would have been no lost time. Therefore, the City is not responsible for the standby charges claimed by the contractor in letter to the Council dated June 30, 1934.

Fred D. Pyle
Hydraulic Engineer

FDP/f

July 18, 1934

TO THE HONORABLE, THE MAYOR AND COUNCIL
OF THE CITY OF SAN DIEGO, CALIFORNIA

Subject: San Diego River Project, El Capitan
Feature, Claim of H.W.Rohl & T.E.Connolly,
Contractor, for Standby Charges.

Gentlemen:

Consideration has been given to communication dated June 30, 1934 from H. W. Rohl & T. E. Connolly, Contractor for the construction of the El Capitan Reservoir Dam, Spillway and Outlet Works submitting a claim for standby charges amounting to \$129,247.50, and to the City Attorney's statement pertaining thereto dated July 5, 1934, both of which were referred by your Honorable Body to the Hydraulic Engineer.

It is found that the claim submitted is incorrect.

It is further found that no additional amounts are due the Contractor on account of extra costs which may have been incurred, and

It is further found that no sum whatsoever is due said Contractor as actual extra cost.

Said claim is disapproved in its entirety, and it is recommended that the decision of the engineer be approved by the Council.

Returned herewith are Documents No. 288701 and No. 288727.

Very respectfully,

Fred D. Pyle
Hydraulic Engineer

FDP/f
Encls.

CONTROVERSIES

MONTHLY ESTIMATES

San Diego, Calif.,
November 14, 1932.

The City of San Diego, California
The Common Council of the City of San Diego, California
H.N.Savage, Hydraulic Engineer, City of San Diego, California

Re: Contract El Capitan Reservoir Dam,
Spillway and Outlet Works

Gentlemen:

Your attention is respectfully directed to the fact that the City is in default and that the Contractor has not been paid for work performed to the end of the month of October, 1932.

Estimate #6 submitted to the Contractor on November 12, 1932, is not made in accordance with the Contract. The classification of materials excavated and included in the estimate submitted is not in accordance with the Contract and the measurements for payment have not been made as provided by the Contract.

The Certificate included in said Estimate is not within the terms of the Contract and is an attempt on the part of the City to illegally alter the terms of the Contract. The Demand of the City that the Contractor sign said Certificate as a condition precedent to the receipt of payment of the amount of said Estimate #6, to wit, the sum of \$137,325, is an illegal demand and the Contractor hereby refuses to execute such Certificate.

The Contractor hereby demands that measurements and classification of materials excavated be forthwith made in accordance with the terms of the Contract and that payment be forthwith made in accordance with the terms of the Contract and hereby notifies you that time is of the essence of the above Contract and of this demand and that the Contractor intends to declare and will formally declare a default in said Contract unless payment is received by the Contractor on or before November 19, 1932, in accordance with the terms of the Contract.

Take due notice.

Very truly yours,

H. W. ROHL (Signature)

T. E. CONNOLLY (Signature)

San Diego, California

November 15, 1932

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego, California.

Re: Estimate No. 6

Dear Sir:

Kindly furnish the Contractor with a statement of the quantities and classifications between successive stations as provided in paragraph 54 and 55 of the specifications and contract for El Capitan Reservoir Dam, Spillway and Outlet Works.

Very truly yours,

H. W. ROHL and T. E. CONNOLLY

By JOHN M. MARTIN (Signature)

JMM/p

November 15, 1932

Messrs. H. W. Rohl & T. E. Connolly
4351 Alhambra Avenue
Los Angeles, California.

Subject: San Diego River Project, El Capitan
Feature, Contract construction.

Gentlemen:

Receipt is acknowledged of your letter dated
November 15, 1932 in which you requisition

"Kindly furnish the Contractor with a
statement of the quantities and classifica-
tion between successive stations as
provided in paragraphs 54 and 55 of the
specifications and contract for El Capitan
Reservoir Dam, Spillway and Outlet Works."

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

HNS/p

cc H.W.Rohl & T.E.Connolly
El Capitan Dam
cc Contractor's Resident Representative
cc City's Resident Engineer

November 23, 1932

Messrs. H. W. Rohl and T. E. Connolly
4351 Alhambra Avenue
Los Angeles, California.

Subject: San Diego River Project, El Capitan
Feature, Estimate No. 6, Statement of
Quantities and Classifications.

Gentlemen:

Pursuant to your written request of November 15, 1932 for a statement of the quantities and classification between successive stations of the excavation and embankment quantities shown on progress estimate No. 6 for work done on El Capitan Reservoir Dam, Spillway and Outlet Works up to and including October 1932, you are herewith furnished the attached statement showing the information requested.

If this statement is not satisfactory to you, specific objections with reasons therefor should be filed in writing with the engineer in accordance with paragraph 54 of the contract specifications.

Respectfully,

Fred D. Pyle
Acting Hydraulic Engineer.

FDP/f

cc John M. Martin, Attorney for Contractors
City Attorney
Rohl & Connolly, El Capitan Dam
Contractor's Representative, El Capitan Dam
Resident Engineer, El Capitan Dam
Hydraulic Engineer, Washington, D.C.

CITY OF SAN DIEGO

CALIFORNIA

San Diego River Project, El Capitan Dam

Statement of Stations, Classifications, and Quantities of Embankment and Excavation and Summary by Schedule Items of certain work done by H. W. Rohl and T. E. Connolly under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works, up to and including October 1932 and included in Progress Estimate No. 6.

EMBANKMENT: Stations, Classification and Quantities.

1. From N 3340 to N 3900 and from
E 5140 to Upstream Toe Wall
 - a. Embankment Class 1 125,241 cubic yards
 - b. Excavation Class 1 6,500 " "
 - c. Excavation Class 5 48 " "
 - Above axis and below
upstream toe wall

2. From N 3430 to N 3850 and from
E 5590 to Upstream toe wall
 - a. Embankment Class 1 6,448 " "
 - b. Excavation Class 5 4,480 " "
 - Above upstream toe wall

3. From N 3760 to N 3840 and from
E 4570 to Downstream toe wall
 - a. Embankment Class 1 2,388 " "
 - b. Excavation Class 1 175 " "
 - c. Excavation Class 5 662 " "
 - Below axis and above
downstream toe wall

4. From N 3700 to N 3840 and from
E 4400 to downstream toe wall
 - a. Embankment Class 1 5,811 " "
 - b. Excavation Class 1 925 " "
 - c. Excavation Class 5 38 " "
 - Below downstream toe wall

EXCAVATION: Stations, Classification, Quantities

1.	Excavation Class 1, detached solid rock from stripping for base of dam, from tunnel structure and approach cuts and other structure excavation.	9,617	cubic yards	
2.	Excavation Class 1, detached solid rock from Station 0+00 to Station -2+95 Tunnel entrance	276	"	"
3.	Excavation Class 1, ledge rock in place from Station 0+00 to Station -0+50. Tunnel entrance	2,547	"	"
4.	Excavation Class 1, detached solid rock from Station 11+72.8 to Station 15+30 Tunnel exit	356	"	"
5.	Excavation Class 1, ledge rock in place from Station 11+72.8 to Station 13+82.8 Tunnel exit	5,242	"	"
6.	Excavation Class 1 ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	3,440	"	"
7.	Excavation Class 1 ledge rock in place from N 3480 to N 3540 and from E 5480 to E 5550	679	"	"
8.	Excavation Class 2 Station 0+00 to Station -2+95 Tunnel entrance	9,143	"	"
9.	Excavation Class 2 Station 11+72.8 to Station 15+30 Tunnel exit	11,823	"	"
10.	Excavation Class 2 stripping for base of dam from N 3380 to N 3860 and from E 4320 to E 4740 under downstream rock embankment	68,611	"	"
11.	Excavation Class 2 stripping for base of dam from N 3380 to N 3860 and from E 5140 to E 5590 under upstream rock embankment	69,891	"	"
12.	Excavation Class 2 stripping for base of dam from N 3330 to N 3900 and from E 4740 to E 5140, under hydraulic fill	57,322	"	"
13.	Excavation Class 3, downstream toe wall from Station 0-60 to Station 4+02.14	1,835.5	"	"
14.	Excavation Class 3, upstream toe wall from Station 0+00 to Station 4+85	2,198.6	"	"

Excavation (continued)

15. Excavation Class 3, main cutoff trench under dam			
a. 6 foot neat line trench from N 3310 to N 3480		847	cubic yards
b. 6 foot neat line trench from N 3480 to N 3760	1,675.3	"	"
c. 6 foot neat line trench from N 3760 to N 3780	83.3	"	"
d. 6 foot bottom, 1 on 1 slopes from N 3440 to N 3790	1,914.0	"	"
16. Excavation Class 5, tunnel excavation			
a. Station 0+00 to Station 3+26	8,229.7	"	"
b. " 3+26 " " 7+00	2,701.1	"	"
c. " 7+00 " " 9+74	6,315.2	"	"
d. " 9+74 " " 11+72.77	5,018.6	"	"

SUMMARY BY SCHEDULE ITEMS

Schedule

Item	Determination of schedule items	
1. Excavation Class 1 solid rock originating in structure excavation including placing and sorting in dam.		
	Embankment 1b	6,500
	3b	175
	4b	925
	Total	<u>7,600</u> cubic yards
2. Embankment Class 1 rock originating in borrow pit only, including placing and sorting in dam, measured in embankment.		
	Embankment 1a	125,241
	2a	6,448
	3a	2,388
	4a	5,811
	Total	<u>139,888</u> cubic yards
	(Estimate #6 -	139,900 " ")
9. Excavation Class 5 outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.		
	Embankment 1c	48
	2b	4,480
	3c	662
	4c	38
	Total	<u>5,228</u> cubic yards

Schedule
Item

10. Excavation Class 1 solid rock originating in structure excavation and wasted.

Excavation 1	9,617	
2	276	
3	2,547	
4	356	
5	5,242	
6	3,440	
7	679	
	<u>22,157</u>	
Less Schedule Item 1-	7,600	
Total	<u>14,557</u>	cubic yards

11. Excavation Class 2 earth, overburden, sand gravel and other excavation originating in structure excavation and wasted.

Excavation 8	9,143	
9	11,823	
10	68,611	
11	69,891	
12	57,322	
Total	<u>216,790</u>	cubic yards
(Estimate No. 6 -	216,632	" "

12. Excavation Class 3 cutoff trench excavation under dam, and wasted

Excavation 13	1,835.5	
14	2,198.6	
15a	847	
15b	1,675.3	
15c	83.3	
15d	1,914.0	
Total	<u>8,553.7</u>	cubic yards

14. Excavation Class 5 outlet tunnel excavation except open cut excavation, but wasted,

Excavation 16a	8,229.7	
16b	2,701.1	
16c	6,315.2	
16d	5,018.6	
	<u>22,264.6</u>	
Less Schedule Item 9	5,227	
Total	<u>17,037.6</u>	cubic yards

CITY OF SAN DIEGO

CALIFORNIA

SAN DIEGO RIVER PROJECT

EL CAPITAN DAM

Statement of Quantities and Classifications

Showing Schedule Items for work done

to

October 31, 1932

included in

Estimate #6.

November 22, 1932
HW

EMBANKMENT:

1. From N 3440 to N 3900 and from E 5140 to Upstream Toe Wall
 - a. Embankment Class 1 125,241 cubic yards
 - b. Excavation Class 1 6,500 " "
 - c. Excavation Class 5 48 " "

Above axis and below upstream toe wall.

2. From N 3430 to N 3850 and from E 5590 to Upstream Toe Wall
 - a. Embankment Class 1 6,448 cubic yards
 - b. Excavation Class 5 4,480 " "

Above upstream toe wall

3. From N 3760 to N 3840 and from E 4570 to Downstream Toe Wall
 - a. Embankment Class 1 2,388 cubic yards
 - b. Excavation Class 1 175 " "
 - c. Excavation Class 5 662 " "

Below axis and above downstream toe wall

4. From N 3700 to N 3840 and from E 4400 to Downstream Toe Wall
 - a. Embankment Class 1 5,811 cubic yards
 - b. Excavation Class 1 925 " "
 - c. Excavation Class 5 38 " "

Below downstream toe wall

EXCAVATION:

1550

1.	Excavation Class 1. Detached solid rock from stripping for base of dam, from tunnel structure and approach cuts and other structure excavation	9,617	cubic yards	
2.	Excavation Class 1. Detached solid rock from Station 0+00 to Station -2+95. Tunnel entrance	276	"	"
3.	Excavation Class 1. Ledge rock in place from Station 0+00 to Station -0+50. Tunnel entrance	2,547	"	"
4.	Excavation Class 1. Detached solid rock from Station 11+72.8 to Station 15+30 tunnel exit	356	"	"
5.	Excavation Class 1 ledge rock in place from Station 11+72.8 to Station 13+82.8 tunnel exit	5,242	"	"
6.	Excavation Class 1 ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	3,440	"	"
7.	Excavation Class 1 ledge rock in place from N 3480 to N 3540 and from E 5480 to E 5550	679	"	"
8.	Excavation Class 2 Station 0+00 to Station -2+95 tunnel entrance	9,143	"	"
9.	Excavation Class 2 Station 11+72.8 to Station 15+30 tunnel exit	11,823	"	"
10.	Excavation Class 2 stripping for base of dam from N 3380 to N 3860 and from E 4320 to E 4740 under downstream rock embankment	68,611	"	"
11.	Excavation Class 2 stripping for base of dam from N 3380 to N 3860 and from E 5140 to E 5590 under upstream rock embankment	69,891	"	"
12.	Excavation Class 2 stripping for base of dam from N 3330 to N 3900 and from E 4740 to E 5140, under hydraulic fill	57,322	"	"
13.	Excavation Class 3, downstream toe wall from Station 0+60 to Station 4+02.14	1,835.5	"	"
14.	Excavation Class 3, upstream toe wall from Station 0+00 to Station 4+85	2,198.6	"	"
15.	Excavation Class 3, main cutoff trench under dam			
	(a) 6 foot neat line trench from N 3310 to N 3480	847	"	"
	(b) 6 foot neat line trench from N 3480 to N 3760	1,675.3	"	"
	(c) 6 foot neat line trench from N 3760 to N 3780	83.3	"	"
	(d) 6 foot bottom, 1 on 1 slopes from N 3440 to N 3790	1,914.0	"	"

Excavation (Continued)

16. Excavation Class 5, tunnel excavation			
(a) Station 0+00 to Station 3+26	8,229.7	cubic yards	
(b) Station 3+26 to Station 7+00	2,701.1	" "	
(c) Station 7+00 to Station 9+74	6,315.2	" "	
(d) Station 9+74 to Station 11+72.77	5,018.6	" "	

CONCRETE:

1. Concrete Class 4 in unformed portion of main core wall from N 3480 to N 3760	1,574.3	" "	
2. Concrete Class 8 in retaining walls at upstream and downstream toes of dam			
(a) Upstream toe wall from Station 0+00 to Station 4+85	6,573.7	" "	
(b) Downstream toe wall from Station 0-60 to Station 4+02.14	6,932.8	" "	
3. Concrete Class 9 in drains at toe of dam			
(a) North drain ϕ length 149.4 feet	177.2	" "	
(b) Center " " " 143.2 "	175.3	" "	
(c) South " " " 149.0 "	168.0	" "	
4. Concrete Class 11, tunnel floor from Station 8+19 to Station 11+53	272.2	" "	
5. Concrete Class 13.			
(a) Entrance portal footings and cutoff walls	220.0	" "	
(b) Exit portal footings and cutoff walls	239.9	" "	

CEMENT:

1. Cement in Class 4 concrete in corewall from N 3480 to N 3760	2,505.5 barrels	
2. Cement in Class 8 concrete upstream and downstream toe walls	15,628	"
3. Cement in Class 9 concrete, drains at toe of dam	828.5	"
4. Cement in Class 1 concrete, tunnel floor from Station 8+19 to Station 11+53	395.5	"
5. Cement in Class 13 concrete		
(a) Entrance portal footings and cutoff walls	310.5	"
(b) Exit portal footings and cutoff walls	376.5	"
6. Cement in grouting by air pressure Core wall grouting from N 3581 to N 3628	21.5	"
7. Cement recovered from cleaning 70,150 cement sacks and credited to City as per paragraph 68	135.25	"

REINFORCING STEEL:

1. Reinforcing steel in drains except walls	58,784 pounds	
2. Reinforcing steel in corewall from N 3480 to N 3660	40,442	"
3. Reinforcing steel in tunnel invert from Station 8+19 to Station 11+53	33,035	"
4. Reinforcing steel in structure footing at tunnel entrance	66,536	"
5. Reinforcing steel in structure footing at tunnel exit	36,410	"

STRUCTURAL STEEL:

1. Structural steel in place in corewall from N 3480 to N 3760 34 columns	14,350	"
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DRAIN TILE:

1. 4" tile in footing of upstream toe wall	51 linear feet
2. 4" tile in north drain	860 " "
3. 4" tile in center drain	822 " "
4. 4" tile in south drain	842 " "

STEEL GROUT AND DRAIN PIPE:

1. Grout pipe in corewall from N 3480 to N 3760	1,470 " "
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HOLES DRILLED IN ROCK OR CONCRETE WITH CONCUSSION DRILL:

1. Grout holes in main core wall from N 3480 to N 3760	1,950.7 linear feet
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GROUTING BY AIR PRESSURE EXCEPT IN MASONRY OF TUNNEL PLUG:

1. Grouting in main core wall from N 3581 to N 3628	80.5 cubic feet
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COPPER WATER STOP COMPLETE IN PLACE:

1. Copper water stop in Class 4 concrete from N 3480 to N 3760	1,779.1 pounds
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EL CAPITAN DAM

Estimate No. 6 for Period, September 26 to October 31, 1932, inclusive and including payments due from previous estimates not included in the City Engineer's estimate.

ITEM

1. Excavation, Class 1, solid rock originating in structure excavation, including placing and sorting in dam
7,600 cubic yards at \$1.00 \$ 7,600.00
2. Embankment, Class 1, rock originating in borrow pit only, including placing and sorting in dam and measured in embankment.
157,207 cubic yards at \$1.00 per cubic yard 157,207.00
9. Excavation, Class 5, outlet tunnel excavation, excepting open cut excavation and including placing and sorting in dam.
3,443 cubic yards at \$5.00 per cubic yard 17,215.00
10. Excavation, Class 1, Solid rock originating in structure excavation and wasted, measured in spoil bank.
69,438 cubic yards at \$1.00 per cubic yard 69,438.00
(Page 31, paragraph 55, Section (b) of the specifications)
11. Excavation, Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.
173,919 cubic yards at \$0.25 per cubic yard 43,479.75
12. Excavation, Class 3, cutoff trench excavation and wasted, measured in spoil bank
15,565.75 cubic yards at \$3.00 per cubic yard 46,697.25
(Page 31, paragraph 55, Section (b))
14. Excavation, Class 5, outlet tunnel excavation excepting open cut excavation, but wasted measured in spoil bank
23,449.54 cubic yards at \$5.00 per cubic yard 117,247.70
(Page 31, paragraph 55, Section (b))
24. Concrete, Class 8, in retaining walls at upstream and downstream toes of the dam.
13,506.50 cubic yards at \$4.80 per cubic yard 64,831.20
25. Concrete, Class 9, in drains and downstream toe of dam.
524,532 cubic yards at \$12.00 per cubic yard 6,294.38

ITEM

20. Concrete, Class 4, in unformed portion of main core wall 1,574 cubic yards at \$4.80 per cubic yard	\$7,555.20
27. Concrete, Class 11, in floor of tunnel excepting floor inlet and outlet 272.18 cubic yards at \$4.80 per cubic yard	1,306.46
29. Concrete Class 13 in retaining and guide and cutoff walls of tunnel approach and outlet 452.68 cubic yards at \$12.00 per cubic yard	5,432.16
33. Cement in place in work 20,770 barrels at \$1.90 per barrel	39,463.00
34. Reinforcing steel in place in work 196,176 pounds at \$.03 per pound	5,885.28
35. Structural steel in place in work 14,178 pounds at \$.04 per pound	567.12
36. 4" drain tile in place in work 2,690 linear feet at \$.40 per foot	1,076.00
40. 2" steel grout pipe in place in work 1,470 linear feet at \$.25 per foot	367.50
43. Holes drilled in rock or concrete with concussion drill 1,950.7 linear feet at \$1.00 per foot	1,950.70
45. Grouting by air pressure, except in masonry of tunnel plug 84.5 cubic feet at \$1.00 per cubic foot	84.50
46. Copper water stop, complete in place 1,779 pounds at \$.30 per pound	<u>533.70</u>

Gross	594,231.90
Less 25%	<u>148,557.97</u>
Net	445,673.93
Previous paid	<u>228,750.00</u>

Net earnings due November 10 \$216,923.93

11/3/32

The above copied from typed sheet loaned by John M. Martin
Attorney for H. W. Rohl and T. E. Connolly.

Fred D. Pyle
Engineer.

Nov. 29, 1932

Common Council, City of San Diego,
Mr. H. N. Savage, Hydraulic Engineer
in Charge, El Capitan Dam.

Subject: San Diego River Project
El Capitan Feature. Classification
and Measuring of Quantities.

Gentlemen:

In accordance with the Contractor's privilege of protest of any monthly estimate, as set forth in paragraph 54, page 31 of the contract specifications, we specifically object to the quantities and classification of quantities as shown under the different bid items of Estimate #6 for the month of October 1932 and as set forth in statement transmitted by Fred D. Pyle, acting Hydraulic Engineer under date of Nov. 23rd, 1932 for the following reasons:

Item 1.

The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (a) of the Contract Specifications.

Item 2.

The quantities shown are acceptable as an Engineer's Progress Estimate only, with the exceptions of the deductions made of quantities shown under Items 1 and 9. It being the Hydraulic Engineer's interpretation that "No estimate is final until the last and final estimate is made, that all other estimates are subject to change."

Item 9.

The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (b) of Contract Specifications.

Item 10.

The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraph 54; Page 32 - Paragraph 55 (b) of Contract Specifications.

Item 11.

The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraph 54 & 55 (b) of Contract Specifications.

Item 12.

The quantities shown are wrong as to Classification and method of Measurement. Page 31 - Paragraph 54; Page 32 - Paragraph 55 (b) of Contract Specifications.

Item 14.

The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (b) of Contract Specifications.

Items 20, 21, 24, 25, 27, 28, 29, 33, 34, 35, 36, 40, 43, 45 and 46 as set forth in Estimate #6 are acceptable as an Engineer's Progress Estimate only, it being the Contractor's understanding that the Hydraulic Engineer has ruled that all Progress Estimates are subject to change and correction by final measurements at time of completion of work and issuance of Final Estimate.

Very truly yours,

H.W.Rohl & T.E.Connolly

By JOHN M. MARTIN (Signature)

December 21, 1932

H. W. Rohl & T. E. Connolly
Contractors, El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

Subject: San Diego River Project, El Capitan
Feature, Estimate No. 6, quantities
and classification.

Gentlemen:

Receipt is acknowledged of your letter of
November 29, 1932 in which you object to the quantities
and classification of quantities as set forth in my
office letter of November 23, 1932, which was in
reply to your request of November 15, 1932 for a
statement of quantities and classification between
successive stations made in accordance with paragraph
54 of the contract specifications for the El Capitan
Reservoir Dam.

It is noted that you "specifically object" to
the quantities and classification but that your ob-
jections as given are all general without stating
your reasons and therefore not specific objections
with reasons therefor as set forth in paragraph 54
of the contract specifications.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

HNS/p
cc H.W.Rohl & T.E.Connolly
El Capitan Dam
cc Contractor's Resident Representative
cc City's Resident Engineer

H. W. ROHL & T. E. CONNOLLY
CONTRACTORS

San Diego, California,

December 15, 1932.

Mr. H. N. Savage,
Hydraulic Engineer,
City of San Diego, California.

Re: Estimate No. 7

Dear Sir:

Kindly furnish the Contractor with a statement of the quantities and classifications between successive stations as provided in paragraphs 54 and 55 of the specifications and contract for El Capitan Reservoir Dam, Spillway and Outlet Works.

Very truly yours,

H. W. Rohl & T. E. Connolly

By H. W. ROHL (Signature)

December 20, 1932

Messrs. H. W. Rohl & T. E. Connolly
4351 Alhambra Avenue
Los Angeles, California.

Subject: San Diego River Project,
El Capitan Feature
Contract Construction

Gentlemen:

Receipt is acknowledged of your letter dated
December 15, 1932 in which you requisition

"Kindly furnish the Contractor with a
statement of the quantities and classifi-
cations between successive stations as
provided in paragraphs 54 and 55 of the
specifications and contract for El Capitan
Reservoir Dam, Spillway and Outlet Works."

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

HNS/p

cc H.W.Rohl & T.E.Connolly
El Capitan Dam
cc Contractor's Resident Representative
cc City's Resident Engineer

December 23, 1932

Messrs. H. W. Rohl & T. E. Connolly
Contractor, El Capitan Dam
4351 Alhembra Avenue
Los Angeles, California.

Subject: San Diego River Project, El Capitan
Feature. Estimate No. 7, statement
of quantities and classifications.

Gentlemen:

Pursuant to your written request dated December 15, 1932 for a statement of the quantities and classification between successive stations of the excavation and embankment quantities shown on progress estimate No. 7 for contract work done on El Capitan Dam November 1932, you are herewith furnished the attached statement showing the information requested.

If this statement is not satisfactory to you, specific objections with reasons therefor should be filed in writing with the engineer in accordance with paragraph 54 of the contract specifications.

Respectfully,

H. N. Savage,
Hydraulic Engineer.

HNS/p
encl.

cc John M. Martin, Attorney for contractors
City Attorney
H. W. Rohl & T. E. Connolly, El Capitan Dam
Contractor's Resident Representative
City's Resident Engineer

CITY OF SAN DIEGO

CALIFORNIA

San Diego River Project, El Capitan Dam

Statement of stations, classifications, and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl and T. E. Connolly under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including November 1932 and included in Progress Estimate No. 7.

EMBANKMENT: Stations, classification and quantities

1. From N 3440 to N 3850 and from E 5590 to toe wall

(2)	Embankment Class 1	7,469	cubic yards	
(9)	Excavation Class 5	<u>4,480</u>	" "	11,949 cubic yards
	Above upstream toe wall			

2. From N 3430 to N 4050 and from E 5140 to upstream toe wall

(2)	Embankment Class 1	166,919	cubic yards	
(1)	Excavation Class 1	6,560	" "	
(9)	Excavation Class 5	<u>5,723</u>	" "	179,202 cubic yards
	Below upstream toe wall			

3. From N 3450 to N 3830 and from E 4740 to downstream toe wall

(2)	Embankment Class 1	60,668	cubic yards	
(1)	Excavation Class 1	175	" "	
(9)	Excavation Class 5	<u>1,743</u>	" "	62,586 cubic yards
	Above downstream toe wall			

4. From N 3440 to N 3850 and from E 4380 to downstream toe wall

(2)	Embankment Class 1	18,551	cubic yards	
(1)	Excavation Class 1	925	" "	
(9)	Excavation Class 5	<u>38</u>	" "	19,514 cubic yards
	Below downstream toe wall			

EXCAVATION: Stations, Classification, Quantities.

1.	Excavation Class 1, detached solid rock from stripping for base of dam, from tunnel structure and approach cuts and other structure excavation	9,677	cubic yards	
2.	Excavation Class 1, detached solid rock from Station 0+00 to Station -2+95 tunnel entrance	276	"	"
3.	Excavation Class 1, ledge rock in place from Station 0+00 to Station 0-50 tunnel entrance	2,537	"	"
4.	Excavation Class 1, detached solid rock from Station 11+72.8 to Station 15+30 tunnel exit	356	"	"
5.	Excavation Class 1, ledge rock in place from Station 11+72.8 to Station 13+82.8, tunnel exit	4,555	"	"
6.	Excavation Class 1, ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	4,255	"	"
7.	Excavation Class 1, ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5550	679	"	"
8.	Excavation Class 1, ledge rock in place from N 3420 to N 3460 and from E 4474 to E 4512	155	"	"
9.	Excavation Class 1, ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460	766	"	"
10.	Excavation Class 2, Station 0+00 to Station -2+95, tunnel entrance	10,105	"	"
11.	Excavation Class 2, Station 11+72.8 to Station 15+30, tunnel exit	10,467	"	"
12.	Excavation Class 2, stripping for base of dam from N 3380 to N 3860 and from E 4320 to E 4740, under downstream rock embankment	68,832	"	"
13.	Excavation Class 2, stripping for base of dam from N 3380 to N 4060 and from E 5140 to E 5590, under upstream rock embankment	102,729	"	"
14.	Excavation Class 2, stripping for base of dam from N 3330 to N 3900 and from E 4740 to E 5140, under hydraulic fill	66,043	"	"
15.	Excavation Class 3, downstream toe wall trench from Station 0-60 to Station 4+02.14	1,835.5	"	"
16.	Excavation Class 3, upstream toe wall trench from Station 0+00 to Station 4+85	2,198.6	"	"

Excavation (Continued)

17. Excavation Class 3, main cutoff trench under dam				
(a) 6-foot neat line trench from N 3310 to N 3840			2,918	cubic yards
(b) 6-foot bottom, 1 on 1 slopes from N 3440 to N 3790			1,914	" "
18. Excavation Class 5, tunnel excavation				
(a) Station 0+00 to Station 7+00			17,683.9	" "
(b) " 7+00 to " 9+61.5			6,031.4	" "
(c) " 9+61.5 " 11+72.77			5,333.6	" "

SUMMARY BY SCHEDULE ITEMS:

Schedule Item

Determination of Schedule Items

1. Excavation Class 1, solid rock originating in structure
Excavation including placing and sorting in dam

Embankment	2	6,560	cubic yards	
	3	175	" "	
	4	<u>925</u>	" "	
Total		7,660	" "	

2. Embankment Class 1, rock originating in borrow pit only,
including placing and sorting in dam, measured in embankment.

Embankment	1	7,469	cubic yards	
	2	166,919	" "	
	3	60,668	" "	
	4	<u>18,551</u>	" "	
Total		253,607	" "	

9. Excavation Class 5, outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.

Embankment	1	4,480	cubic yards	
	2	5,723	" "	
	3	1,743	" "	
	4	<u>38</u>	" "	
Total		11,984	" "	

10. Excavation Class 1, solid rock originating in structure
excavation and wasted.

Excavation	1	9,677	cubic yards	
	2	276	" "	
	3	2,537	" "	
	4	356	" "	
	5	4,555	" "	
	6	4,255	" "	
	7	<u>679</u>	" "	

10. (continued)

Excavation	8	155	cubic yards
	9	<u>766</u>	" "
		23,256	" "
Less Schedule item 1		<u>7,660</u>	" "
Total		15,596	" "

11. Excavation Class 2, earth overburden, sand, gravel and other excavation originating in structure excavation and wasted.

Excavation	10	10,105	cubic yards
	11	10,467	" "
	12	68,832	" "
	13	102,729	" "
	14	<u>66,043</u>	" "
Total		258,176	" "

Less schedule items	1	7,660	
Class 1 excavation	2	276	
" " item	3	2,537	
" 1 part	4	241	
" 1	5	4,555	
" 1	6	4,255	
" 1	7	679	
" 1	8	<u>155</u>	
		20,358	" "

237,818 " "

Estimate No. 7 (237,604) " "

12. Excavation Class 3, cutoff trench excavation under dam and wasted.

Excavation	15	1,835.5	cubic yards
	16	2,198.6	" "
	17a	2,918	" "
	17b	<u>1,914</u>	" "
Total		8,866.1	" "

14. Excavation Class 5, tunnel excavation, except open cut excavation, but wasted.

Excavation	18a	17,683.9	cubic yards
	18b	6,031.4	" "
	18c	<u>5,333.6</u>	" "
		29,048.9	" "
Less schedule item 9		<u>11,984.0</u>	" "
Total		17,064.9	" "

H. W. ROHL & T. E. CONNOLLY
CONTRACTORS

Dec. 29, 1932

Common Council, City of San Diego,
Mr. H. N. Savage, Hydraulic Engineer
in Charge, El Capitan Dam.

Subject: San Diego River Project
El Capitan Feature. Classification
and Measuring of Quantities.

GENTLEMEN:

In Accordance with the Contractor's privilege of protest of any monthly estimate, as set forth in paragraph 54, page 31 of the contract specifications, we specifically object to the quantities and classification of quantities as shown under the different bid items of Estimate #7 for the month of November 1932 and as set forth in statement transmitted by H. N. Savage, Hydraulic Engineer under date of Dec. 23rd, 1932 for the following reasons:

Item 1.

The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (a) of the Contract Specifications.

Item 2.

The quantities shown are acceptable as an Engineer's Progress Estimate only, with the exceptions of the deductions made of quantities shown under Items 1 and 9. It being the Hydraulic Engineer's interpretation that "No estimate is final until the last and final estimate is made, that all other estimates are subject to change."

Item 9.

The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (b) of Contract Specifications.

Item 10.

The quantities shown are wrong as to classifications and methods of measurement. Page 31 - Paragraph 54; Page 32 - Paragraph 55 (b) of Contract Specifications.

Item 11.

The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraphs 54 and 55 (b) of Contract Specifications.

Item 12.

The quantities shown are wrong as to Classification and method of Measurement. Page 31 - Paragraph 54; Page 32 - Paragraph 55 (b) of Contract Specifications.

Item 14.

The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (b) of Contract Specifications.

Item 26.

The quantities shown are wrong as to method of measurement. Page 43 - Paragraph 108.

Items 20, 21, 24, 25, 27, 28, 29, 33, 34, 35, 36, 37, 40, 43, 45 and 46 as set forth in Estimate #7 are acceptable as an Engineer's Progress Estimate only, it being the Contractor's understanding that the Hydraulic Engineer has ruled that all Progress Estimates are subject to change and correction by final measurements at time of completion of work and issuance of Final Estimate.

Very truly yours,

H.W.Rohl & T.E.Connolly

By H. W. ROHL (Signature)

January 10, 1933

Messrs. H. W. Rohl and T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

Subject: San Diego River Project, El Capitan
Feature, Estimate No. 7, Quantities
and classification.

Gentlemen:

Receipt is acknowledged of your letter dated December 29, 1932 in which you object to the quantities and classification of quantities as set forth in my office letter dated December 23, 1932 which was in reply to your request of December 15 for a statement of quantities and classification between successive stations made in accordance with paragraph 54 of the contract specifications for the El Capitan Reservoir Dam.

It is noted that you "specifically object" to the quantities and classification but that your objections as given are all general without stating your reasons and therefore not specific objections with reasons therefor as set forth in paragraph 54 of the contract specifications.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

HNS/p

cc H.W.Rohl and T.E.Connolly
El Capitan Dam
Contractor's Resident Representative
City's Resident Engineer

H. W. ROHL & T. E. CONNOLLY
CONTRACTORS

Jan. 13, 1933.

Common Council, City of San Diego,
Mr. H. N. Savage, Hydraulic Engineer
in charge, El Capitan Dam.

Subject: San Diego River Project,
El Capitan Dam Feature, Classifi-
cation and Measuring of Quantities.

Gentlemen:

With reference to the Hydraulic Engineer's letter of January 10, 1933, we wish to advise that we are not informed as to the specific method by which the Hydraulic Engineer and his assistants have arrived at the classifications and computations of quantities set forth in the estimates thus far made by the Hydraulic Engineer with reference to the above work.

The specific objections to the quantities and classifications as well as the computations for payment are that the Hydraulic Engineer and his assistants have not made the classifications, measurements of quantities and computations for payment in accordance with the contract.

In our protest of November 29th with reference to the October estimate and our protest of December 29th with reference to the November estimate we have specifically directed the City's attention to the various items of the bid schedule and the contractors' objections thereto by a reference to the respective pages and paragraphs of your specifications which set forth the obligations of the City with reference to the making of classifications, measurements of quantities and computations for payment.

The failure of the City to make payment to the contractor in accordance with the terms of our contract, makes it necessary for us at this time to specifically direct your attention to the failure on the part of the City to pay us in accordance with the terms of our contract. This default on the part of the City has continued for many months and we cannot, in fairness to ourselves, permit the City to continue in default and at the same time keep the job going.

The purpose of this letter therefore is to advise you that unless we are promptly paid in accordance with the terms of our contract it will be absolutely necessary to shut down the job pending decision by the Hydraulic Engineer and the Common Council relative to the matter of payment by the City to us in accordance with the terms of our contract.

Very truly yours,

H. W. Rohl & T. E. Connolly

H. W. ROHL (Signature)

T. E. CONNOLLY (Signature)

H. W. ROHL & T. E. CONNOLLY
CONTRACTORS

January 23, 1933

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego, California

Dear Sir:

Re: El Capitan Reservoir Dam Spillway
and Outlet Works

Kindly furnish the Contractor with a statement with reference to Estimate No. 8 for the month of December of the quantities and classifications between successive stations as provided in Paragraphs 54 and 55 of the Specifications in Contract for El Capitan Reservoir Dam Spillway and Outlet Works.

Very truly yours,

H. W. ROHL & T. E. CONNOLLY

By H. W. ROHL (Signature)

February 1, 1933

Messrs. H. W. Rohl and T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

Subject: San Diego River Project, El Capitan
Feature. Estimate No. 8, statement
of quantities and classifications.

Gentlemen:

Pursuant to your written request dated January 23,
1933 for a statement of the quantities and classification
between successive stations of the excavation and embank-
ment quantities shown on progress estimate No. 8 for
contract work done on El Capitan Dam December 1932, you
are herewith furnished the attached statement showing
the information requested.

If this statement is not satisfactory to you,
specific objections with reasons therefor should be
filed in writing with the engineer in accordance with
paragraph 54 of the contract specifications.

Respectfully,

H. N. Savage,
Hydraulic Engineer.

FDP/p
encl.

cc John M. Martin, Attorney for contractors
City Attorney
H. W. Rohl and T. E. Connolly, El Capitan Dam
Contractor's Resident Representative
City's Resident Engineer

CITY OF SAN DIEGO

CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl and T. E. Connolly under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including December 1932 and included in Progress Estimate No. 8.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 per cent if measured in spoil bank or in embankment, and

That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in embankment Class 2.

All quantities stated in cubic yards.

EMBANKMENT CLASS 1: Stations, classification and quantities.

1. From N 3440 to N 3850 and from E 5590 to toe wall
(Above upstream toe wall)

Overall embankment measured in embankment 11,949

(9) Excavation Class 5 measured as if in excavation	4,481
27.5 per cent swell	<u>1,232</u>
As if measured in embankment	5,713

(2) Embankment Class 1	6,236
------------------------	-------

2. From N 3420 to N 4050 and from E 5135 to toe wall
(Below upstream toe wall)

Overall embankment measured in embankment 269,513

(1) Excavation Class 1 measured as if in excavation	6,884
27.5 per cent swell	<u>1,893</u>
As if measured in embankment	8,777

(9) Excavation Class 5 measured as if in excavation	5,842
27.5 per cent swell	<u>1,607</u>
As if measured in embankment	7,449

(2) Embankment Class 1	253,287
------------------------	---------

3. From N 3400 to N 3840 and from E 4740 to toe wall
(Above downstream toe wall)

Overall embankment measured in embankment 67,154

(1) Excavation Class 1 measured	
as if in excavation	819
27.5 per cent swell	<u>225</u>
As if measured in embankment	1,044

(9) Excavation Class 5 measured	
as if in excavation	1,743
27.5 per cent swell	<u>479</u>
As if measured in embankment	2,222

(2) Embankment Class 1 63,888

4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 23,316

(1) Excavation Class 1 measured	
as if in excavation	926
27.5 per cent swell	<u>255</u>
As if measured in embankment	1,181

(9) Excavation Class 5 measured	
as if in excavation	28
27.5 per cent swell	<u>8</u>
As if measured in embankment	36

(2) Embankment Class 1 22,099

EMBANKMENT CLASS 2: Stations, classification and quantities.

1. From N 3500 to N 3700 and from E 4600 to E 4700

Overall embankment measured in embankment 1,180

(3) Excavation Class 2 measured	
as if in excavation	1,180
(On basis of no swell	
or shrinkage)	

(5) Embankment Class 2 0

EXCAVATION: Measured in excavation.

1.	Excavation Class 1, detached solid rock from stripping for base of dam, from tunnel structure and approach cuts and other structure excavation.	10,646
2.	Excavation Class 1, detached solid rock from Station 0+00 to Station -2+95 tunnel entrance.	276
3.	Excavation Class 1, ledge rock in place from Station 0+00 to Station 0-50 tunnel entrance.	2,537
4.	Excavation Class 1, detached solid rock from Station 11+67.8 to Station 15+30 tunnel exit.	356
5.	Excavation Class 1, ledge rock in place from Station 11+67.8 to Station 13+82.8 tunnel exit.	4,555
6.	Excavation Class 1, ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023.	4,255
7.	Excavation Class 1, ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5510.	679
8.	Excavation Class 1, ledge rock in place from N 3420 to N 3460 and from E 4474 to E 4512.	155
9.	Excavation Class 1, ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460.	766
10.	Excavation Class 2, Station 0+14 to Station -2+95, tunnel entrance.	10,105
11.	Excavation Class 2, Station 11+67.8 to Station 15+30, tunnel exit.	10,467
12.	Excavation Class 2, stripping for base of dam from N 3380 to N 3880 and from E 4320 to E 4740, under downstream rock embankment.	70,872
13.	Excavation Class 2, stripping for base of dam from N 3380 to N 4060 and from E 5140 to E 5590, under upstream rock embankment.	83,057
14.	Excavation Class 2, stripping for base of dam from N 3330 to N 3900 and from E 4740 to E 5140, under hydraulic fill.	64,177
15.	Excavation Class 3, downstream toe wall trench from Station 0-60 to Station 4+02.14.	1,835.5
16.	Excavation Class 3, upstream toe wall trench from Station 0+00 to Station 4+85.	2,198.6

Excavation: Measured in excavation (continued)

17. Excavation Class 3, main cutoff trench under dam.		
(a) 6-foot neat line trench from N 3110 to N 3840		2,918
(b) 6-foot bottom 1 on 1 slopes N 3440 to N 3790		1,914
18. Excavation Class 5, tunnel excavation		
(a) Station 0+00 to Station 7+00		17,804.2
(b) Station 7+00 to Station 9+61.5		6,032
(c) Station 9+61.5 Station 11+72.77		5,334.6

SUMMARY BY SCHEDULE ITEMS:

Schedule

Item Determination of Schedule Item Quantities

1. Excavation Class 1, solid rock originating in structure excavation including placing and sorting in dam.

Overall Excavation:

Excavation 1	10,646	
2	276	
3	2,537	
4	356	
5	4,555	
6	4,255	
7	679	
8	155	
9	766	
Total overall excavation Class 1		24,225

Excavation placed in dam:

Embankment Class 1		
2(1)	6,884	
3(1)	819	
4(1)	926	
Total placed in dam measured in excavation		8,629

Excavation wasted measured in excavation
27.5 per cent swell

15,596

4,289

As if measured in spoil bank

19,885

Total Schedule Item 1

4,340

(Contract specifications paragraph 55a)

2. Embankment Class 1 rock originating in borrow pit only including placing and sorting in dam, measured in embankment.

Embankment	1(2)	6,236
	2(2)	253,287
	3(2)	63,888
	4(2)	<u>22,099</u>

Total Schedule Item 2 345,510

(Contract specifications paragraph 55c)

3. Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation including placing and sorting in hydraulic fill.

Embankment 1(3) 1,180

Total Schedule Item 3 1,180

(Contract specifications paragraph 55a)

9. Excavation Class 5, outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.

Overall Excavation:

Excavation 18(a)	17,804.2
(b)	6,032
(c)	<u>5,334.6</u>
Total overall tunnel excavation	29,170.8

Tunnel excavation placed in dam:

Embankment Class 1	
1(9)	4,481
2(9)	5,842
3(9)	1,743
4(9)	<u>28</u>
Total placed in dam	<u>12,094</u>

Excavation wasted	17,076.8
Swell 27.5 per cent	<u>4,695</u>

As if measured in spoil bank	<u>21,771.8</u>
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Total Schedule Item 9 7,399

(Contract specifications paragraph 55a)

10. Excavation Class 1, solid rock originating in structure excavation and wasted.

Overall Excavation

Excavation 1	10,646
2	276
3	2,537
4	356
5	4,555
6	4,255
7	679
8	155
9	<u>766</u>

Total overall excavation Class 1 24,225

Excavation Class 1 placed in dam:

Embankment Class 1	
2(1)	6,884
3(1)	819
4(1)	<u>926</u>

Total placed in dam measured in excavation 8,629

Excavation wasted	15,596
Swell 27.5 per cent	<u>4,289</u>
As if measured in spoil bank	<u>19,885</u>

Total Schedule Item 10 19,885

(Contract specifications paragraph 55b)

11. Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.

Overall Excavation

Excavation 10	10,105
11	10,467
12	70,872
13	83,057
14	<u>64,177</u>

Total overall 238,678

Placed in dam:

Embankment Class 2(3)	<u>1,180</u>
Excavation wasted, as if measured in spoil bank on basis of no swell or shrinkage	237,498

Total Schedule Item 11 237,608

(Contract specifications paragraph 55b)

12. Excavation Class 3, cutoff trench excavation under dam and wasted.

Excavation 15	1,835.5	
16	2,198.6	
17a	2,918	
17b	<u>1,914</u>	
		8,866.1
Swell 27.5 per cent		<u>2,438.2</u>
As if measured in spoil bank		11,304.3
Total Schedule Item 12 as if measured in spoil bank		
		11,304.

(Contract specifications paragraph 55b)

14. Excavation Class 5, tunnel excavation, excepting open cut excavation, but wasted.

Overall Excavation:

Excavation 18a	17,804.2	
18b	6,032	
18c	<u>5,334.6</u>	
Total overall tunnel excavation		29,170.8

Tunnel excavation placed in dam:

Embankment Class 1

1(9)	4,481
2(9)	5,842
3(9)	1,743
4(9)	<u>28</u>

Total placed in dam measured in excavation

12,094

Tunnel excavation wasted measured in excavation

17,076.8

Swell 27.5 per cent

4,695

As if measured in spoil bank

21,771.8

Total Schedule Item 14 as if measured in spoil bank

21,772

(Contract specifications paragraph 55h)

H. W. ROHL & T. E. CONNOLLY
CONTRACTORS

February 10, 1933.

Mr. H.N.Savage, Hydraulic Engineer
in Charge, El Capitan Dam,
City of San Diego.

Subject: San Diego River Project
El Capitan Feature. Classification
and Measuring of Quantities.

Dear Sir:

In accordance with the Contractor's privilege of protest of any monthly estimate, as set forth in paragraph 54, page 31 of the contract specifications, we specifically object to the quantities and classification of quantities as shown under the different bid items of Estimate #8 for the month of December, 1932 and as set forth in statement transmitted by H.N. Savage, Hydraulic Engineer under date of February 1, 1933 for the following reasons:

Item 1.

The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (a) of the Contract Specifications.

Item 2.

The quantities shown are acceptable as an Engineer's Progress Estimate only, with the exceptions of the deductions made of quantities shown under Items 1 and 9. It being the Hydraulic Engineer's interpretation that "No estimate is final until the last and final estimate is made, that all other estimates are subject to change."

Item 9.

The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (b) of Contract Specifications.

Item 10.

The quantities shown are wrong as to classifications and methods of measurement. Page 31 - Paragraph 54; Page 32 - Paragraph 55 (b) of Contract Specifications.

Item 11.

The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraphs 54 and 55 (b) of Contract Specifications.

Item 12.

The quantities shown are wrong as to Classification and method measurement. Page 31 - Paragraph 54; Page 32 - Paragraph 55 (b) of Contract Specifications.

Item 14.

The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (b) of Contract Specifications.

Item 26.

The quantities shown are wrong as to method of measurement. Page 43 - Paragraph 108.

Items 20, 21, 24, 25, 27, 28, 29, 33, 34, 25, 36, 37, 40, 43, 45 and 46 as set forth in Estimate #8 are acceptable as an Engineer's Progress Estimate only, it being the Contractor's understanding that the Hydraulic Engineer has ruled that all progress Estimates are subject to change and correction by final measurements at time of completion of work and issuance of Final Estimate.

Our Contract requires that in computation of quantities in accordance with paragraph 55 of the Specifications, that the measurement of excavated materials placed in spoil bank shall be made currently as work is performed. Our Contract contains no provision authorizing the City to substitute any other formula or method for measurement and determination of quantities.

We therefore specifically object to the "In lieu of spoil bank measurements it was deemed proper to consider that Excavation Class 1, 3 and 5 measured in excavation would swell 27.5 per cent if measured in spoil bank or in embankment, and

"That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in embankment Class 2."

Very truly yours,

H.W. ROHL & T.E. CONNOLLY

By H. W. ROHL (Signature)

H. W. ROHL & T. E. CONNOLLY
Contractors

March 13, 1933.

Mr. H. N. Savage,
Hydraulic Engineer
City of San Diego,
California

Re: Estimate No. 10

Dear Sir:

Kindly furnish the Contractor with a statement of the quantities and classifications between successive stations as provided in paragraphs 54 and 55 of the specifications and contract for El Capitan Reservoir Dam, Spillway and Outlet Works.

Very truly yours,

H.W.ROHL & T.E.CONNOLLY

By (Signed) H W Rohl

HWR:d

March 22, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

Subject: San Diego River Project, El Capitan
Feature, request for statement of
quantities and classifications
Estimate No. 10

Gentlemen:

Pursuant to your written request dated March 13, 1933 for a statement of the quantities and classification between successive stations of the excavation and embankment quantities shown on progress estimate No. 10 for contract work done on El Capitan Dam for the month of February 1933, you are herewith furnished the attached statement showing the information requested.

If this statement is not satisfactory to you, specific objections with reasons therefor should be filed in writing with the Engineer in accordance with paragraph 54 of the contract specifications.

Very truly yours,

H. N. Savage
Hydraulic Engineer.

HNS/p

CITY OF SAN DIEGO, CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl and T. E. Connolly under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including February 1933 and included in Progress Estimate No. 10.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 per cent if measured in spoil bank or in embankment Class 1, and

That excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in embankment Class 2.

That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in embankment Class 2.

All quantities are stated in cubic yards.

EMBANKMENT CLASS 1: Stations, classification and quantities.

1. From N 3440 to N 3850 and from E 5590 to toe wall
(above upstream toe wall)

Overall embankment measured in embankment 11,949

(9) Excavation Class 5 measured	
as if in excavation	4,481
27.5 per cent swell	<u>1,232</u>
As if measured in embankment	5,713

(2) Embankment Class 1 6,236

2. From N 3280 to N 4060 and from E 5135 to toe wall
(Below upstream toe wall)

Overall embankment measured in embankment 338,050

(1) Excavation Class 1 measured	
as if in excavation	8,930
27.5 per cent swell	<u>2,456</u>
As if measured in embankment	11,386

(7) Excavation Class 3 measured	
as if in excavation	227
27.5 per cent swell	<u>62</u>
As if measured in embankment	289

(9) Excavation Class 5 measured	
as if in excavation	5,925
27.5 per cent swell	<u>1,629</u>
As if measured in embankment	7,554

(2) Embankment Class 1 318,821

- 3. From N 3390 to N 3880 and from E 4740 to toe wall
(Above downstream toe wall)

Overall embankment measured in embankment 122,490

(1) Excavation Class 1 measured
as if in excavation 909
27.5 per cent swell 250
As if measured in embankment 1,159

(7) Excavation Class 3 measured
as if in excavation 153
27.5 per cent swell 42
As if measured in embankment 195

(9) Excavation Class 5 measured
as if in excavation 1,743
27.5 per cent swell 479
As if measured in embankment 2,222

(2) Embankment Class 1 118,914

- 4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 23,316

(1) Excavation Class 1 measured
as if in excavation 926
27.5 per cent swell 255
As if measured in embankment 1,181

(9) Excavation Class 5 measured
as if in excavation 28
27.5 per cent swell 8
As if measured in embankment 36

(2) Embankment Class 1 22,099

EMBANKMENT CLASS 2: Stations, classification and quantities.

- 1. From N 3280 to N 3980 and from E 4740 to E 5135

Overall embankment measured in embankment, except for material above the foundation line of the hydraulic fill not sorted nor placed by hydraulic means..... 140,684

(3) Excavation Class 2 measured
as if in excavation 27,021

(7) Excavation Class 3 measured
as if in excavation 1,377

(9) Excavation Class 5 measured
as if in excavation 26

(5) Embankment Class 2 112,260

EXCAVATION: Measured in excavation.

1a.	Excavation Class 1, detached solid rock from stripping for base of dam, from tunnel structure and approach cuts and other structure excavation excepting spillway	11,219
1b.	Excavation Class 1 detached solid rock from spillway	1,563
2.	Excavation Class 1, detached solid rock from Station 0+14 to -2+95 tunnel entrance	276
3.	Excavation Class 1, ledge rock in place from Station 0+14 to 0-50, tunnel entrance	2,537
4.	Excavation Class 1, detached solid rock from Station 11+67.8 to 15+30 tunnel exit	356
5.	Excavation Class 1, ledge rock in place from Station 11+67.8 to 13+82.8 tunnel exit	4,555
6.	Excavation Class 1 ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	4,255
7.	Excavation Class 1 ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5510	679
8.	Excavation Class 1 ledge rock in place from N 3420 to N 3460 and from E 4474 to E 4512	155
9.	Excavation Class 1 ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460	766
10.	Excavation Class 2 Station 0+14 to -2+95 tunnel entrance	10,105
11.	Excavation Class 2 Station 11+67.8 to 15+30 tunnel exit	10,467
12.	Excavation Class 2 stripping for base of dam from N 3380 to N 3880 and from E 4320 to E 4740 under downstream rock embankment	72,135
13.	Excavation Class 2 stripping for base of dam from N 3250 to N 4070 and from E 5140 to E 5590 under upstream rock embankment	88,110
14.	Excavation Class 2 stripping for base of dam from N 3320 to N 4000 and from E 4740 to E 5140 under hydraulic embankment	80,655
15.	Excavation Class 2 spillway excavation from Station 6+50 to 8+50	13,986
16.	Excavation Class 3 downstream toewall trench from Station 0-60 to 4+02.14	1,835

17. Excavation Class 3 upstream toewall trench from Station 0+00 to 4+85	2,199
18. Excavation Class 3 main cutoff trench under dam	
(a) 6' neat line trench from N 3225 to N 3900	3,645
(b) 6' bottom 1 on 1 slopes from N 3225 to N 3900	2,959
19. Excavation Class 5, tunnel excavation	
(a) Station 0+00 to 7+00	17,892
(b) " 7+00 9+61.5	6,028
(c) " 9+61.5 11+72.77	5,334
(d) Outlet tower shaft	354
(e) Cleaning floor exploration tunnels 1 and 2	26

SUMMARY BY SCHEDULE ITEMS

Schedule Item	Determination of Schedule Items
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1. Excavation Class 1, solid rock originating in structure excavation including placing and sorting in dam.

Overall Excavation:

Excavation 1a	11,219
1b	1,563
2	276
3	2,537
4	356
5	4,555
6	4,255
7	679
8	155
9	766

Total overall excavation	26,361
Class 1	

Excavation placed in dam:

Embankment Class 1	
2(1)	8,930
3(1)	909
4(1)	926

Total placed in dam	<u>10,765</u>
measured in excavation	
Excavation wasted measured	15,596
in excavation	4,289
27.5% swell	<u>19,885</u>
As if measured in spoil bank	

Total Schedule Item 1	6,476
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(Contract specifications paragraph 55a)

- 2. Embankment Class 1 rock originating in borrow pit only including placing and sorting in dam, measured in embankment.

Embankment	
1(2)	6,236
2(2)	318,821
3(2)	118,914
4(2)	<u>22,099</u>

Total Schedule Item 2 466,070

(Contract specifications paragraph 55c)

- 3. Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation, including placing and sorting in Hydraulic fill.

Embankment Class 2	
1(3)	27,021

Total Schedule Item 3 27,021

(Contract specifications paragraph 55a)

- 5. Embankment Class 2, clay, earth, sand, gravel and other embankment originating in borrow pit only including placing and sorting in hydraulic fill.

Embankment Class 2	
1(5)	112,260

Total Schedule Item 5 112,260

- 7. Excavation Class 3, cutoff trench excavation under dam including placing and sorting in dam.

Overall excavation:

Excavation 16	1,835	
17	2,199	
18a	3,645	
18b	<u>2,959</u>	
Total overall cutoff trench excavation		10,638

Cutoff trench excavation placed in dam:

Embankment Class 1		
2(7)	227	
3(7)	153	
Embankment Class 2		
1(7)	<u>1,377</u>	
Total placed in dam		1,757

Excavation wasted:	8,881	
Swell 27.5%	<u>2,442</u>	
As if measured in spoil bank		11,323

Total Schedule Item 7 000

- 9. Excavation Class 5, outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.

Overall excavation:

Excavation 19a	17,892	
b	6,028	
c	5,334	
d	354	
e	<u>26</u>	
Total overall tunnel excavation		29,634

Tunnel excavation placed in dam:

Embankment Class 1		
1(9)	4,481	
2(9)	5,925	
3(9)	1,743	
4(9)	28	
Embankment Class 2		
1(9)	<u>26</u>	
Total placed in dam	12,203	
Excavated but not yet placed in dam:	<u>354</u>	
Total		12,557

9. (continued)

Excavation wasted	17,077	
Swell 27.5%	<u>4,695</u>	
As if measured in spoil bank		21,772

Total Schedule Item 9 7,862

(Contract specifications paragraph 55a)

10. Excavation Class 1, solid rock originating in structure excavation and wasted.

Overall excavation:

Excavation 1a	11,219	
1b	1,563	
2	276	
3	2,537	
4	356	
5	4,555	
6	4,255	
7	679	
8	155	
9	<u>766</u>	
Total overall excavation Class 1		26,361

Excavation Class 1 placed in dam:

Embankment Class 1		
2(1)	8,930	
3(1)	909	
4(1)	<u>926</u>	
Total placed in dam measured in excavation		<u>10,765</u>

Excavation wasted	15,596
Swell 27.5 per cent	<u>4,289</u>
As if measured in spoil bank	19,885

Total Schedule Item 10 19,885

(Contract specifications paragraph 55b)

11. Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.

Overall excavation

Excavation 10	10,105	
11	10,467	
12	72,135	
13	88,110	
14	80,655	
15	<u>13,986</u>	
Total overall		275,458

11. (Continued) (forward) 275,458

Placed in dam:

Embankment Class 2(3) 27,021

Excavation wasted, as if measured in spoil bank on basis of no swell or shrinkage 248,437

Total Schedule Item 11 248,437

(Contract specifications paragraph 55b)

12. Excavation Class 3, cutoff trench excavation under dam and wasted.

Overall excavation:

Excavation 16 1,835
17 2,199
18a 3,645
18b 2,959

Total overall excavation Class 3 10,638

Excavation Class 3 placed in dam:

Embankment Class 1
2(7) 227
3(7) 153

Embankment Class 2
1(7) 1,377

Total placed in dam measured in excavation 1,757

Excavation wasted 8,881
Swell 27.5 per cent 2,442
As if measured in spoil bank 11,323

Total Schedule Item 12 11,323

(Contract specifications paragraph 55b)

14. Excavation Class 5, tunnel excavation excepting open cut excavation, but wasted.

Overall excavation:

Excavation 19a 17,892
b 6,028
c 5,334
d 354
e 26

Total overall tunnel excavation 29,634

14. (continued)

Tunnel excavation placed in dam:

Embankment Class 1	
1(9)	4,481
2(9)	5,925
3(9)	1,743
4(9)	28

Embankment Class 2	
1(9)	<u>26</u>

Total placed in dam measured in excavation	12,203
Excavated but not yet placed in dam	<u>354</u>
Total	12,557

Tunnel excavation wasted measured in excavation	17,077
Swell 27.5 per cent	<u>4,695</u>
As if measured in spoil bank	<u>21,772</u>

Total Schedule Item 14 as if measured in spoil bank 21,772

(Contract specifications paragraph 55b)

H. W. ROHL & T. E. CONNOLLY

Contractors

March 29, 1933

Common Council, City of San Diego
Mr. H. N. Savage, Hydraulic Engineer
in Charge El Capitan Dam.

Subject: San Diego River Project,
El Capitan Dam Feature, Protesting
Classification and Measuring of
Quantities, Estimate No. 10.

Gentlemen:

In accordance with the contractors' privilege of protest of any monthly estimate, as set forth in paragraph 54 of the contract specifications, we specifically object to the quantities and classification of quantities as shown for the different bid items of estimate No. 10 for the month of February, 1933, and as set forth in statement transmitted by H. N. Savage, Hydraulic Engineer under date of March 22, 1933, for the following reasons:

Items 1 to 14 inclusive are protested on the grounds that the quantities shown are incorrect and not based on actual measurements made concurrently as the work is performed, as provided in the specifications. The engineer, in his statement of March 22, 1933, states "In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 per cent if measured in spoil bank or in embankment Class 1," and that "excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in embankment Class 2," and that "excavation Class 2 would neither swell nor shrink if measured in spoil bank or in embankment Class 2."

The contract specifications contain no provisions whereby the engineer can arbitrarily fix quantities in lieu of actual measurements made concurrently as the work is performed as required under the contract and specifications, paragraph 55.

Items 1, 3, 10 and 11 are protested on the additional ground that the classification of excavation material is incorrect and that the quantities assigned these items are arbitrary amounts fixed by the engineer and are not based on actual measurements made concurrently as the work is performed as provided in the specifications, paragraphs 54 and 55.

Items 3 and 5 are further protested on the grounds that the quantities shown are incorrect. The engineer in his statement of quantities, dated March 22, 1933, makes deductions for "material above the foundation line of the hydraulic fill

not sorted or placed by hydraulic means." We protest this deduction as the material referred to was sorted and placed under the direction of the engineer by hydraulic means and methods approved by the hydraulic engineer as provided in paragraph 63 of the contract specifications.

Item 26 is wrong as to quantities and method of measurement as provided in paragraph 108 of the contract specifications.

Item 33 is wrong as to quantities and method of measurement as provided in 106 and 108 of the contract specifications.

Items 16, 20, 21, 24, 25, 27, 28, 29, 34, 35, 36, 37, 40, 43, 45 and 46 as set forth in Estimate No. 10 are acceptable as an engineer's progress estimate only, it being the contractors' understanding that the Hydraulic Engineer has ruled that all progress estimates are subject to change and correction by final measurements at time of completion of the work and issuance of final estimate.

Very truly yours,

H. W. Rohl & T. E. Connolly

By (Signed) H W Rohl

April 8, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

Subject: San Diego River Project, El Capitan
Feature, Progress Estimate No. 10
Determination of pay quantities.

Gentlemen:

Receipt is acknowledged of your letter dated March 29, 1933 protesting and objecting to the quantities and classification of quantities as shown in the different schedule items of Progress Estimate No. 10 for the month of February 1933, details of which, relating to excavation and embankment quantities, were set out in letter to you dated March 22, 1933.

The quantities of excavation and embankment items are protested by you on the ground that they are not "based on actual measurements made concurrently as the work is performed, as provided in the specifications". The specifications do not provide for measurement of materials "concurrently" as the work is performed.

The Contractor's lack of an orderly program made it physically impossible to measure and identify the source of wasted material in spoil banks, and therefore, in order to arrive at a proper quantity in lieu of spoil bank measurement, an addition to excavation measurement was made to show as nearly as possible the volume which such materials actually occupied in the spoil bank.

The classifications of materials in items 1, 3, 10 and 11 are protested by you. The classification of these materials has been repeatedly reviewed and it is believed to be eminently fair to the Contractor and in accordance with the contract specifications. Your attention is invited to paragraph 7 of the specifications "On all questions concerning, the classification of material, the decision of the said engineer shall be final and binding on both parties".

Exception is taken by you to statement in letter dated March 22, 1933 as to the exception for "material above the foundation line of the hydraulic fill not sorted or placed by hydraulic means". This exception from the overall embankment measured on embankment is in accordance with letter to you dated March 1, 1933 subject: Contract Construction, Hydraulic fill portion, wherein it was made optional to the Contractor to remove and satisfactorily sort and place by hydraulic means any incompletely placed material at his expense or to resume placing material in which event the incompletely sorted and placed material would not be included in the monthly estimate.

H.W.Rohl & T.E.Connolly

--2

4/8/33

You state that the quantities under items 26 and 33 in the estimate are wrong, but do not state in what particular, so that proper investigation may be made.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

HNS/f

cc H.W.Rohl & T.E.Connolly
El Capitan Dam
Contractor's Resident Representative
City's Resident Engineer

Office of
City Attorney
City of San Diego

San Diego, California

March 21, 1933.

Mr. H. N. Savage,
Hydraulic Engineer,
San Diego, Calif.

Subject: El Capitan Reservoir Dam, Spillway and
Outlet Works; Construction of Specifica-
tions controlling the computation of
Progress Estimates.

Dear Sir:

The contractor having seasonably taken exception to the method heretofore used by the City in computing progress estimates under the contract specifications governing payment, it becomes the duty of this office to render an opinion as to the legal effect of these governing specifications for the future guidance of the City's officials in charge of the El Capitan work.

The specifications relating to this matter are numbered 54, 55, 56 and 101 - particularly No. 55.

"55. MEASUREMENT OF AND PAYMENT FOR EXCAVATION AND EMBANKMENT.- All excavation for the dam or structures shall be measured to the neat lines shown on the drawings or prescribed by the engineer. Measurement and payment for the various items of excavation and embankment, classified in accordance with these specifications will be as follows:

(a) All approved material excavated from the dam, foundations, tunnel and shaft, cutoff trenches, spillway or other structures, for the dam, stripping for the base of the dam, etc., in accordance with the engineer's directions, will be measured for payment in excavation. The quantity of materials placed.

in embankment will be computed by subtracting spoil bank material measured in spoil bank from excavated materials measured in excavation. Payment will be made at the respective unit prices bid which shall include the cost of excavation, conveying, placing, sorting and compacting in hydraulic fill, rolled embankment or rock embankment.

(b) All approved material excavated from the dam, foundation, tunnel and shaft, cutoff trench, spillway or other structures, for the dam or stripping for base of dam, etc., excepting borrow pits, but wasted will be measured for payment in spoil bank. Payment will be made at the unit prices bid which shall include the cost of excavation and wasting where directed by the engineer.

(c) All approved material excavated from borrow pits, if placed and sorted in the dam in accordance with the engineer's directions, will be measured for payment in embankment in the dam to the lines and grades shown on the drawings or established by the engineer in the field, and payment will be made at the respective unit prices bid which shall include the cost of excavation, conveying, placing, sorting and compacting in the dam and all labor and operations. No payment will be made for materials wasted from borrow pits."

Under the heading "Tunnel Specifications," is Specification 101, which provides in substance as follows:

- (1) Tunnel excavation shall be unclassified;
- (2) Open cut excavation and excavation for cutoff walls for approach and outlet ends will be classified under Class 1 or 2 excavation;
- (3) Excavation will be measured for payment to the dimensions excavated, with the following limitations:
 - (a) Where permanent timbering not required, payment will be limited to a section, the area of which does not exceed the area of the net inside section of the tunnel or shaft, plus such thickness of lining as directed by the Engineer;
 - (b) When permanent timbering is required, payment will be limited to the small-

est average section which will permit the setting of timbers in such a position that they will have the minimum regulation covering of concrete as directed by the Engineer.

It will be observed that Specification 55 provides three different bases of measurement and payment, to-wit:

- (1) Material originating in excavation for dam and structures, and placed in embankment:
- (2) Material excavated for dam or structures, and wasted;
- (3) Materials originating in borrow pits, and placed in embankment.

Payment for Excavated Material Placed in Embankment.

Construing Specification 101, together with the definite and express provision in Specification 55, that the excavated material placed in embankment "will be measured for payment in excavation" (which is equivalent to saying - will be measured in excavation, and paid for on basis of such measurements), it is entirely clear that the contractor is entitled to be paid for the actual yardage excavated, measured in excavation, for such portion of the excavated material as has been placed in embankment, without any deduction or subtraction whatsoever.

Payment for Excavated Material Wasted.

Material excavated for structures, but wasted, is to be paid for upon the basis of spoil bank measurements. This is perfectly clear and susceptible of no difference of opinion. It is obvious that the quantities of material of Class 1, 3, 4 and 5 to be paid for will be considerably

Mr. H. N. Savage - 4

greater when measured in spoil bank than if measured in excavation, and it was evidently intended that the contractor should have the benefit of this increase.

If actual spoil bank measurements of wasted material have not heretofore been made currently as work was performed, or cannot now accurately and wholly be made, it will be necessary, in lieu thereof, to take as a basis the actual quantities of excavated materials wasted, as shown by measurements made in excavation, and to increase these quantities, as to materials of Classes 1, 3, 4 and 5 by a percentage figure that will give a fair and equitable result, both to the City and to the contractor. The percentage or percentages of increase of these various classes of material in question could, I presume, be ascertained from recognized engineering hand-books and tables. However, sometime ago the contractor, in order to adjust the differences existing between the City and the contractor in this respect, offered to accept an average figure of 27-1/2% applicable to materials of Classes 1, 3, 4 and 5 (Class 2 material not being subject to shrinkage or increase), although the compromise figure of 27-1/2% was somewhat less than the percentages given by engineering authorities. I am advised that the contractor is still willing to adjust the matter on this basis, the adjustment to cover both excavated material heretofore wasted and hereafter to be wasted.

Measurement and Payment for Borrow Pit Material.

Mr. H. N. Savage - 5.

Borrow pit material placed and sorted in the dam is clearly to be measured in embankment, and paid for on the basis of such measurement. Embankment, however, consists of materials from two sources, to-wit: from structure excavations, for which the contractor has already been paid, as the material was excavated; and material from borrow pits. Obviously, it could not have been intended to pay the contractor twice for any material. Hence the material originating from structure excavation and already paid for must be subtracted from the total over-all embankment measurements to ascertain the quantities of borrow pit material in embankment still to be paid for.

In this connection, subdivision (a) of Specification No. 55 contains the clause, reading as follows:

"The quantity of materials placed in embankment will be computed by subtracting spoil bank material, measured in spoil bank, from excavated materials, measured in excavation."

This clause has no application to measurement of or payment for excavation material which, as already pointed out, must be paid for on the basis of actual measurements made in excavation, if placed in the dam; or, if wasted, paid for on the basis of spoil bank measurements. The purpose of this clause, or at any rate its true object, appears to be to make definite and certain that the excavated material paid for under Subdivision (a) of the specification, and placed in the dam, is not to be included and again paid for under Subdivision (c) of Specification No. 55.

I am aware of the possibility that it might be con-

Mr. H. N. Savage - 6.

tended against the City, under a very literal and technical application of this clause, that the contractor is thereby given the right to receive payment for more embankment material than he has actually placed in the dam, e.g., if the quantity of excavation material in embankment, to be subtracted from over-all embankment measurements, is arrived at by subtracting spoil bank material, measured in spoil bank, from excavated material measured in excavation, the figure thus obtained is obviously less than the yardage of excavated material that actually has been placed in the dam, and this would result in showing a greater quantity of borrow pit material to be paid for than the contractor had actually placed in the embankment. However, it is my opinion that no such unreasonable and unfair result was intended, and I should deem it my duty, on behalf of the City, very strenuously to resist any claim, if made by the contractor, for payment of material in excess of the amount actually placed in embankment. On the other hand, the City has no right to attempt to deprive the contractor of payment for the actual quantity of material originating from excavation and placed in the dam, and the actual quantity of borrow pit material placed therein.

I believe that the intent and understanding of both parties in this regard was, and would by the courts be construed to be, in consonance with fair and just dealing; and that the specifications governing payment, when reasonably construed, result in no unconscionable advantage

Mr. H. N. Savage - 7.

either to the contractor or to the City.

It follows from what has already been said that payment for embankment must be determined by actual, not theoretical, quantities.

In connection with spillway excavation, my observation leads me to believe that, although the specifications require measurement for payment in excavation, as to material that is to go into the dam from this source, the indicated method may be difficult, perhaps impossible, to accomplish because of the intermingled character of material here being encountered - large boulders, rock in place, earth, gravel, etc. Measurement in excavation, necessitating appropriate and exact classification of this commingled material, may and probably will become a source of serious differences between the City and the contractor over quantities and classifications, unless an alternative method, practicable and mutually satisfactory, is adopted. Such a substitute method, applicable only to spillway excavation, would appear to be to measure and pay for this material in embankment only, except of course the portions wasted, which latter should be measured and paid for as in spoil bank. Provided such a substitute method is mutually satisfactory, and provided the original method indicated is found by reason of the physical condition encountered to be engineeringly impracticable, it is recommended that measurement and payment be made on the basis of suggested substitute method.

Recapitulation.

- (1) Material excavated from dam or structures and placed in embankment is to be measured in excavation and paid for on the basis of excavation measurements as a separate and distinct computation, with which measurement and payment for embankment have nothing to do (Possible exception to the foregoing being spillway excavation for the reasons hereinabove given.)
- (2) Materials excavated for dam and structures, and wasted, are to be measured in spoil bank and paid for on the basis of such measurements; or, in lieu of spoil bank measurements, measurements in excavation, increased as to certain classes of materials by an agreed percentage. The quantity of waste to be paid for is determined as a separate and distinct computation, with which measurement and payment for embankment have nothing to do. In other words, waste is paid for as such. The quantity of waste paid for is neither an additive nor subtractive quantity appreciable to any other branch of the work.
- (3) Borrow pit materials placed in embankment are to be ascertained as follows:
 - (a) By over-all measurements of embankment;
 - (b) Deduct from the total over-all measurements

the actual quantities of excavation material, measured in excavation, which have been placed in the dam, and theretofore paid for under Subdivision (a) of Specification 55:

(c) The quantity of embankment materials remaining after the foregoing deductions have been made will be the quantity of borrow pit material to be paid for.

By way of example:

Assume over-all embankment measurements - 800,000 cu. yds.

Originating in tunnel
(measured in excavation and already paid for),

12,000 cu. yds.

Originating in core wall (measured in excavation and already paid for),

10,000 cu. yds.

Originating in dam excavation (measured in excavation and already paid for),

10,000 cu. yds.

32,000 cu. yds.

Subtracting it from 800,000 cu. yds, - leaves borrow pit material in embankment to be paid for,

768,000 cu. yds.

Computations for progress estimates should be revised in accordance with the foregoing opinion, and whatever additional credits may thereby result to the contractor should appear in the progress estimate for the month of March.

Before certification for payment of such revised estimate, and as a condition precedent to certification, the contractor should be required unqualifiedly to agree in

writing to accept the methods of measurement for payment outlined in this opinion as the governing principle of payment applicable to past as well as all future work; and as to work already performed to waive all claims arising out of or based upon disputed classification of materials and/or the appropriate item of the bid schedule governing payment for said work.

Very truly yours,

G. L. Byers
City Attorney.

March 30, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

Subject: San Diego River Project,
El Capitan Feature, excavation
Classification.

Gentlemen:

It is deemed proper, and you are invited to have an authorized representative present during the measurement of the Class 1 and Class 2 excavation at El Capitan reservoir dam spillway.

Your representatives or you have been present heretofore.

Please notify the City's Resident Engineer when you desire your authorized representative to review this work and also notify him who your authorized representative for this work will be.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

HW/p
cc H.W.Rohl & T.E.Connolly
El Capitan Dam
Contractor's Resident Representative
City's Resident Engineer

H. W. ROHL & T. E. CONNOLLY
Contractors
4351 Alhambra Ave., Los Angeles

March 31, 1933

Mr. H. N. Savage, Hydraulic Engineer,
City of San Diego, California.

Dear Sir:

Referring to your letter of March 30, subject, excavation classification; you state as follows: "Your representatives or you have been present heretofore".

Please be advised that neither myself or my representatives have any knowledge that such measurements have been made or of the methods used in the classification of materials from the spillway excavation and have not been present during the taking of such measurements. Please correct your letter of March 30 to agree with the above facts.

The contract specifications provide that the engineer shall make monthly measurements of the various classes of material excavated (Paragraphs 50, 54 and 55) and no provision is contained therein allocating to the engineer the right to arbitrarily fix such quantities in lieu of actual measurements without the mutual consent of both parties to the contract, i.e., the City of San Diego and the contractors.

Very truly yours,

H.W.Rohl & T.E.Connolly

By H. W. ROHL (Signature)

H. W. ROHL & T. E. CONNOLLY
Contractors
4351 Alhambra Ave., Los Angeles
Telephone Capitol 12161

April 11, 1933.

Honorable Mayor and City Council
City of San Diego, California.

Re: EL CAPITAN RESERVOIR DAM,
SPILLWAY AND OUTLET WORKS.

Gentlemen:

As you were advised at our conference of Nov. 14, 1932, the City has been in continuous default of its obligation to measure and pay for work performed in accordance with our contract.

Spoil bank materials originating in structure excavation have not been measured by the Engineer concurrently as work has been performed. At our conference with your Honorable Body on Nov. 14, 1932, the City Engineer admitted that spoil bank materials had not and could not be measured. The arrangement at that time made by the Council for the correction by the Engineer of the estimate has not been carried out.

We are at this time again advising you that the City is in default and that we have suspended operations on the above job on account of the existing defaults, including the failure of the City Engineer to make and sign an estimate for March work.

You are further advised that we will demand a stand-by charge for such period as we are forced to suspend operations on account of the existing default of the City.

We withdrew the notice of default which we presented to your Honorable Body under date of Nov. 14, 1932 upon the express agreement that Mr. Savage would make up a new estimate immediately upon his return from Washington, D. C. and that such new estimate would include payment for spoil bank materials in accordance with our contract.

Very truly yours,

H. W. ROHL & T. E. CONNOLLY

By T. E. Connolly

H. W. Rohl

JM:B

H. W. ROHL & T. E. CONNOLLY

CONTRACTORS

San Diego, California,
April 20, 1933

To the Honorable, the Mayor and Council
of The City of San Diego; and

To Mr. H. N. Savage,
Hydraulic Engineer of said City:

Gentlemen:

Reference is hereby made to the official opinion of the City Attorney of San Diego, dated March 21st, 1933, addressed to Mr. H. N. Savage, Hydraulic Engineer, upon the subject "El Capitan Dam Reservoir, Spillway and Outlet Works - Construction of Specifications Controlling the Computation of Progress Estimates."

For all work performed prior to April 1, 1933, the contractors hereby agree as follows:

- (1) Materials from structure excavation excavated and placed in embankment are to be measured in excavation and paid for on the basis of excavation measurements.
- (2) Materials from structure excavations, excavated and wasted, are to be measured for payment in excavation and in lieu of spoil bank measurements, measurements in excavation increased 27-1/2% as to Classes of material 1,3,4 and 5.
- (3) To waive any and ^{all} ~~claims~~ arising out of or based upon disputed classification (but not quantities) of materials and/or the appropriate item of the bid schedule governing payment for any and all work performed prior to April 1st 1933.
- (4) That subsequent to April 1st, 1933, all materials from structure excavation deposited in spoil bank will be measured in spoil bank currently as the work is performed.

Very truly yours,

H. W. ROHL & T. E. CONNOLLY

By _____

(signed and delivered to City)

H. W. ROHL & T. E. CONNOLLY
CONTRACTORS

San Diego, Calif.,
April 28, 1933.

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego, California

Dear Sir:

Re: EL CAPITAN RESERVOIR
DAM, SPILLWAY AND
OUTLET WORKS.

Kindly furnish the Contractor with a statement with reference to Estimate No. 11 for the month of March, 1933, of the quantities and classifications between successive stations as provided in paragraphs 54 and 55 of the specifications in Contract for El Capitan Reservoir Dam, Spillway and Outlet Works.

Yours truly,

H. W. ROHL & T. E. CONNOLLY

By T. E. CONNOLLY (Signature)

May 5, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S 9

Subject: San Diego River Project, El Capitan
Feature, request for statement of
quantities and classifications
Estimate No. 11

Gentlemen:

Pursuant to your written request dated April 38,
1933 for a statement of the quantities and classification
between successive stations of the excavation and em-
bankment quantities shown on progress estimate No. 11
for contract work done on El Capitan Dam for the month
of March 1933, you are herewith furnished the attached
statement showing the information requested.

If this statement is not satisfactory to you,
specific objections with reasons therefor should be
filed in writing with the Engineer in accordance with
paragraph 54 of the contract specifications.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

HNS/p
encl.

cc John M. Martin, Attorney for Contractor
H.W.Rohl & T.E.Connolly, El Capitan Dam
Contractor's Resident Representative
City Attorney
City's Resident Engineer
City Manager

CITY OF SAN DIEGO, CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl and T. E. Connolly under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including March 1933 and included in Progress Estimate No. 11.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 per cent if measured in spoil bank or in embankment Class 1, and

That excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in embankment Class 2.

That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in embankment Class 2.

All quantities are stated in cubic yards.

EMBANKMENT CLASS 1: Stations, classification and quantities:

1. From N 3440 to N 3850 and from E 5590 to toe wall
(Above upstream toe wall)

Overall embankment measured in embankment 11,949

(9) Excavation Class 5	4,481
27.5 per cent swell	<u>1,232</u>
As if measured in embankment	5,713
(2) Embankment Class 1	6,236

2. From N 3280 to N 4060 and from E 5135 to toe wall
(Below upstream toe wall) Overall embankment measured in embankment 349,884

(1) Excavation Class 1	10,981
27.5 per cent swell	<u>3,020</u>
As if measured in embankment	14,001
(7) Excavation Class 3	272
27.5 per cent swell	<u>75</u>
As if measured in embankment	347
(9) Excavation Class 5	5,925
27.5 per cent swell	<u>1,629</u>
As if measured in embankment	7,554
(2) Embankment Class 1	327,982

3. From N 3280 to N 3920 and from E 4752 to toe wall
(Above downstream toe wall)

Overall embankment measured in embankment 149,483

(1) Excavation Class 1	4,040
27.5 per cent swell	<u>1,111</u>
As if measured in embankment	5,151

(7) Excavation Class 3	153
27.5 per cent swell	<u>42</u>
As if measured in embankment	195

(9) Excavation Class 5	1,743
27.5 per cent swell	<u>479</u>
As if measured in embankment	2,222

Embankment placed on unsuitable foundation	12,339	(not included in estimate)
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(2) Embankment Class 1	129,576
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4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 23,316

(1) Excavation Class 1	926
27.5 per cent swell	<u>255</u>
As if measured in embankment	1,181

(9) Excavation Class 5	28
27.5 per cent swell	<u>8</u>
As if measured in embankment	36

(2) Embankment Class 1	22,099
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EMBANKMENT CLASS 2: Stations, classification and quantities.

1. From N 3280 to N 3980 and from E 4740 to E 5135

Overall embankment measured in embankment, except for 3,544 cubic yards material above the foundation line of the hydraulic fill placed contrary to directions of Hydraulic Engineer.....↓ 483,317

(3) Excavation Class 2	64,813
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(7) Excavation Class 3	1,518
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(9) Excavation Class 5 measured in excavation	1,621
(5) Embankment Class 2	415,365

EXCAVATION: Measured in excavation.

1. Excavation Class 1, detached solid rock from stripping for base of dam, from structure and other excavation, except spillway	11,332
2. Excavation Class 1, detached solid rock from spillway excavation	6,632
3. Excavation Class 1, detached solid rock from Station 0+14 to -2+95 tunnel entrance	276
4. Excavation Class 1, ledge rock in place from Station 0+14 to 0-50 tunnel entrance	2,537
5. Excavation Class 1, detached solid rock from Station 11+67.8 to 15+30 tunnel exit	356
6. Excavation Class 1, ledge rock in place from Station 11+67.8 to 13+82.8 tunnel exit	4,555
7. Excavation Class 1, ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	4,255
8. Excavation Class 1, ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5510	679
9. Excavation Class 1, ledge rock in place from N 3420 to N 3460 and from E 4474 to E 4512	155
10. Excavation Class 1, ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460	766
11. Excavation Class 2, Station 0+14 to -2+95 tunnel entrance	10,105
12. Excavation, Class 2, Station 11+67.8 to 15+30 tunnel exit	10,467
13. Excavation Class 2, stripping for base of dam from N 3380 to N 3920 and from E 4320 to E 4740 under downstream rock embankment	72,995
14. Excavation Class 2, stripping for base of dam from N 3240 to N 4070 and from E 5140 to E 5590 under upstream rock embankment	88,110

15.	Excavation Class 2, stripping for base of dam from N 3220 to N 4020 and from E 4680 to E 5220 under hydraulic embankment	82,328
16.	Excavation Class 2, spillway excavation from Station 0+00 to 10+79	49,245
17.	Excavation Class 3, downstream toewall trench from Station 0-60 to 4+02.14	1,835
18.	Excavation Class 3, upstream toewall trench from Station 0+00 to 4+85	2,199
19.	Excavation Class 3, main cutoff trench under dam	
	(a) 6' neat line trench from N 4182 to N 3931	3,821
	(b) 6' bottom, 1 on 1 slopes from N 3182 to N 3931	3,065
20.	Excavation Class 5, tunnel excavation	
a.	Station 0+00 to Station 7+00	17,892
b.	" 7+00 " 9+61.5	6,028
c.	" 9+61.5 " 11+72.77	5,334
d.	Outlet tower shaft	1,595
e.	Cleaning floor, exploration tunnel #1	19
f.	" " " " #2	7

SUMMARY BY SCHEDULE ITEMS

Schedule Item	Determination of schedule items	
1.	Excavation Class 1, solid rock originating in structure excavation including placing and sorting in dam	
	Embankment Class 1	
	(2)	10,981
	(3)	4,040
	(4)	<u>926</u>
	Total schedule item 1.	15,947
2.	Embankment Class 1 rock originating in borrow pit only including placing and sorting in dam, measured in embankment.	
	Embankment 1(2)	6,236
	2(2)	327,982
	3(2)	129,576
	4(2)	<u>22,099</u>
	Total schedule item 2	485,893

- 3. Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation, including placing and sorting in hydraulic fill.

Embankment Class 2	
1(3)	64,813

Total Schedule Item 3	64,813
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- 5. Embankment Class 2, clay, earth, sand, gravel and other embankment originating in borrow pit only including placing and sorting in hydraulic fill.

Embankment Class 2	
1(5)	415,365

Total schedule item 5	415,365
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- 7. Excavation Class 3, cutoff trench excavation under dam including placing and sorting in dam.

Embankment Class 1	
2(7)	272
3(7)	153

Embankment Class 2	
1(7)	<u>1,518</u>

Total schedule item 7	1,943
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- 9. Excavation Class 5 outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.

Embankment Class 1	
1(9)	4,481
2(9)	5,925
3(9)	1,743
4(9)	28

Embankment Class 2	
1	<u>1,621</u>

Total schedule item 9	13,798
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- 10. Excavation Class 1, solid rock originating in structure excavation and wasted.

Overall excavation:

Excavation 1	11,332
2	6,632
3	276
4	2,537
5	356
6	4,555
7	4,255

10. (continued)

Excavation 8	679	
9	155	
10	<u>766</u>	
Total overall excavation Class 1		31,543

Excavation Class 1 placed in dam:

Embankment Class 1		
2(1)	10,981	
3(1)	<u>4,040</u>	
4(1)	<u>926</u>	
Total placed in dam measured in excavation		<u>15,947</u>

Excavation wasted	15,596	
27.5 per cent swell	<u>4,289</u>	
As if measured in spoil bank	<u>19,885</u>	
Total schedule item 10		19,885

11. Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.

Overall excavation

Excavation 11	10,105	
12	10,467	
13	72,995	
14	88,110	
15	82,328	
16	<u>49,245</u>	
Total overall		313,250

Placed in dam:

Embankment Class 2(3)		<u>64,813</u>
Excavation wasted, as if measured in spoil bank on basis of no swell or shrinkage		248,437

Total schedule item 11 248,437

12. Excavation Class 3, cutoff trench excavation under dam and wasted.

Overall excavation:

Excavation 17	1,835	
18	2,199	
19a	3,821	
19b	<u>3,065</u>	
Total overall excavation Class 3		10,920

Excavation Class 3 placed in dam

Embankment Class 1		
2(7)	272	
3(7)	<u>153</u>	

12. (Continued)

Embankment Class 2		
1(7)	<u>1,518</u>	
Total placed in dam		
measured in excavation		<u>1,943</u>
Excavation wasted		8,977
Swell 27.5 per cent		<u>2,469</u>
As if measured in spoil bank		11,446
Total schedule item 12		11,446

14. Excavation Class 5, tunnel excavation excepting open cut excavation, but wasted.

Overall excavation:

Excavation 20a	17,892	
b	6,028	
c	5,334	
d	1,595	
e&f	<u>26</u>	
Total overall tunnel excavation		30,875

Tunnel excavation placed in dam:

Embankment Class 1		
1(9)	4,481	
2(9)	5,925	
3(9)	1,743	
4(9)	28	
Embankment Class 2		
1(9)	<u>1,621</u>	

Total placed in dam measured in excavation 13,798

Tunnel excavation wasted measured in excavation 17,077

Swell 27.5 per cent 4,695

As if measured in spoil bank 21,772

Total schedule item 14 as if measured in spoil bank 21,772

H. W. ROHL & T. E. CONNOLLY

Contractors

May 15, 1933

Mr. H. N. Savage, Hydraulic Engineer
El Capitan Dam, California.

SUBJECT: San Diego River Project,
El Capitan Dam Feature, Classification
and Measurement of Quantities.

Dear Sir:

In accordance with the contractors' privilege of protest of any monthly estimate, as set forth in paragraph 54 of the contract specifications, we specifically object to the quantities and classifications of quantities as shown for the different bid items of estimate No. 11 for the month of March, 1933 and as set forth in statement transmitted by H. N. Savage, Hydraulic Engineer, under date of May 5, 1933 for the following reasons:

The assumptions set forth under which the estimate is completed are erroneous and contrary to our contract in the following respects:

(a) There is no excavation Class 2 to be placed in embankment Class 2 and therefore no justification for the arbitrary assumption that excavation Class 2 would neither swell nor shrink if measured in embankment Class 2.

(b) There is no excavation either Class 1, 3 or 5 to be placed in embankment Class 2 and therefore there is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would neither swell nor shrink if measured in embankment Class 2.

(c) There is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would swell 27½% if measured in embankment Class 1. Furthermore our contract provides such excavation shall be measured in excavation and not in embankment Class 1.

Item 1. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (a) of the Contract Specifications.

Item 2. The deduction of 12,339 cubic yards of rock is incorrect.

Item 5. The deduction of 3,544 cubic yards is incorrect.

Item 7. Not correct as to quantity.

-2-

Item 7. Not correct as to quantity.

Item 9. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of Contract Specifications.

Item 10. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraph 54. Page 32 - Paragraph 55(b) of Contract Specifications.

Item 11. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraphs 54 and 55(b) of Contract Specifications.

Item 12. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraph 54; Paragraph 55(b) of Contract Specifications.

Item 14. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of Contract Specifications.

Item 24. Incorrectly computed.

Item 26. Not correct as to quantity.

Item 33. Not correct as to quantity.

Item 34. Not correct as to quantity.

Items 16, 20, 21, 25, 27, 28, 29, 35, 36, 40, 43, 45 and 46 as set forth in Estimate No. 11 are acceptable only as an approximate estimate, it being the contractors' understanding that the Hydraulic Engineer has ruled that all progress estimates are subject to change and correction by final measurements at the time of completion of the work and issuance of a final estimate.

Very truly yours,

H. W. ROHL & T. E. CONNOLLY

By (Signed) H W Rohl

May 24, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-11

Subject: San Diego River Project, El Capitan
Feature, Progress Estimate No. 11,
Determination of pay quantities.

Gentlemen:

Receipt is acknowledged of your letter dated May 15, 1933 protesting and objecting to the quantities and classification of quantities as shown in the different schedule items of Progress Estimate No. 11 for the month of March 1933, details of which, relating to excavation and embankment quantities, were set out in letter to you dated May 5, 1933.

Much excavation Class 2 has been placed by you in hydraulic fill and intermingled with embankment Class 2. In taking the overall measurements of hydraulic fill it has sometimes been referred to as embankment Class 2. However, the specifications state that embankment Class 2 originates in borrow pit only.

The above also applies to excavation Class 1, 3 and 5 and rock embankment where overall quantities have sometimes been referred to as Class 1 when the specifications state that embankment Class 1 originates only in borrow pit (quarry).

The Contractor's lack of an orderly program made it physically impossible to measure and identify the source of wasted material in spoil banks, and, therefore, in order to arrive at a proper quantity in lieu of spoil bank measurement, an addition to excavation measurement was made to show as nearly as possible the volume which such materials actually occupied in the spoil bank.

All structure excavation is measured in excavation but the contract specifications provide that embankment Class 1 and 2 include materials originating in borrow pits (and quarries) only and, therefore, you are not entitled to the yardage represented by the swell of excavated material originating in structure excavation, especially excavation Class 1, 3 and 5 when placed in rock embankment.

You state that the quantities under items 24, 26, 33 and 34 in the estimate are not correct but you do not state in what particular so that proper investigation may be made.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

HNS/p

5/17/34
copy /f

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H. W. ROHL & T. E. CONNOLLY
CONTRACTORS

El Capitan Dam

May (June) 16 1933

Mr. H. N. Savage,
Hydraulic Engineer
City of San Diego, California

Dear Sir: Re: El Capitan Reservoir
 Dam, Spillway and
 Outlet Works.

Kindly furnish the Contractor with a statement with reference to Estimate No 13 for the month of May, 1933, of the quantities and classifications between successive stations as provided in paragraphs #54 and #55 of the specifications in contract for El Capitan Reservoir Dam, Spillway and Outlet Works.

Yours truly

H.W.Rohl and T.E.Connolly

By T. E. CONNOLLY (Signature)

June 23, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-18

Subject: San Diego River Project, El Capitan
Feature, request for statement of
quantities and classifications
Estimate No. 13.

Gentlemen:

Pursuant to your written request dated May 16, 1933 (June) for a statement of the quantities and classification between successive stations of the excavation and embankment quantities shown on progress estimate No. 13 for contract work done on El Capitan Dam for the month of May 1933, you are herewith furnished the attached statement showing the information requested.

If this statement is not satisfactory to you, specific objections with reasons therefor should be filed in writing with the Engineer in accordance with paragraph 54 of the contract specifications.

Very truly yours,

H. N. Savage,
Hydraulic Engineer

FDP/p
encl.

CITY OF SAN DIEGO, CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl and T. E. Connolly under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including May 1933 and included in Progress Estimate No. 13.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 per cent if measured in spoil bank or in embankment Class 1, and

That excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in embankment Class 2.

That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in embankment Class 2.

All quantities are stated in cubic yards.

EMBANKMENT CLASS 1: Stations, classification and quantities:

1. From N 3440 to N 3850 and from E 5590 and to toe wall (above upstream toe wall)

Overall embankment measured in embankment 11,949

(9) Excavation Class 5	4,481
27.5 per cent swell	<u>1,232</u>
As if measured in embankment	5,713
(2) Embankment Class 1	6,236

2. From N 3280 to N 4060 and from E 5135 to toe wall (Below upstream toe wall)

Overall embankment measured in embankment 359,413

(1) Excavation Class 1	12,644
27.5 per cent swell	<u>3,477</u>
As if measured in embankment	16,121
(7) Excavation Class 3	436
27.5 per cent swell	<u>120</u>
As if measured in Embankment	556
(9) Excavation Class 5	5,925
27.5 per cent swell	<u>1,629</u>
embankment	7,554
(2) Embankment Class 1	335,182

3. From N 3280 to N 3920 and from E 4752 to toe wall
(Above downstream toe wall)

Overall embankment measured in embankment 164,785

(1) Excavation Class 1	6,021
27.5 per cent swell	<u>1,656</u>
As if measured in embankment	7,677
(7) Excavation Class 3	153
27.5 per cent swell	<u>42</u>
embankment	195
(9) Excavation Class 5	1,743
27.5 per cent swell	<u>479</u>
embankment	2,222
(2) Embankment Class 1	154,691

4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 23,316

(1) Excavation Class 1	926
27.5 per cent swell	<u>255</u>
embankment	1,181
(9) Excavation Class 5	28
27.5 per cent swell	<u>8</u>
As if measured in embankment	36
(2) Embankment Class 1	22,099

EMBANKMENT CLASS 2: Stations, classification and quantities.

1. From N 3260 to N 3980 and from E 4677 to E 5232

Overall embankment measured in embankment, except for
3,544 cubic yards material above the foundation line
of the hydraulic fill placed contrary to directions
of Hydraulic Engineer 583,467

(3) Excavation Class 2	96,655
(7) Excavation Class 3	2,588
(9) Excavation Class 5 measured in excavation	1,621
(5) Embankment Class 2	482,603
3544 cubic yards Class 2 embankment not sorted by Hydraulic means not included in estimate.	

EXCAVATION: Measured in excavation.

1. Excavation Class 1, detached solid rock from stripping for base of dam, from structure and other excavation except spillway	12,497
2. Excavation Class 1, detached solid rock from spillway excavation	9,111
3. Excavation Class 1, detached solid rock from Station 0+14 to -2+95 tunnel entrance	276
4. Excavation Class 1, ledge rock in place from Station 0+14 to 0-50 tunnel entrance	2,537
5. Excavation Class 1, detached solid rock from Station 11+67.8 to 15+30 tunnel exit	356
6. Excavation Class 1, ledge rock in place from Station 11+67.8 to 13+82.8 tunnel exit	4,555
7. Excavation Class 1, ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	4,255
8. Excavation Class 1, ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5510	679
9. Excavation Class 1, ledge rock in place from N 3420 to N 3460 and from E 4474 to E 4512	155
10. Excavation Class 1, ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460	766
11. Excavation Class 2, Station 0+14 to -2+95 tunnel entrance	10,105
12. Excavation, Class 2, Station 11+67.8 to 15+30 tunnel exit	10,467
13. Excavation Class 2, stripping for base of dam from N 3290 to N 3920 and from E 4320 to E 4740 under downstream rock embankment	72,995
14. Excavation Class 2, stripping for base of dam from N 3220 to N 4070 and from E 5140 to E 5590 under upstream rock embankment	88,186
15. Excavation Class 2, stripping for base of dam from N 3220 to N 4020 and from E 4680 to E 5220 under hydraulic embankment	93,601
16. Excavation Class 2, spillway excavation from Station 0+00 to 10+79	69,738
17. Excavation Class 3, downstream toe wall trench from Station 0-60 to 4+02.14	1,835

18.	Excavation Class 3, upstream toewall trench from Station 0+00 to 4+85	2,199
19.	Excavation Class 3, main cutoff trench under dam	
	(a) 6' neat line trench from N 3121 to N 3975	4,375
	(b) 6' bottom, 1 on slopes from N 3120 to N 3980	3,745
20.	Excavation Class 5, tunnel excavation	
	a. Station 0+00 to Station 7+00	17,892
	b. " 7+00 " 9+61.5	6,028
	c. " 9+61.5 " 11+72.77	5,334
	d. Outlet tower shaft	1,595
	e. Cleaning floor exploration tunnel #1	19
	f. Cleaning floor exploration tunnel #2	7

SUMMARY BY SCHEDULE ITEMS

Schedule Item	Determination of schedule items	
1.	Excavation Class 1, solid rock originating in structure excavation including placing and sorting in dam.	
	Embankment Class 1	
	(2) 12,644	
	(3) 6,021	
	(4) <u>926</u>	
	Total schedule item 1.	19,591
2.	Embankment Class 1 rock originating in borrow pit only including placing and sorting in dam, measured in embankment.	
	Embankment 1(2) 6,236	
	2(2) 335,182	
	3(2) 154,691	
	4(2) <u>22,099</u>	
	Total schedule item 2	518,208
3.	Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation, including placing and sorting in hydraulic fill.	
	Embankment Class 2	
	1(3) 96,655	
	Total schedule item 3	96,655
5.	Embankment Class 2, clay, earth, sand, gravel and other embankment originating in borrow pit only including placing and sorting in hydraulic fill	
	Embankment Class 2	
	1(5) 482,603	
	Total schedule item 5	482,603

7. Excavation Class 3, cutoff trench excavation under dam including placing and sorting in dam.

Embankment Class 1	
2(7)	436
3(7)	153
Embankment Class 2	
1(7)	<u>2,588</u>

Total schedule item 7 3,177

9. Excavation Class 5 outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.

Embankment Class 1	
1(9)	4,481
2(9)	5,925
3(9)	1,743
4(9)	28
Embankment Class 2	
1	<u>1,621</u>

Total schedule item 9 13,798

10. Excavation Class 1, solid rock originating in structure excavation and wasted.

Overall excavation:

Excavation 1	12,497
2	9,111
3	276
4	2,537
5	356
6	4,555
7	4,255
8	679
9	155
10	<u>766</u>

Total overall excavation Class 1 35,187

Excavation Class 1 placed in dam:

Embankment Class 1	
2(1)	12,644
3(1)	6,021
4(1)	<u>926</u>

Total placed in dam measured in excavation 19,591

Excavation wasted	15,596
27.5 per cent swell	<u>4,289</u>
As if measured in spoil bank	19,885

Total schedule item 10 19,885

11. Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.

Overall excavation:

Excavation 11	10,105
12	10,467
13	72,995
14	88,186
15	93,601
16	<u>69,738</u>

Total overall 345,092

Placed in dam:

Embankment Class 2(3) 96,655

Excavation wasted, as if measured in spoil bank on basis of no swell or shrinkage

248,437

Total schedule item 11

248,437

12. Excavation Class 3, cutoff trench excavation under dam and wasted.

Overall excavation:

Excavation 17	1,835
18	2,199
19a	4,375
19b	<u>3,745</u>

Total overall excavation Class 3 12,154

Excavation Class 3 placed in dam

Embankment Class 1	
2(7)	436
3(7)	153
Embankment Class 2	
1(7)	2,588

Total placed in dam measured in excavation

3,177

Excavation wasted
Swell 27.5 per cent

8,977

2,469

As if measured in spoil bank

11,446

Total schedule item 12

11,446

14. Excavation Class 5, tunnel excavation
excepting open cut excavation, but wasted.

Overall excavation:

Excavation 20a	17,892
b	6,028
c	5,334
d	1,595
e & f	<u>26</u>

Total overall tunnel excavation 30,875

Tunnel excavation placed in dam:

Embankment Class 1	
1(9)	4,481
2(9)	5,925
3(9)	1,743
4(9)	28

Embankment Class 2	
1(9)	<u>1,621</u>

Total placed in dam measured in excavation 13,798

Tunnel excavation wasted

measured in excavation	17,077
Swell 27.5 per cent	<u>4,695</u>

As if measured in spoil bank 21,772

Total schedule item 14 as if measured in spoil bank 21,772

H. W. ROHL & T. E. CONNOLLY

Contractors

June 30, 1933

Mr. H. N. Savage, Hydraulic Engineer,
City of San Diego, California.

SUBJECT: San Diego River Project,
El Capitan Dam Feature, Classifica-
tion and Measurement of Quantities.

Dear Sir:

In accordance with the contractors' privilege of protest of any monthly estimate, as set forth in paragraph 54 of the contract specifications, we specifically object to the quantities and classifications of quantities as shown for the different bid items of estimate No. 13 for the month of May, 1933 and as set forth in statement transmitted by H. N. Savage, Hydraulic Engineer, under date of June 23, 1933 for the following reasons:

The assumptions set forth under which the estimate is completed are erroneous and contrary to our contract in the following respects:

(a) There is no excavation Class 2 to be placed in embankment Class 2 and therefore no justification for the arbitrary assumption that excavation Class 2 would neither swell nor shrink if measured in embankment Class 2.

(b) There is no excavation either Class 1, 3 or 5 to be placed in embankment Class 2 and therefore there is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would neither swell nor shrink if measured in embankment Class 2.

(c) There is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would swell 27½% if measured in embankment Class 1. Furthermore our contract provides such excavation shall be measured in excavation and not in embankment Class 1.

The estimate does not include payment to the contractors for idle equipment, stand-by charges and damages for the period from April 10, 1933 to May 31, 1933, in accordance with our claim on file.

Item 1. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (a) of the Contract Specifications.

Item 2. The quantities in Class 1 are incorrect.

Item 5. The deduction of 3,544 cubic yards is incorrect.

Item 7. Not correct as to quantity.

Item 9. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 10. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraph 54. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 11. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraphs 54 and 55(b) of the Contract Specifications.

Item 12. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraph 54; Paragraph 55(b) of the Contract Specifications.

Item 14. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 24. Incorrectly computed.

Item 26. Not correct as to quantity.

Item 33. Not correct as to quantity.

Item 34. Not correct as to quantity.

Items 16, 3, 20, 21, 25, 27, 28, 29, 35, 36, 37, 40, 43, 45 and 46 as set forth in Estimate No. 13 are acceptable only as an approximate estimate, it being the contractors' understanding that the Hydraulic Engineer has ruled that all progress estimates are subject to change and correction by final measurements at the time of completion of the work and issuance of a final estimate.

Very truly yours,

H. W. Rohl & T. E. Connolly

By Signed) T E Connolly

July 6, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-20

Subject: San Diego River Project, El Capitan Feature
Progress Estimate No. 13, determination of
pay quantities.

Gentlemen:

Receipt is acknowledged of your letter dated June 30, 1933 objecting and protesting to the quantities and classification of quantities as shown in the different schedule items of Progress Estimate No. 13 for the month of May 1933, details of which, relating to excavation and embankment quantities for El Capitan Dam, were set out in letter to you dated June 23, 1933.

Much excavation Class 2 has been placed by you in hydraulic fill and intermingled with embankment Class 2. In taking the overall measurements of hydraulic fill it has sometimes been referred to as embankment Class 2. However, the specifications state that embankment Class 2 originates in borrow pit only.

The above also applies to excavation Class 1, 3 and 5 and rock embankment where overall quantities have sometimes been referred to as Class 1 when the specifications state that embankment Class 1 originates only in borrow pit, i.e. quarry.

The Contractor's lack of an orderly program and method of work prior to April 1, 1933 made it physically impossible for the Engineer to identify the source of and to measure wasted material in spoil banks, and, therefore, in order to arrive at a proper quantity in lieu of spoil bank measurement, an estimated quantity due to probable swell in addition to excavation measurement was included to show as nearly as possible the volume which such materials actually occupied in the spoil bank.

All structure excavation is measured in excavation but the contract specifications provide that embankment Class 1 and 2 include materials originating in borrow pits (and quarries) only, and therefore, you are not entitled to the yardage represented by the swell of excavated material originating in structure excavation, especially excavation Class 1, 3 and 5 when placed in rock embankment.

The above statements apply to your general references to quantities under Schedule Items 1, 2, 7, 9, 10, 11, 12 and 14 wherein you state that the quantities are wrong as to method of measurement.

Messrs. H. W. Rohl & T. E. Connolly -2

7/6/33

The deduction of 3544 cubic yards from Item 5 was made in accordance with my letter to you of March 1, 1933 wherein it was made optional to you to remove and replace improperly placed material at your own expense, or proceed with the work, in which event the incompletely placed material not removed would not be included in the monthly estimates.

You state that the quantities under Schedule Items 10, 11 and 12 are wrong as to classification, but you do not state in what particular they are wrong, so that proper investigation may be made.

No report has as yet been made by this office to the Council with whom you filed your alleged claim for idle equipment and standby charges for the period from April 10, 1933 to May 31, 1933.

You state that the quantities under Items 24, 26, 33 and 34 in the estimate are not correct but you do not state in what particular they are incorrect so that proper investigation may be made.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

HNS/p

ROHL-CONNOLLY CO.

Contractors

Lakeside, Calif.

July 18, 1933.

Mr. H. N. Savage,
Hydraulic Engineer,
City of San Diego, California.

Re: Estimate No. 14.

Dear Sir:

Kindly furnish the contractor with a statement of the quantities and classifications between successive stations as provided in paragraphs 54 and 55 of the specifications and contract for El Capitan Reservoir Dam, Spillway and Outlet Works.

Very truly yours,

H. W. Rohl & T. E. Connolly

By (Signed) T E Connolly

July 27, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-32

Subject: San Diego River Project, El Capitan
Feature, request for statement of
quantities and classifications
Estimate No. 14.

Gentlemen:

Pursuant to your written request dated July 18,
1933, for a statement of the quantities and classification
between successive stations of the excavation and embank-
ment quantities shown on progress estimate No. 14 for
contract work done on El Capitan Dam for the month of
June 1933, you are herewith furnished the attached state-
ment showing the information requested.

If this statement is not satisfactory to you,
specific objections with reasons therefor should be
filed in writing with the Engineer in accordance with
paragraph 54 of the contract specifications.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

HNS/f

CITY OF SAN DIEGO, CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl and T. E. Connolly under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including June 1933 and included in Progress Estimate No. 14.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 per cent if measured in spoil bank or in rock embankment, and

That excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in hydraulic fill.

That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in hydraulic fill.

All quantities are stated in cubic yards.

ROCK EMBANKMENT: Stations, classification and quantities:

1. From N 3440 to N 3850 and from E 5590 to toe wall
(Above upstream toe wall)

Overall embankment measured in embankment 11,949

(9) Excavation Class 5	4,481
27.5 per cent swell	1,232
As if measured in embankment	5,713
(2) Embankment Class 1	6,236

2. From N 3200 to N 4060 and from E 5135 to toe wall
(Below upstream toe wall)

Overall embankment measured in embankment 420,302

(1) Excavation Class 1	16,676
27.5 per cent swell	4,586
As if measured in embankment	21,262
(7) Excavation Class 3	469
27.5 per cent swell	129
As if measured in embankment	598
(9) Excavation Class 5	5,925
27.5 per cent swell	1,629
As if measured in embankment	7,554
(2) Embankment Class 1	390,888

3. From N 3240 to N 3940 and from E 4752 to toe wall
(Above downstream toe wall)

Overall embankment measured in embankment 198,691

(1) Excavation Class 1 6,489
27.5 per cent swell 1,784
As if measured in embankment 8,273

(7) Excavation Class 3 173
27.5 per cent swell 48
As if measured in embankment 221

(9) Excavation Class 5 1,743
27.5 per cent swell 479
As if measured in embankment 2,222

(2) Embankment Class 1 187,975

4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 23,379

(1) Excavation Class 1 926
27.5 per cent swell 255
As if measured in embankment 1,181

(9) Excavation Class 5 28
27.5 per cent swell 8
As if measured in embankment 36

(2) Embankment Class 1 22,162

HYDRAULIC FILL: Stations, classification and quantities.

1. From N 3260 to N 3980 and from E 4677 to E 5232

Overall embankment measured in embankment, except for
3,544 cubic yards material above the foundation line
of the hydraulic fill placed contrary to directions
of Hydraulic Engineer 741,211

(3) Excavation Class 2 166,928

(7) Excavation Class 3 2,781

(9) Excavation Class 5 measured
in excavation 1,873

(5) Embankment Class 2 569,629

3544 cubic yards Class 2 embankment not sorted by
hydraulic means not included in estimate.

EXCAVATION: Measured in excavation

1. Excavation Class 1, detached solid rock from stripping for base of dam, from structure and other excavation except spillway	12,831
2. Excavation Class 1, detached solid rock from spillway excavation	13,277
3. Excavation Class 1, detached solid rock from Station 0+14 to -2+95 tunnel entrance	276
4. Excavation Class 1, ledge rock in place from Station 0+14 to 0-50 tunnel entrance	2,537
5. Excavation Class 1, detached solid rock from Station 11+67.8 to 15+30 tunnel exit	356
6. Excavation Class 1, ledge rock in place from Station 11+67.8 to 13+82.8 tunnel exit	4,555
7. Excavation Class 1, ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	4,255
8. Excavation Class 1, ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5510	679
9. Excavation Class 1, ledge rock in place from N 3420 to N 3460 and from E 4474 to E 4512	155
10. Excavation Class 1, ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460	766
11. Excavation Class 2, Station 0+14 to -2+95 tunnel entrance	10,105
12. Excavation, Class 2, station 11+67.8 to 15+30 tunnel exit	10,467
13. Excavation Class 2, stripping for base of dam from N 3280 to N 4320 and from E 4320 to E 4740 under downstream rock embankment	72,995
14. Excavation Class 2, stripping for base of dam from N 3160 to N 4070 and from E 5140 to E 5590 under upstream rock embankment	88,389
15. Excavation Class 2, stripping for base of dam from N 3160 to N 4020 and from N 4680 to E 5220 under hydraulic embankment	95,030
16. Excavation Class 2, spillway excavation from Station 0+00 to 10+79	138,379
17. Excavation Class 3, downstream towwall trench from Station 0-60 to 4+02.14	1,835

18.	Excavation Class 3, upstream toewall trench from Station 0+00 to 4+85	2,199
19.	Excavation Class 3, main cutoff trench under dam	4,621
	(a) 6' neat line trench from N 3121 to N 3975	3,745
	(b) 6' bottom, 1 on 1 slopes from N 3120 to N 3980	
20.	Excavation Class 5, tunnel excavation	17,892
	(a) Station 0+00 to Station 7+00	6,028
	(b) " 7+00 " 9+61.5	5,334
	(c) " 9+61.5 " 11+72.77	1,847
	(d) Outlet tower shaft	19
	(e) Cleaning floor exploration tunnel #1	7
	(f) Cleaning floor exploration tunnel #2	

SUMMARY BY SCHEDULE ITEMS

Schedule Item

Determination of schedule items

1.	Excavation Class 1, solid rock originating in structure excavation including placing and sorting in dam.			
	Rock embankment			
	2(1)	16,676		
	3(1)	6,489		
	4(1)	<u>926</u>		
			Total schedule item 1.	24,091
2.	Rock embankment Class 1 rock originating in borrow Pit only including placing and sorting in dam, measured in embankment.			
	Rock embankment			
	1(2)	6,236		
	2(2)	390,888		
	3(2)	187,975		
	4(2)	<u>22,162</u>		
			Total schedule item 2	607,261
3.	Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation, including placing and sorting in hydraulic fill.			
	Hydraulic fill			
	1(3)	166,928	Total schedule item 3	166,928
5.	Embankment Class 2, clay, earth, sand, gravel and other embankment originating in borrow pit only including placing and sorting in hydraulic fill.			
	Hydraulic fill			
	1(5)	569,629	Total schedule item 5	569,629

7. Excavation Class 3, cutoff trench excavation under dam including placing and sorting in dam.

Rock embankment	
2(7)	469
3(7)	173
Hydraulic fill	
1(7)	2,781

Total schedule item 7 3,423

9. Excavation Class 5 outlet tunnel excavation Excepting open cut excavation and including placing and sorting in dam.

Rock embankment	
1(9)	4,481
2(9)	5,925
3(9)	1,743
4(9)	28
Hydraulic fill	
1	1,873

Total schedule item 9 14,050

10. Excavation Class 1, solid rock originating in structure excavation and wasted.

Overall excavation	
Excavation 1	12,831
2	13,277
3	276
4	2,537
5	356
6	4,555
7	4,255
8	679
9	155
10	<u>766</u>

Total overall excavation Class 1 39,687

Excavation Class 1 placed in dam measured in excavation schedule item 1 24,091

Excavation wasted	15,596
27.5 per cent swell	<u>4,289</u>
As if measured in spoil bank	19,885

Total schedule item 10 19,885

- 11. Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.

Overall excavation:

Excavation 11	10,105	
12	10,467	
13	72,995	
14	88,389	
15	95,030	
16	<u>138,379</u>	
Total overall		415,365

Placed in dam:

Hydraulic fill 2(3)		166,928
(schedule item 3)		

Excavation wasted, as if measured in spoil bank on basis of no swell or shrinkage 248,437

Total schedule item 11 248,437

- 12. Excavation Class 3, cutoff trench excavation under dam and wasted.

Overall excavation:

Excavation 17	1,835	
18	2,199	
19a	4,621	
19b	<u>3,745</u>	
Total overall excavation Class 3		12,400

Excavation Class 3 placed in dam measured in excavation schedule item 7 3,423

Excavation wasted
Swell 27.5 per cent 8,977
2,469

As if measured in spoil bank 11,446

Total schedule item 12 11,446

14. Excavation Class 5, tunnel excavation
Excepting open cut excavation, but wasted.

Overall excavation:

Excavation 20a	17,892
b	6,028
c	5,334
d	1,847
e & f	<u>26</u>

Total overall tunnel excavation 31,127

Tunnel excavation placed in dam
measured in excavation,
schedule item 9 14,050

Tunnel excavation wasted
measured in excavation 17,077
Swell 27.5 per cent 4,695

As if measured in spoil bank 21,772

Total schedule item 14 as if measured in spoil bank - 21,772

H. W. ROHL & T. E. CONNOLLY
Contractors

August 3, 1933

Mr. H. N. Savage
Hydraulic Engineer
El Capitan Dam, California.

SUBJECT: San Diego River Project,
El Capitan Dam Feature, Classification
and Measurement of Quantities.

Dear Sir:

In accordance with the contractors' privilege of protest of any monthly estimate, as set forth in paragraph 54 of the contract specifications, we specifically object to the quantities and classifications of quantities as shown for the different bid items of estimate No. 14 for the month of June, 1933 and as set forth in statement transmitted by H. N. Savage, Hydraulic Engineer, under date of June 23, 1933 for the following reasons:

The assumptions set forth under which the estimate is completed are erroneous and contrary to our contract in the following respects:

- (a) There is no excavation Class 2 to be placed in embankment Class 2 and therefore no justification for the arbitrary assumption that excavation Class 2 would neither swell nor shrink if measured in embankment Class 2.
- (b) There is no excavation either Class 1, 3 or 5 to be placed in embankment Class 2 and therefore there is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would neither swell nor shrink if measured in embankment Class 2.
- (c) There is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would swell 27 $\frac{1}{2}$ % if measured in embankment Class 1. Furthermore our contract provides such excavation shall be measured in excavation and not in embankment Class 1.

Item 1. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (a) of the Contract Specifications.

Item 2. The deduction of 12,339 cubic yards of rock is incorrect.

Item 5. The deduction of 3,544 cubic yards is incorrect.

Item 7. Not correct as to quantity.

Item 9. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (b) of the Contract Specifications.

Item 10. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraph 54. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 11. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraphs 54 and 55 (b) of the Contract Specifications.

Item 12. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraph 54; Paragraph 55(b) of the Contract Specifications.

Item 14. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 17. The quantities shown are wrong as to classification.

Item 23. Incorrectly computed.

Item 24. Incorrectly computed.

Item 26. Not correct as to quantity.

Item 33. Not correct as to quantity.

Item 34. Not correct as to quantity.

Items 3, 16, 20, 21, 25, 27, 28, 29, 35, 36, 37, 40, 43, 45 and 46 as set forth in Estimate No. 14 are acceptable only as an approximate estimate, it being the contractors' understanding that the Hydraulic Engineer has ruled that all progress estimates are subject to change and correction by final measurements at the time of completion of the work and issuance of a final estimate.

Very truly yours,

H. W. Rohl & T. E. Connolly

By (Signed) T E Connolly

August 15, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-36

Subject: San Diego River Project, El Capitan
Feature, Progress Estimate No. 14,
determination of pay quantities.

Gentlemen:

Receipt is acknowledged of your letter dated August 3, 1933, objecting and protesting to the quantities and classification of quantities as shown in the different schedule items of Progress Estimate No. 14 for the month of June 1933, details of which, relating to excavation and embankment quantities for El Capitan Dam, were set out in letter to you dated July 27, 1933.

Much excavation Class 2 has been placed by you in hydraulic fill and intermingled with embankment Class 2. In taking the overall measurements of hydraulic fill it has sometimes been referred to as embankment Class 2. However, the specifications state that embankment Class 2 originates in borrow pit only.

The above also applies to excavation Class 1, 3 and 5 and rock embankment where overall quantities have sometimes been referred to as Class 1 when the specifications state that embankment Class 1 originates only in borrow pit, i.e. quarry.

The Contractor's lack of an orderly program and method of work prior to April 1, 1933 made it physically impossible for the Engineer to identify the source of and to measure wasted material in spoil banks, and, therefore, in order to arrive at a proper quantity in lieu of spoil bank measurements, an estimated quantity due to probable swell in addition to excavation measurement was included to show as nearly as possible the volume which such materials actually occupied in the spoil bank.

All structure excavation is measured in excavation, but the contract specifications provide that embankment Class 1 and 2 include materials originating in borrow pits (and quarries) only, and therefore you are not entitled to the yardage represented by the swell of excavated material originating in structure excavation, especially excavation Class 1, 3 and 5 when placed in rock embankment.

The above statements apply to your general references to quantities under Schedule Items 1, 2, 7, 9, 10, 11, 12 and 14

wherein you state that the quantities are wrong as to method of measurement.

Because the placing of 12,339 cubic yards of rock in the downstream rock embankment above elevation 600 in March 1933, was done contrary to written instructions of the Hydraulic Engineer then outstanding, this amount was deducted from the overall measurements for Schedule Item 2 for the March and April estimates. The instructions were countermanded in accordance with Resolutions Nos. 60118 and 60226 and no deduction was made of 12,339 cubic yards from the overall measurements in preparing the estimates for May and June.

The deduction of 3544 cubic yards from Item 5 was made in accordance with my letter to you of March 1, 1933 wherein it was made optional to you to remove and replace improperly placed material at your own expense, or proceed with the work, in which event the incompletely placed material not removed would not be included in the monthly estimates.

You state that the quantities under Schedule Items 10, 11, 12, and 14 are wrong as to classification, but you do not state in what particular they are wrong, so that proper investigation may be made.

You state that the quantities shown in the estimate for June for Item 17 are incorrect as to classification. Concrete placed in the outlet tower footing has been included in Item 17, and concrete placed in the outlet tower above the top of the footing has been included in Item 23. If this is not in accordance with your interpretation of the contract specifications, an additional statement from you will be appreciated.

You state that the quantities under Items 23, 24, 26, 33 and 34 in the estimate are not correct but you do not state in what particular they are incorrect so that proper investigation may be made.

Very truly yours,

H. N. Savage
Hydraulic Engineer.

HNS/p

H. W. ROHL & T. E. CONNOLLY
CONTRACTORS

San Diego, California.

August 15, 1933.

Mr. H. N. Savage,
Hydraulic Engineer,
City of San Diego, California.

Re: Estimate No. 15.

Dear Sir:

Kindly furnish the Contractors with a statement of the quantities and classifications between successive stations as provided in paragraphs 54 and 55 of the specifications and contract for El Capitan Reservoir Dam, Spillway and Outlet Works.

Very truly yours,

H.W.Rohl & T.E.Connolly

T. E. CONNOLLY (Signature)

August 24, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California

S-40

Subject: San Diego River Project, El Capitan
Feature, request for statement of
quantities and classifications
Estimate No. 15.

Gentlemen:

Pursuant to your written request dated August 15, 1933 for a statement of the quantities and classification between successive stations of the excavation and embankment quantities shown on progress estimate No. 15 for contract work done on El Capitan Dam for the month of July 1933, you are herewith furnished the attached statement showing the information requested.

If this statement is not satisfactory to you, specific objections with reasons therefor should be filed in writing with the Engineer in accordance with paragraph 54 of the contract specifications.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

/p
encl.

CITY OF SAN DIEGO, CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl & T. E. Connolly, under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including July 1933 and included in progress estimate No. 15.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 percent if measured in spoil bank or in rock embankment, and

That excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in hydraulic fill, and

That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in hydraulic fill.

All quantities are stated in cubic yards.

ROCK EMBANKMENT: Stations, classification and quantities:

- From N 3440 to N 3850 and from E 5590 to toe wall
(Above upstream toe wall)

Overall embankment measured in embankment 11,949

(9) Excavation Class 5	4,481
27.5 percent swell	1,232
As if measured in embankment	<u>5,713</u>
(2) Embankment Class 1	6,236

- From N 3160 to N 4090 and from E 5135 to toe wall
(Below upstream toe wall)

Overall embankment measured in embankment 463,289

(1) Excavation Class 1	22,730
27.5 percent swell	6,250
As if measured in embankment	<u>28,980</u>
(7) Excavation Class 3	469
27.5 percent swell	129
As if measured in embankment	<u>598</u>
(9) Excavation Class 5	5,925
27.5 percent swell	1,629
As if measured in embankment	<u>7,554</u>
(2) Embankment Class 1	426,157

3. From N 3220 to N 3940 and from E 4752 to toe wall
(Above downstream toe wall)

Over all embankment measured in embankment 216,797

(1) Excavation Class 1 6,523
27.5 percent swell 1,794
As if measured in embankment 8,317

(7) Excavation Class 3 173
27.5 percent swell 48
As if measured in embankment 221

(9) Excavation Class 5 1,743
27.5 percent swell 479
As if measured in embankment 2,222

(2) Embankment Class 1 206,037

4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 23,379

(1) Excavation Class 1 926
27.5 percent swell 255
As if measured in embankment 1,181

(9) Excavation Class 5 28
27.5 percent swell 8
As if measured in embankment 36

(2) Embankment Class 1 22,162

HYDRAULIC FILL: Stations, classification and quantities.

1. From N 3180 to N 4000 and from E 4677 to E 5232

Overall embankment measured in embankment, except for
3,544 cubic yards material above the foundation line
of the hydraulic fill placed contrary to directions
of Hydraulic Engineer 925,134

(3) Excavation Class 2 195,598

(7) Excavation Class 3 3,213

(9) Excavation Class 5 1,873
measured in excavation

(5) Embankment Class 2 724,450
3544 cubic yards Class 2
embankment not sorted by
hydraulic means not included
in estimate.

EXCAVATION: Measured in excavation.

1.	Excavation Class 1, detached solid rock from stripping for base of dam, from structure and other excavation except spillway	12,831
2.	Excavation Class 1, detached solid rock from spillway excavation	19,365
3.	Excavation Class 1, detached solid rock from Station 0+14 to -2+95 tunnel entrance	276
4.	Excavation Class 1, ledge rock in place from Station 0+14 to 0-50 tunnel entrance	2,537
5.	Excavation Class 1, detached solid rock from Station 11+67.8 to 15+30 tunnel exit	356
6.	Excavation Class 1, ledge rock in place from Station 11+67.8 to 13+82.8 tunnel exit	4,555
7.	Excavation Class 1, ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	4,222
8.	Excavation Class 1, ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5510	632
9.	Excavation Class 1, ledge rock in place from N 3420 to N 3460 and from E 4474 to E 4512	234
10.	Excavation Class 1, ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460	764
11.	Excavation Class 2, Station 0+14 to -2+95 tunnel entrance	10,105
12.	Excavation Class 2, station 11+67.8 to 15+30 tunnel exit	10,467
13.	Excavation Class 2, stripping for base of dam from N 3220 to N 3920 and from E 4320 to E 4800 under downstream rock embankment	73,226
14.	Excavation Class 2, stripping for base of dam from N 3160 to N 4070 and from E 5140 to E 5590 under upstream rock embankment	88,968
15.	Excavation Class 2, stripping for base of dam from N 3160 to N 4020 and from E 4680 to E 5220 under hydraulic embankment	95,441
16.	Excavation Class 2, downstream toewall trench from Station 0-60 to 4+02.14	1,835

18.	Excavation Class 3, upstream toewall trench from Station 0+00 to 4+85	2,199
19.	Excavation Class 3, main cutoff trench under dam (a) 6' neat line trench from N 3060 to N 4040 (b) 6' bottom, 1 on 1 slopes from N 3060 to N 3980	4,817 3,981
20.	Excavation Class 5, tunnel excavation (a) Station 0+00 to Station 7+00 (b) " 7+00 " " 9+61.5 (c) " 9+61.5 " 11+72.77 (d) Outlet tower shaft (e) Cleaning floor exploration tunnel #1 (f) Cleaning floor exploration tunnel #2	17,892 6,028 5,334 1,847 19 7

SUMMARY BY SCHEDULE ITEMS

Schedule Item	Determination of schedule items	
1.	Excavation Class 1, solid rock originating in structure excavation including placing and sorting in dam. Rock embankment	
		2(1) 22,730
		3(1) 6,523
		4(1) <u>926</u>
	Total schedule item 1	30,179
2.	Rock embankment Class 1 rock originating in borrow pit only including placing and sorting in dam, measured in embankment. Rock embankment	
		1(2) 6,236
		2(2) 426,157
		3(2) 206,037
		4(2) <u>22,162</u>
	Total schedule item 2	660,592
3.	Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure exca- vation, including placing and sorting in hydraulic fill. Hydraulic fill	
		1(3) 195,598
	Total schedule item 3	195,598
5.	Embankment Class 2, clay, earth, sand, gravel and other embankment originating in borrow pit only including placing and sorting in hydraulic fill. Hydraulic fill	
		1(5) 724,450
	Total schedule item 5	724,450

7. Excavation Class 3, cutoff trench excavation under dam including placing and sorting in dam.

Rock embankment	2(7)	469
	3(7)	173

Hydraulic fill	1(7)	3,213
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Total schedule item 7		3,855
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9. Excavation Class 5 outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.

Rock embankment	1(9)	4,481
	2(9)	5,925
	3(9)	1,743
	4(9)	28

Hydraulic fill	1	1,873
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Total schedule item 9		14,050
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10. Excavation Class 1, solid rock originating in structure excavation and wasted. Overall excavation

Excavation	1	12,831
	2	19,365
	3	276
	4	2,537
	5	356
	6	4,555
	7	4,222
	8	632
	9	234
	10	<u>764</u>

Total overall excavation Class 1		45,772
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Excavation Class 1 placed in dam measured in excavation.

Schedule item 1 excavation wasted	30,179
27.5 percent swell	15,593
As if measured in spoil bank	<u>4,288</u>
	19,881

Total schedule item 10	19,881
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11. Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.

11. Overall excavation			
Excavation	11	10,105	
	12	10,467	
	13	73,226	
	14	88,968	
	15	95,441	
	16	<u>199,274</u>	
Total overall			477,481
Placed in dam:			
Hydraulic fill	2(3)		195,598
(schedule item 3)			
Excavation wasted, as if measured in spoil bank on basis of no swell or shrinkage			281,883
Total schedule item 11			281,883
12. Excavation Class 3, cutoff trench excavation under dam and wasted.			
Overall excavation			
Excavation	17	1,835	
	18	2,199	
	19a	4,817	
	19b	<u>3,981</u>	
Total overall excavation Class 3			12,832
Excavation Class 3 placed in dam measured in excavation schedule item 7			3,855
Excavation wasted		8,977	
Swell 27.5 percent		<u>2,469</u>	
As if measured in spoil bank			11,446
Total schedule item 12			11,446
14. Excavation Class 5, tunnel excavation excepting open cut excavation, but wasted.			
Overall excavation:			
Excavation	20a	17,892	
	b	6,028	
	c	5,334	
	d	1,847	
	e and f	<u>26</u>	
Total overall tunnel excavation			31,127
Tunnel excavation placed in dam measured in excavation, schedule item 9			14,050
Tunnel excavation wasted measured in excavation		17,077	
Swell 27.5 percent		<u>4,695</u>	
As if measured in spoil bank			21,772
Total schedule item 14 as if measured in spoil bank			21,772

H. W. ROHL & T. E. CONNOLLY

Contractors

September 2, 1933.

Mr. H. N. Savage,
Hydraulic Engineer,
City of San Diego, California.

SUBJECT: San Diego River Project, El Capitan
Dam Feature, Classification and Measurement
of Quantities.

Dear Sir:

In accordance with the contractors' privilege of protest of any monthly estimate, as set forth in paragraph 54 of the contract specifications, we specifically object to the quantities and classifications of quantities as for the different bid items of estimate No. 15 for the month of July 1933 and as set forth in statement transmitted by Mr. H. N. Savage Hydraulic Engineer, under date of August 24, 1933 for the following reasons:

The assumptions set forth under which the estimate is completed are erroneous and contrary to our contract in the following respects:

(a) There is no excavation Class 2 to be placed in embankment Class 2 and therefore no justification for the arbitrary assumption that excavation Class 2 would neither swell nor shrink if measured in embankment Class 2.

(b) There is no excavation either Class 1, 3 or 5 to be placed in embankment Class 2 and therefore there is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would neither swell or shrink if measured in embankment Class 2.

(c) There is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would swell 27½% if measured in embankment Class 1. Furthermore our contract provides such excavation shall be measured in excavation and not in embankment Class 1.

(d) The estimate does not include payment to the contractors for idle equipment, stand by charges and damages for the period from April 10, 1933 to May 31, 1933 in accordance with our claim on file.

Item 1. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(a) of the Contract Specifications.

Item 5. The deduction of 3,544 cubic yards is incorrect.

Item 7. Not correct as to quantity.

Item 9. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 10. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraph 54. Page 32 - Paragraph 55 (b) of the Contract Specifications.

Item 11. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraph 54 and 55 (b) of the Contract Specifications.

Item 12. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraph 54; Paragraphs 55(b) of the Contract Specifications.

Item 14. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (b) of the Contract Specifications.

Item 17. The quantities shown are wrong as to classification.

Item 23. Incorrectly computed.

Item 24. Incorrectly computed.

Item 26. Not correct as to quantity.

Item 33. Not correct as to quantity.

Item 34. Not correct as to quantity.

Items 3, 16, 20, 21, 25, 27, 28, 29, 35, 36, 37, 40, 43, 45, and 46 as set forth in Estimate No. 15 are acceptable only as an approximate estimate, it being the contractors' understanding that the Hydraulic Engineer has ruled that all progress estimates are subject to change and correction by final measurements at the time of completion of the work and issuance of a final estimate.

Yours very truly,

H. W. Rohl & T. E. Connolly

By (Signed) T E Connolly

September 7, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-41

Subject: San Diego River Project, El Capitan Feature
Progress Estimate No. 15, determination of
pay quantities.

Gentlemen:

Receipt is acknowledged of your letter dated September 2, 1933, objecting and protesting to the quantities and classification of quantities as shown in the different schedule items of Progress Estimate No. 15 for the month of July, 1933, details of which, relating to excavation and embankment quantities for El Capitan Dam were set out in letter to you dated August 24, 1933.

Much excavation Class 2 has been placed by you in hydraulic fill and intermingled with embankment Class 2. In taking the overall measurements of hydraulic fill it has sometimes been referred to as embankment Class 2. However, the specifications state that embankment Class 2 originates in borrow pit only.

The above also applies to excavation Class 1, 3 and 5 and rock embankment where overall quantities have sometimes been referred to as Class 1 when the specifications state that embankment Class 1 originates only in borrow pit, i.e. quarry.

The Contractor's lack of an orderly program and method of work prior to April 1, 1933 made it physically impossible for the Engineer to identify the source of and to measure wasted material in spoil banks, and, therefore, in order to arrive at a proper quantity in lieu of spoil bank measurements, an estimated quantity due to probable swell in addition to excavation measurement was included to show as nearly as possible the volume which such materials actually occupied in the spoil bank.

All structure excavation is measured in excavation, but the contract specifications provide that embankment Class 1 and 2 include materials originating in borrow pits (and quarries) only, and therefore you are not entitled to the yardage represented by the swell of excavated material originating in structure excavation, especially excavation Class 1, 3 and 5 when placed in rock embankment.

The above statements apply to your general references to quantities under Schedule Items 1, 2, 7, 9, 10, 11, 12, and 14 wherein you state that the quantities are wrong as to method of measurement.

H. W. Rohl & T. E. Connolly -2

9/7/33

S-41

Your claim for \$131,289.83, which you allege was the amount of direct and unavoidable extra cost caused by your suspension of contract work April 10, 1933, is under continued consideration by the Hydraulic Engineer's and the City Attorney's offices.

The deduction of 3544 cubic yards from Item 5 was made in accordance with my letter to you of March 1, 1933 wherein it was made optional to you to remove and replace improperly placed material at your own expense, or proceed with the work, in which event the incompletely placed material not removed would not be included in the monthly estimates.

You state that the quantities under Schedule Items 10, 11, 12, and 14 are wrong as to classification, but you do not state in what particular they are wrong, so that proper investigation may be made.

Concrete placed in the outlet tower footing has been included in Item 17, and concrete placed in the outlet tower above the top of the footing has been included in Item 23. If this is not in accordance with your interpretation of the contract specifications, an additional statement from you will be appreciated.

You state that the quantities under Items 23, 24, 26, 33, and 34 in the estimate are not correct but you do not state in what particular they are incorrect so that proper investigation may be made.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

FDP/p

H. W. ROHL & T. E. CONNOLLY

Contractors

LAKESIDE, Calif., Sept. 19, 1933.

Mr. H. N. Savage, Hydraulic Engineer,
El Capitan Dam,
San Diego, Calif.

Re: Estimate No. 16.

Dear Sir:

Kindly furnish the Contractors with a statement of the quantities and classifications between successive stations as provided in paragraphs 54 and 55 of the Specifications and Contract for El Capitan Dam, Spillway and Outlet Works.

Yours very truly,

H. W. Rohl & T. E. Connolly

(Signed) O C Steves

September 28, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-48

Subject: San Diego River Project, El Capitan
Feature, request for statement of
quantities and classifications
Estimate No. 16.

Gentlemen:

Pursuant to your written request dated September 19, 1933 for a statement of the quantities and classification between successive stations of the excavation and embankment quantities shown on progress estimate No. 16 for contract work done on El Capitan Dam for the month of August 1933, you are herewith furnished with the attached statement showing the information requested.

If this statement is not satisfactory to you, specific objections with reasons therefor should be filed in writing with the Engineer in accordance with the provisions of paragraph 54 of the contract specifications.

Very truly yours,

H. N. Savage
Hydraulic Engineer

/p

encl.

cc-John M. Martin, Attorney for the Contractor
H. W. Rohl & T. E. Connolly, El Capitan Dam
Contractor's Resident Representative
City Manager
City Attorney
City's Resident Engineer

CITY OF SAN DIEGO, CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl & T. E. Connolly, under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including August 1933 and included in progress estimate No. 16.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 percent if measured in spoil bank or in rock embankment, and

That excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in hydraulic fill, and

That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in hydraulic fill.

All quantities are stated in cubic yards.

ROCK EMBANKMENT: Stations, classification and quantities:

1. From N 3440 to N 3850 and from E 5590 to toe wall
(Above upstream toe wall)

Overall embankment measured in embankment	11,949
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(9) Excavation Class 5	4,481
27.5 percent swell	<u>1,232</u>
As if measured in embankment	5,713

(2) Embankment Class 1	6,236
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2. From N 3160 to N 4090 and from E 5135 to toe wall
(Below upstream toe wall)

Overall embankment measured in embankment	505,076
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(1) Excavation Class 1	29,254
27.5 percent swell	<u>8,045</u>
As if measured in embankment	37,299

(7) Excavation Class 3	469
27.5 percent swell	<u>129</u>
As if measured in embankment	598

(9) Excavation Class 5	5,933
27.5 percent swell	<u>1,631</u>
As if measured in embankment	7,564

(2) Embankment Class 1	459,615
------------------------	---------

3. From N 3200 to N 3950 and from E 4752 to toe wall
(Above downstream toe wall)

Overall embankment measured in embankment 230,200

(1) Excavation Class 1 7,279
27.5 percent swell 2,002
As if measured in embankment 9,281

(7) Excavation Class 3 173
27.5 percent swell 48
As if measured in embankment 221

(9) Excavation Class 5 1,743
27.5 percent swell 479
As if measured in embankment 2,222

(2) Embankment Class 1 218,476

4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 23,379

(1) Excavation Class 1 926
27.5 percent swell 255
As if measured in embankment 1,181

(9) Excavation Class 5 28
27.5 percent swell 8
As if measured in embankment 36

(2) Embankment Class 1 22,162

HYDRAULIC FILL: Stations, classification and quantities.

1. From N 3180 to N 4000 and from E 4677 to E 5232

Overall embankment measured in embankment, except for 3,544 cubic yards material above the foundation line of the hydraulic fill placed contrary to directions of Hydraulic Engineer 1,080,132

(3) Excavation Class 2 212,600

(7) Excavation Class 3 3,213

(9) Excavation Class 5 measured in excavation 1,941

(5) Embankment Class 2 862,378
3544 cubic yards Class 2 embankment not sorted by hydraulic means not included in estimate

EXCAVATION: Measured in excavation

1.	Excavation Class 1, detached solid rock from stripping for base of dam, from structure and other excavation, except spillway	12,831
2.	Excavation Class 1, detached solid rock from spillway excavation	26,645
3.	Excavation Class 1, detached solid rock from Station 0+14 to -2+95 tunnel entrance	276
4.	Excavation Class 1, ledge rock in place from Station 0+14 to 0-50 tunnel entrance	2,537
5.	Excavation Class 1, detached solid rock from Station 11+67.8 to 15+30 tunnel exit	356
6.	Excavation Class 1, ledge rock in place from Station 11+67.8 to 13+82.8 tunnel exit	4,555
7.	Excavation Class 1, ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	4,222
8.	Excavation Class 1, ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5510	632
9.	Excavation Class 1, ledge rock in place from N 3420 to N 3460 and from E 4474 to E 4512	234
10.	Excavation Class 1, ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460	764
11.	Excavation Class 2, Station 0+14 to -2+95 tunnel entrance	10,105
12.	Excavation Class 2, Station 11+67.8 to 15+30 tunnel exit	10,467
13.	Excavation Class 2, stripping for base of dam from N 3220 to N 3920 and from E 4320 to E 4800 under downstream rock embankment	73,226
14.	Excavation Class 2, stripping for base of dam from N 3160 to N 4070 and from E 5140 to E 5590 under upstream rock embankment	88,968
15.	Excavation Class 2, stripping for base of dam from N 3160 to N 4020 and from E 4680 to E 5220 under hydraulic embankment	95,441
16.	Excavation Class 2, spillway excavation from Station 0+00 to 10+79	287,787
17.	Excavation Class 3, downstream toewall trench from Station 0-60 to 4+02.14	1,835

18.	Excavation Class 3, upstream toe wall trench from Station 0+00 to 4+85	2,199
19.	Excavation Class 3, main cutoff trench under dam	
	(a) 6' neat line trench from N 3060 to N 4040	4,817
	(b) 6' bottom, 1 on 1 slopes from N 3060 to N 3980	3,981
20.	Excavation Class 5, tunnel excavation	
	(a) Station 0+00 to Station 7+00	17,892
	(b) " 7+00 " " 9+61.5	6,028
	(c) " 9+61.5 " 11+72.77	5,334
	(d) Outlet tower shaft	1,923
	(e) Cleaning floor exploration tunnel #1	19
	(f) Cleaning floor exploration tunnel #2	7

SUMMARY BY SCHEDULE ITEMS

Schedule Item	Determination of schedule items	
1.	Excavation Class 1, solid rock originating in structure excavation including placing and sorting in dam.	
	Rock embankment 2(1)	29,254
	3(1)	7,279
	4(1)	<u>926</u>
	Total schedule item 1	37,459
2.	Rock embankment Class 1 rock originating in borrow pit only including placing and sorting in dam, measured in embankment.	
	Rock embankment 1(2)	6,236
	2(2)	459,615
	3(2)	218,476
	4(2)	<u>22,162</u>
	Total schedule item 2	706,489
3.	Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation, including placing and sorting in hydraulic fill.	
	Hydraulic fill 1(3)	212,600
	Total schedule item 3	212,600
5.	Embankment Class 2, clay, earth, sand, gravel and other embankment originating in borrow pit only including placing and sorting in hydraulic fill.	
	Hydraulic fill 1(5)	862,378
	Total schedule item 5	862,378

- 7. Excavation Class 3, cutoff trench excavation under dam including placing and sorting in dam.

Rock embankment	2(7)	469
	3(7)	173
Hydraulic fill	1(7)	3,213

Total schedule item 7

3,855

- 9. Excavation Class 5 outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.

Rock embankment	1(9)	4,481
	2(9)	5,933
	3(9)	1,743
	4(9)	28
Hydraulic fill	1	1,941

Total schedule item 9

14,126

- 10. Excavation Class 1, solid rock originating in structure excavation and wasted.

Overall excavation

Excavation	1	12,831
	2	26,645
	3	276
	4	2,537
	5	356
	6	4,555
	7	4,222
	8	632
	9	234
	10	<u>764</u>

Total overall excavation Class 1

53,052

Excavation Class 1 placed in dam measured in excavation.

Schedule item 1	37,459
Excavation wasted	15,593
27.5 percent swell	<u>4,288</u>
As if measured in spoil bank	19,881

Total schedule item 10

19,881

- 11. Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.

Overall excavation

11.	Excavation	11	10,105	
		12	10,467	
		13	73,226	
		14	88,968	
		15	95,441	
		16	<u>287,787</u>	
	Total overall			565,994
	Placed in dam:			
	Hydraulic fill 2(3)			212,600
	(schedule item 3)			
	Excavation wasted, as if measured in			
	spoil bank on basis of no swell or			
	shrinkage			353,394
	Total schedule item 11			353,394
12.	Excavation Class 3, cutoff trench excavation			
	under dam and wasted.			
	Overall excavation:			
	Excavation	17	1,835	
		18	2,199	
		19a	4,817	
		19b	<u>3,981</u>	
	Total overall			
	excavation Class 3			12,832
	Excavation Class 3 placed in			
	dam measured in excavation			
	Schedule item 7			3,855
	Excavation wasted		8,977	
	Swell 27.5 percent		<u>2,469</u>	
	As if measured in spoil bank			11,446
	Total schedule item 12			11,446
14.	Excavation Class 5, tunnel excavation			
	excepting open cut excavation, but wasted.			
	Overall excavation:			
	Excavation 20a		17,892	
	b		6,028	
	c		5,334	
	d		1,923	
	e and f		<u>26</u>	
	Total overall tunnel excavation			31,203
	Tunnel excavation placed in dam measured			
	in excavation, schedule item 9			14,126
	Tunnel excavation wasted			
	measured in excavation		17,077	
	Swell 27.5 percent		<u>4,695</u>	
	As if measured in spoil bank			21,772
	Total schedule item 14 as if			
	measured in spoil bank			21,772

H. W. ROHL & T. E. CONNOLLY

Contractors

LAKESIDE, Calif.

October 5, 1933

Mr. H. N. Savage, Hydraulic Engineer,
San Diego, Calif.

Subject: San Diego River Project, El Capitan
Feature, Classification and Measure
of Quantities.

Dear Sir;

In accordance with the Contractor's privilege of protest of any monthly estimate, as set forth in paragraph 54 of the contract specifications, we especially object to the quantities and classifications of quantities as for the different bid items of estimate No. 16 for the month September, 1933, and as set forth in statement submitted by Mr. H. N. Savage, Hydraulic Engineer, under date of September 28, 1933 for the following reasons.

The assumptions set forth under which the estimate is completed are erroneous and contrary to our contract in the following respects.

(a) There is no excavation Class 2 to be placed in embankment Class 2 and therefore no justification for the arbitrary assumption that excavation Class 2 would neither swell nor shrink if measured in embankment Class 2.

(b) There is no excavation either Class 1, 3 or 5 to be placed in embankment Class 2 and therefore there is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would neither swell nor shrink if measured in embankment Class 2.

(c) There is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would swell 27½% if measured in Class 1. Furthermore our contract provides such excavation shall be measured in excavation and not in embankment Class 1.

(d) The estimate does not include payment to the Contractors for idle equipment, standby charges and damages for the period from April 10, 1933 to May 31, 1933 in accordance with our claim on file.

Item 1. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (a) of the contract specifications.

Item 5. The deduction of 3,544 cubic yards is incorrect.

Item 7. Not correct as to quantities.

Item 9. The quantities are wrong as to method of measurement. Page 32, Paragraph 55 (b) of the contract specifications.

Item 10. The quantities shown are wrong as to classification and method of measurement. Page 31, Paragraph 54. Page 32, Paragraph 55 (b) of the Contract Specifications.

Item 11. The quantities shown are wrong as to classification and method of measurement. Page 31, Paragraph 54, and 55 (b) of the Contract Specifications.

Item 12. The quantities shown are wrong as to classification and measurement. Page 31, Paragraph 54; Paragraph 55 (b) of the Contract Specifications.

Item 14. The quantities shown are wrong as to method of measurement. Page 32, Paragraph 55 (b) of the Contract Specifications.

Item 17. The quantities shown are wrong as to classification.

Item 23. Incorrectly computed.

Item 24. Incorrectly computed.

Item 26. Not correct as to quantity.

Item 33. Not correct as to quantity.

Item 34. Not correct as to quantity.

Items 3, 16, 20, 21, 25, 27, 28, 29, 31, 35, 36, 37, 40, 43, 45 and 46 as set forth in estimate No. 16 are acceptable only as an approximate estimate, it being the Contractors' understanding that the Hydraulic Engineer has ruled that all progress estimates are subject to change and correction by final measurements at the time of completion of the work and issuance of the final estimate.

Yours very truly,

H. W. Rohl & T. E. Connolly

Per (Signed) T E Connolly

October 10, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-52

Subject: San Diego River Project, El Capitan
Feature, Progress Estimate No. 16,
Determination of pay quantities.

Gentlemen:

Receipt is acknowledged of your letter dated October 5, 1933, objecting and protesting to the quantities and classification of quantities as shown in the different schedule items of Progress Estimate No. 16 for the month of August 1933, details of which, relating to excavation and embankment quantities for El Capitan Dam were set out in letter to you dated September 28, 1933.

Much excavation Class 2 has been placed by you in hydraulic fill and intermingled with embankment Class 2. In taking the overall measurements of hydraulic fill it has sometimes been referred to as embankment Class 2. However, the specifications state that embankment Class 2 originates in borrow pit only.

The above also applies to excavation Class 1, 3 and 5 and rock embankment where overall quantities have sometimes been referred to as Class 1 when the specifications state that embankment Class 1 originates only in borrow pit, i.e. quarry.

The Contractor's lack of an orderly program and method of work prior to April 1, 1933 made it physically impossible for the Engineer to identify the source of and to measure wasted material in spoil banks, and, therefore, in order to arrive at a proper quantity in lieu of spoil bank measurements, an estimated quantity due to probable swell in addition to excavation measurement was included to show as nearly as possible the volume which such materials actually occupied in the spoil bank.

All structure excavation is measured in excavation, but the contract specifications provide that embankment Class 1 and 2 include materials originating in borrow pits (and quarries) only, and therefore you are not entitled to the yardage represented by the swell of excavated material originating in structure excavation, especially excavation Class 1, 3 and 5 when placed in rock embankment.

The above statements apply to your general references to quantities under Schedule Items 1, 5, 7, 9, 10, 11, 12 and 14 wherein you state that the quantities are wrong as to method of measurement.

Your claim for \$131,289.83, which you allege was the amount of direct and unavoidable extra cost caused by your suspension of contract work April 10, 1933, was denied on September 18, 1933 by Council Resolution No. 60727.

The deduction of 3544 cubic yards from Item 5 was made in accordance with my letter to you of March 1, 1933 wherein it was made optional to you to remove and replace improperly placed material at your own expense, or proceed with the work, in which event the incompletely placed material not removed would not be included in the monthly estimates.

You state that the quantities under Schedule Items 10, 11, 12, and 14 are wrong as to classification, but you do not state in what particular they are wrong, so that proper investigation may be made.

Concrete placed in the outlet tower footing has been included in Item 17, and concrete placed in the outlet tower above the top of the footing has been included in Item 23. If this is not in accordance with your interpretation of the contract specifications, an additional statement from you will be appreciated.

You state that the quantities under Items 23, 24, 26, 33, and 34 in the estimate are not correct but you do not state in what particular they are incorrect so that proper investigation may be made.

Very truly yours

H. N. Savage,
Hydraulic Engineer.

FDP/p

cc H.W.Rohl & T.E.Connolly, El Capitan Dam
Contractor's Resident Representative
City Manager
City Attorney
City's Resident Engineer

H. W. ROHL & T. E. CONNOLLY
Contractors

El Capitan Dam
Via-Lakeside, California
October 18, 1933

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego, California

Dear Sir:

Re: El Capitan Reservoir
Dam, Spillway and
Outlet Works.

Please furnish the Contractor with a statement with refer-
ence to Estimate No. 17 for the month of September 1933,
of the quantities and classifications between successive
stations as provided in paragraph #54 and #55 of the speci-
fications in contract for the El Capitan Reservoir Dam,
Spillway and Outlet Works.

Yours very truly,

H. W. ROHL - T. E. CONNOLLY

By (Signed) T E Connolly

October 27, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-60

Subject: San Diego River Project, El Capitan
Feature, request for statement of
quantities and classifications
Estimate No. 17.

Gentlemen:

Pursuant to your written request dated October 18,
1933 for a statement of the quantities and classifica-
tion between successive stations of the excavation and
embankment quantities shown on progress estimate No. 17
for contract work done on El Capitan Dam for the month of
September 1933, you are herewith furnished the attached
statement showing the information requested.

If this statement is not satisfactory to you, specific
objections with reasons therefor should be filed in writing
with the Engineer in accordance with paragraph 54 of the
contract specifications.

Very truly yours,

H. N. Savage,
Hydraulic Engineer

/f

encl.

cc-John M. Martin, Attorney for Contractor
H.W.Rohl & T.E.Connolly, El Capitan Dam
Contractor's Resident Representative
City Manager
City Attorney
City's Resident Engineer

CITY OF SAN DIEGO, CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl & T. E. Connolly, under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including September 1933 and included in progress estimate No.17.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 per cent if measured in spoil bank or in rock embankment, and

That excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in hydraulic fill, and

That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in hydraulic fill.

All quantities are stated in cubic yards.

ROCK EMBANKMENT: Stations, classification and quantities:

1. From N 3440 to N 3850 and from E 5590 to toe wall (Above upstream toe wall)		
Overall embankment measured in embankment		11,949
(9) Excavation Class 5	4,481	
27.5 per cent swell	<u>1,232</u>	
As if measured in embankment	5,713	
(2) Embankment Class 1	6,236	
2. From N 3100 to N 4140 and from E 5135 to toe wall (Below upstream toewall)		
Overall embankment measured in embankment		533,774
(1) Excavation Class 1	34,119	
27.5 per cent swell	<u>9,383</u>	
As if measured in embankment	43,502	
(7) Excavation Class 3	469	
27.5 per cent swell	<u>129</u>	
As if measured in embankment	598	
(9) Excavation Class 5	6,050	
27.5 per cent swell	<u>1,664</u>	
As if measured in embankment	7,714	
(2) Embankment Class 1	481,960	

3. From N 3180 to N 3960 and from E 4752 to toe wall
(Above downstream toe wall)

Overall embankment measured in embankment 247,576

(1) Excavation Class 1	8,785
27.5 per cent swell	<u>2,415</u>
As if measured in embankment	11,200
(7) Excavation Class 3	173
27.5 per cent swell	<u>48</u>
As if measured in embankment	221
(9) Excavation Class 5	1,743
27.5 per cent swell	<u>479</u>
As if measured in embankment	2,222
(2) Embankment Class 1	233,933

4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 23,379

(1) Excavation Class 1	926
27.5 per cent swell	<u>255</u>
As if measured in embankment	1,181
(9) Excavation Class 5	28
27.5 per cent swell	<u>8</u>
As if measured in embankment	36
(2) Embankment Class 1	22,162

HYDRAULIC FILL: Stations, classification and quantities.

1. From N 3120 to N 4100 and from E 4677 to E 5232

Overall embankment measured in embankment, except for 3,544 cubic yards material above the foundation line of the hydraulic fill placed contrary to directions of Hydraulic Engineer 1,183,582

(3) Excavation Class 2	212,600
(7) Excavation Class 3	3,213
(8) Excavation Class 4	702
(9) Excavation Class 5 measured in excavation	1,941
(5) Embankment Class 2 3544 cubic yards Class 2 embankment not sorted by hydraulic means not included in estimate	965,126

EXCAVATION: Measured in excavation

1.	Excavation Class 1, detached solid rock from stripping for base of dam, from structure and other excavation, except spillway	13,422
2.	Excavation Class 1, detached solid rock from spillway excavation	32,425
3.	Excavation Class 1, detached solid rock from Station 0+14 to -2+95 tunnel entrance	276
4.	Excavation Class 1, ledge rock in place from Station 0+14 to 0-50 tunnel entrance	2,537
5.	Excavation Class 1, detached solid rock from Station 11+67.8 to 15+30 tunnel exit	356
6.	Excavation Class 1, ledge rock in place from Station 11+67.8 to 13+82.8 tunnel exit	4,555
7.	Excavation Class 1, ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	4,222
8.	Excavation Class 1, ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5510	632
9.	Excavation Class 1, ledge rock in place from N 3420 to N 3460 and from E 4474 to E 4512	234
10.	Excavation Class 1, ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460	764
11.	Excavation Class 2, Station 0+14 to -2+95 tunnel entrance	10,105
12.	Excavation Class 2, Station 11+67.8 to 15+30 tunnel exit	10,467
13.	Excavation Class 2, stripping for base of dam from N 3220 to N 3920 and from E 4320 to E 4500 under downstream rock embankment	73,226
14.	Excavation Class 2, stripping for base of dam from E 3160 to E 4670 and from E 5140 to E 5590 under upstream rock embankment	88,968
15.	Excavation Class 2, stripping for base of dam from N 3060 to N 4090 and from E 4680 to E 5220 under hydraulic embankment	95,457
16.	Excavation Class 2, spillway excavation from Station 0+00 to 10+79	390,463
17.	Excavation Class 3, downstream toe wall trench from Station 0-60 to 4+02.14	1,835

18.	Excavation Class 3, upstream toe wall trench from Station 0+00 to 4+85	2,199
19.	Excavation Class 1, main cutoff trench under dam (a) 6' neat line trench from N 3060 to N 4040 (b) 6' bottom, 1 on 1 slopes from N 3060 to N 3980	4,817 3,981
20.	Excavation Class 4, cut off trench under spillway Station 0+48 to Station 3+60	702
21.	Excavation Class 5, tunnel excavation (a) Station 0+00 to Station 11+72.77 (b) Outlet tower shaft (c) Cleaning floor exploration tunnel #1 and #2	29,370 1,983 26

SUMMARY BY SCHEDULE ITEMS

Schedule Item	Determination of schedule items	
1.	Excavation Class 1, solid rock originating in structure excavation including placing and sorting in dam. Rock embankment 2 (1) 34,119 3 (1) 8,785 4 (1) 426	
	Total schedule item 1	43,830
2.	Rock embankment Class 1 rock originating in borrow pit only including placing and sorting in dam, measured in embankment. Rock embankment 1(2) 6,236 2(2) 481,960 3(2) 233,933 4(2) 22,162	
	Total schedule item 2	744,291
3.	Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation, including placing and sorting in hydraulic fill. Hydraulic fill 1(3) 212,600	
	Total schedule item 3	212,600
5.	Embankment Class 2, clay, earth, sand, gravel and other embankment originating in borrow pit only including placing and sorting in hydraulic fill. Hydraulic fill 1(5) 965,126	
	Total schedule item 5	965,126

7. Excavation Class 3, cutoff trench excavation under dam including placing and sorting in dam.

Rock embankment	2(7)	469
	3(7)	173
Hydraulic fill	1(7)	3,213

Total schedule item 7 3,855

9. Excavation Class 5 outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.

Rock embankment	1(9)	4,481
	2(9)	6,050
	3(9)	1,743
	4(9)	28

Hydraulic fill	1	1,941
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Total schedule item 9 14,243

10. Excavation Class 1, solid rock originating in structure excavation and wasted.

Overall excavation

Excavation	1	13,422
	2	32,425
	3	276
	4	2,537
	5	356
	6	4,555
	7	4,222
	8	632
	9	234
	10	<u>764</u>

Total overall excavation Class 1 59,423

Excavation Class 1 placed in dam measured in excavation.

Less Schedule item 1	43,830
Excavation wasted	15,593
27.5 percent swell	4,288
As if measured in spoil bank	<u>19,881</u>

Total schedule item 10 19,881

11. Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.

Overall excavation

11.	Excavation	11	10,105	
		12	10,467	
		13	73,226	
		14	68,968	
		15	95,457	
		16	<u>390,463</u>	
	Total overall			668,686

Placed in dam:
 Hydraulic fill 2(3)
 (schedule item 3) 212,600

Excavation wasted, as if measured in
 spoil bank on basis of no swell or
 shrinkage 456,086
 Swell on excavation, item 16 18,511

Total schedule item 11 474,597

12. Excavation Class 3, cutoff trench excavation
 under dam and wasted.

Overall excavation:				
	Excavation	17	1,835	
		18	2,199	
		19a	4,817	
		19b	<u>3,981</u>	
	Total overall excavation Class 3			12,832

Excavation Class 3 placed in
 dam measured in excavation
 Schedule item 7 3,855

Excavation wasted 8,977
 Swell 27.5 percent 2,469
 As if measured in spoil bank 11,446

Total schedule item 12 11,446

14. Excavation Class 5, tunnel excavation
 excepting open cut excavation, but wasted.
 Overall excavation:

	Excavation 20a		29,370	
		b	1,923	
		c	26	
	Total overall tunnel excavation		<u>31,319</u>	

Tunnel excavation placed in dam measured
 in excavation, schedule item 9 14,243

Tunnel excavation wasted
 measured in excavation 17,077
 Swell 27.5 percent 4,695
 As if measured in spoil bank 21,772

Total schedule item 14 as if
 measured in spoil bank 21,772

H. W. ROHL & T. E. CONNOLLY
Contractors

November 4, 1933

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego, California

Subject: San Diego River Project, El Capitani
Dam Feature, Classification and Measurement
of Quantities.

Dear Sir:

In accordance with the Contractors' privilege of any monthly estimate, as set forth in paragraph 54 of the contract specifications, we specifically object to the quantities and classifications of quantities as for the different bid items of estimate No. 17 for the month of September 1933 and as set forth in statement transmitted by Mr. H. N. Savage, Hydraulic Engineer, under date of October 27, 1933 for the following reasons:

The assumptions set forth under which the estimate is completed are erroneous and contrary to our contract in the following respects:

(a) There is no excavation Class 2 to be placed in embankment Class 2 and therefore no justification for the arbitrary assumption that excavation Class 2 would neither swell nor shrink if measured in embankment Class 2.

(b) There is no excavation either Class 1, 3 or 5 to be placed in embankment Class 2 and therefore there is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would neither swell or shrink if measured in embankment Class 2.

(c) There is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would swell 27½% if measured in embankment Class 1. Furthermore our contract provides such excavation shall be measured in excavation and not in embankment Class 1.

(d) The estimate does not include payment to the Contractors for idle equipment, stand by charges and damages for the period from April 10, 1933 to May 31, 1933 in accordance with our claim on file.

(e) There is no justification for the arbitrary assumption that Class 2 would not swell if measured in spoil bank.

Item 1. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(a) of the Contract Specifications.

Item 5. The deduction of 3,544 cubic yards is incorrect.

Item 7. Not correct as to quantity.

-2-

Item 9. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 10. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 54. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 11. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 54 and 55 - (b) of the Contract Specifications.

Item 12. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraph 55(b) of the Contract Specifications.

Item 14. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 17. The quantities shown are wrong as to classification.

Item 23. Incorrectly computed.

Item 24. Incorrectly computed.

Item 26. Not correct as to quantity.

Item 33. Not correct as to quantity.

Item 34. Not correct as to quantity.

Items 3, 8, 16, 20, 21, 22, 25, 27, 28, 29, 31, 35, 36, 37, 40, 43, 45 and 46 as set forth in Estimate No.17 are acceptable only as an approximate estimate, it being the contractors understanding that the Hydraulic Engineer has ruled that all progress estimates are subject to change and correction by final measurements at the time of completion of the work and issuance of a final estimate.

Yours very truly,

H. W. ROHL & T. E. CONNOLLY

(Signed) T E Connolly

November 7, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-61

Subject: San Diego River Project, El Capitan
Feature, Progress Estimate No. 17
Determination of pay quantities

Gentlemen:

Receipt is acknowledged of your letter dated November 4, 1933, objecting and protesting to the quantities and classification of quantities as shown in the different schedule items of Progress Estimate No. 17 for the month of September 1933, details of which, relating to excavation and embankment quantities for El Capitan Dam were set out in letter to you dated October 27, 1933.

Much excavation Class 2 has been placed by you in hydraulic fill and intermingled with embankment Class 2. In taking the overall measurements of hydraulic fill it has sometimes been referred to as embankment Class 2. However, the specifications state that embankment Class 2 originates in borrow pit only.

The above also applies to excavation Class 1, 3 and 5 and rock embankment where overall quantities have sometimes been referred to as Class 1 when the specifications state that embankment Class 1 originates only in borrow pit, i.e. quarry.

The Contractor's lack of an orderly program and method of work prior to April 1, 1933 made it physically impossible for the Engineer to identify the source of and to measure wasted material in spoil banks, and, therefore, in order to arrive at a proper quantity in lieu of spoil bank measurements, an estimated quantity due to probable swell in addition to excavation measurement was included to show as nearly as possible the volume which such materials actually occupied in the spoil bank. All excavation material wasted since April 1, 1933 has been measured in spoil banks.

All structure excavation is measured in excavation, but the contract specifications provide that embankment Class 1 and 2 include materials originating in borrow pits (and quarries) only, and therefore you are not entitled to the yardage represented by the swell of excavated material originating in structure excavation, especially excavation Class 1, 3 and 5 when placed in rock embankment.

The above statements apply to your general references to quantities under Schedule Items 1, 5, 7, 9, 10, 11, 12 and 14 wherein you state that the quantities are wrong as to method of measurement.

Your claim for \$131,289.83, which you allege was the amount of direct and unavoidable extra cost caused by your suspension of contract work April 10, 1933, was denied on September 18, 1933 by Council Resolution No. 60727.

The deduction of 3544 cubic yards from Item 5 was made in accordance with my letter to you of March 1, 1933 wherein it was made optional to you to remove and replace improperly placed material at your own expense, or proceed with the work, in which event the incompletely placed material not removed would not be included in the monthly estimates.

You state that the quantities under Schedule Items 10, 11, 12 and 14 are wrong as to classification but you do not state in what particular they are wrong so that proper investigation may be made.

Concrete placed in the outlet tower footing has been included in Item 17, and concrete placed in the outlet tower above the top of the footing has been included in Item 23. If this is not in accordance with your interpretation of the contract specifications, an additional statement from you will be appreciated.

You state that the quantities under Items 23, 24, 26, 33, and 34 in the estimate are not correct but you do not state in what particular they are incorrect so that proper investigation may be made.

Very truly yours,

H. N. Savage
Hydraulic Engineer

FDP/p

cc H.W.Rohl & T.E.Connolly

El Capitan Dam

Contractor's Resident Representative

City Manager

City Attorney

City's Resident Engineer

H. W. ROHL & T. E. CONNOLLY
Contractors

El Capitan Dam
Via-Lakeside, California
November 17, 1933

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego, California

Re: Estimate No. 18
Month of October 1933

Dear Sir:

Kindly furnish the contractor with a statement of the quantities and classifications between successive stations as provided in paragraphs 54 and 56 of the specifications and contract for El Capitan Dam, Spillway and Outlet Works.

Yours very truly,

H. W. ROHL & T. E. CONNOLLY

By (Signed) O C Steves
Superintendent

November 22, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-65

Subject: San Diego River Project,
El Capitan Feature, request for
statement of quantities and
classifications, Estimate No. 18.

Gentlemen:

Pursuant to your written request dated November 17 1933 for a statement of the quantities and classification between successive stations of the excavation and embankment quantities shown on progress estimate No. 18 for contract work done on El Capitan Dam for the month of October 1933, you are herewith furnished the attached statement showing the information requested.

If this statement is not satisfactory to you, specific objections with reasons therefor should be filed in writing with the Engineer in accordance with paragraph 54 of the contract specifications.

Very truly yours,

H. N. Savage,
Hydraulic Engineer

/p
encl.

CITY OF SAN DIEGO, CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl & T. E. Connolly, under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including October 1933 and included in progress estimate No. 18.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 percent if measured in spoil bank or in rock embankment, and

That excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in hydraulic fill, and

That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in hydraulic fill.

All quantities are stated in cubic yards.

ROCK EMBANKMENT: Stations, classification and quantities:

- From N 3440 to N 3850 and from E 5590 to toe wall
(Above upstream toe wall)

Overall embankment measured in embankment 11,949

(9) Excavation Class 5	4,481
27.5 percent swell	<u>1,232</u>
As if measured in embankment	5,713
(2) Embankment Class 1	6,236

- From N 3080 to N 3980 and from E 5135 to toe wall
(Below upstream toe wall)

Overall embankment measured in embankment 558,106

(1) Excavation Class 1	37,135
27.5 percent swell	<u>10,212</u>
As if measured in embankment	47,347
(7) Excavation Class 3	469
27.5 percent swell	<u>129</u>
As if measured in embankment	598
(9) Excavation Class 5	6,050
27.5 percent swell	<u>1,664</u>
As if measured in embankment	7,714
(2) Embankment Class 1	502,447

- 3. From N 3180 to N 3980 and from E 4752 to toe wall
(Above downstream toe wall)

Overall embankment measured in embankment 260,311

(1) Excavation Class 1	13,410
27.5 percent swell	<u>3,688</u>
As if measured in embankment	17,098
(7) Excavation Class 3	173
27.5 percent swell	<u>48</u>
As if measured in embankment	221
(9) Excavation Class 5	1,743
27.5 percent swell	<u>479</u>
As if measured in embankment	2,222
(2) Embankment Class 1	240,770

- 4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 23,379

(1) Excavation Class 1	926
27.5 percent swell	<u>255</u>
As if measured in embankment	1,181
(9) Excavation Class 5	28
27.5 percent swell	<u>8</u>
As if measured in embankment	36
(2) Embankment Class 1	22,162

HYDRAULIC FILL: Stations, classification and quantities:

- 1. From N 3180 to N 4000 and from E 4677 to E 5232

Overall embankment measured in embankment, except for 3,544 cubic yards material above the foundation line of the hydraulic fill placed contrary to directions of Hydraulic Engineer 1,232,058

(3) Excavation Class 2	216,388
(7) Excavation Class 3	3,685
(8) Excavation Class 4	976
(9) Excavation Class 5 measured in excavation	1,941
(5) Embankment Class 2	1,009,068
3,544 cubic yards Class 2 embankment not sorted by hydraulic means not included in estimate	

EXCAVATION: Measured in excavation.

1.	Excavation Class 1, detached solid rock from stripping for base of dam, from structure and other excavation, except spillway	13,422
2.	Excavation Class 1, detached solid rock from spillway excavation	40,066
3.	Excavation Class 1, detached solid rock from Station 0+14 to -2+95 tunnel entrance	276
4.	Excavation Class 1, ledge rock in place from Station 0+14 to 0-50 tunnel entrance	2,537
5.	Excavation Class 1, detached solid rock from Station 11+67.8 to 15+30 tunnel exit	356
6.	Excavation Class 1, ledge rock in place from Station 11+67.8 to 13+82.8 tunnel exit	4,555
7.	Excavation Class 1, ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	4,222
8.	Excavation Class 1, ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5510	632
9.	Excavation Class 1, ledge rock in place from N 3420 to N 3460 and from E 4474 to E 4512	234
10.	Excavation Class 1, ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460	764
11.	Excavation Class 2, Station 0+14 to -2+95 tunnel entrance	10,105
12.	Excavation Class 2, Station 11+67.8 to 15+30 tunnel exit	10,467
13.	Excavation Class 2, stripping for base of dam from N 3110 to N 3970 and from E 4320 to E 4800 under downstream rock embankment	73,804
14.	Excavation Class 2, stripping for base of dam from N 3090 to N 4160 and from E 5140 to E 5590 under upstream rock embankment	92,162
15.	Excavation Class 2, stripping for base of dam from N 3050 to N 4100 and from E 4680 to E 5220 under hydraulic embankment	95,457
16.	Excavation Class 2, spillway excavation from Station 0+00 to 10+79	425,305
17.	Excavation Class 3, downstream toe wall trench from Station 0-60 to 4+02.14	1,835

18. Excavation Class 3, upstream toewall trench from Station 0+00 to 4+85	2,199
19. Excavation Class 3, main cutoff trench under dam (a) 6' neat line trench from N 3060 to N 4088 (b) 6' bottom, 1 on 1 slopes from N 3060 to N 4088	5,074 4,196
20. Excavation Class 4, cutoff trench under spillway Station 0+48 to 5+13	976
21. Excavation Class 5, tunnel excavation (a) Station 0+00 to 11+72.77 (b) Outlet tower shaft (c) Cleaning floor exploration tunnels 1 and 2	29,370 1,923 26

SUMMARY BY SCHEDULE ITEMS

Schedule Item Determination of schedule items

1. Excavation Class 1, solid rock originating in structure excavation including placing and sorting in dam. Rock embankment 2(1) 37,135 3(1) 13,410 4(1) 926 Total schedule item 1	51,471
2. Rock embankment Class 1 rock originating in borrow pit only including placing and sorting in dam, measured in embankment. Rock embankment 1(2) 6,236 2(2) 502,447 3(2) 240,770 4(2) 22,162 Total schedule item 2	771,615
3. Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation, including placing and sorting in hydraulic fill. Hydraulic fill 1(3) 216,388 Total schedule item 3	216,388
5. Embankment Class 2, clay, earth, sand, gravel and other embankment originating in borrow pit only including placing and sorting in hydraulic fill. Hydraulic fill 1(5) 1,009,068 Total schedule item 5	1,009,068

7. Excavation Class 3, cutoff trench excavation under dam including placing and sorting in dam.

Rock embankment	2(7)	469
	3(7)	173
Hydraulic fill	1(7)	<u>3,685</u>

Total schedule item 7

4,327

8. Excavation Class 4 cutoff trench excavation under spillway including placing and sorting in dam.

Hydraulic fill	1(8)	976
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Total schedule item 8

976

9. Excavation Class 5 outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.

Rock embankment	1(9)	4,481
	2(9)	6,050
	3(9)	1,743
	4(9)	28
Hydraulic fill	1	<u>1,941</u>

Total schedule item 9

14,243

10. Excavation Class 1, solid rock originating in structure excavation and wasted.

Overall excavation.

Excavation	1	13,422
	2	40,066
	3	276
	4	2,537
	5	356
	6	4,555
	7	4,222
	8	632
	9	234
	10	<u>764</u>

Total overall excavation Class 1

67,064

Excavation Class 1 placed in dam measured in excavation.

Schedule item 1		
Excavation wasted		15,593
27.5 percent swell		<u>4,288</u>

51,471

As if measured in spoil bank

19,881

Total schedule item 10

19,881

11. Excavation Class 2 earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.

Overall excavation.

Excavation	11	10,105	
	12	10,467	
	13	73,804	
	14	92,162	
	15	95,457	
	16	<u>425,305</u>	

Total overall 707,300

Placed in dam:

Hydraulic fill	2(3)		216,388
(schedule item 3)			

Excavation wasted, as if measured in spoil bank on basis of no swell or shrinkage

490,912

Swell on excavation item 16

37,988

Total schedule item 11

528,900

12. Excavation Class 3, cutoff trench excavation under dam and wasted.

Overall excavation:

Excavation	17	1,835
	18	2,199
	19a	5,074
	19b	<u>4,196</u>

Total overall excavation Class 3 13,304

Excavation Class 3 placed in dam measured in excavation

Schedule item 7 4,327

Excavation wasted	8,977
27.5 percent swell	<u>2,469</u>

As if measured in spoil bank 11,446

Total schedule item 12

11,446

14. Excavation Class 5, tunnel excavation excepting open cut excavation, but wasted.

Overall excavation:

Excavation	21a	29,370
	b	1,923
	c	<u>26</u>

Total overall tunnel excavation 31,319

Tunnel excavation placed in dam measured in excavation.

Schedule item 9 14,243

Tunnel excavation wasted measured in excavation	17,076
27.5 percent swell	<u>4,696</u>

As if measured in spoil bank 21,772

Total schedule item 14 as if measured in spoil bank

21,772

H. W. ROHL & T. E. CONNOLLY
Contractors

December 1, 1933

Mr. H. N. Savage,
Hydraulic Engineer
City of San Diego, California.

Subject: San Diego River Project, El Capitan
Dam Feature, Classification and
Measurement of Quantities.

Dear Sir:

In accordance with the Contractors' privilege of any monthly estimate, as set forth in paragraph 54 of the contract specifications, we specifically object to the quantities and classifications of quantities as for the different bid items of estimate No. 18 for the month of October 1933, and as set forth in statement transmitted by Mr. H. N. Savage, Hydraulic Engineer, under date of November 22, 1933 for the following reasons:

The assumptions set forth under which the estimate is completed are erroneous to our contract in the following respects:

(a) There is no excavation Class 2 to be placed in embankment Class 2 and therefore no justification for the arbitrary assumption that excavation Class 2 would neither swell nor shrink if measured in embankment Class 2.

(b) There is no excavation either Class 1, 3 or 5 to be placed in embankment Class 2 and therefore there is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would neither swell or shrink if measured in embankment Class 2.

(c) There is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would swell 27½% if measured in embankment Class 1. Furthermore our contract provides such excavation shall be measured in excavation and not in embankment Class 1.

(d) The estimate does not include payment to the Contractors for idle equipment, stand by charges and damages for the period from April 10, 1933 to May 31, 1933 in accordance with our claim on file.

(e) There is no justification for the arbitrary assumption that Class 2 would not swell if measured in spoil bank.

Item 1. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(a) of the Contract Specifications.

Item 5. The deduction of 3,544 cubic yards is incorrect.

Item 7. Not correct as to quantity.

Item 9. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 10. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 54, Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 11. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 54 and 55(b) of the Contract Specifications.

Item 12. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraph 55(b) of the Contract Specifications.

Item 14. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 17. The quantities shown are wrong as to classification.

Item 23. Incorrectly computed.

Item 24. Incorrectly computed.

Item 26. Not correct as to quantity.

Item 33. Not correct as to quantity.

Item 34. Not correct as to quantity.

Items 3, 8, 16, 20, 21, 22, 25, 27, 28, 29, 31, 35, 36, 37, 40, 43, 45 and 46 as set forth in Estimate No. 18 are acceptable only as an approximate estimate, it being the contractors understanding that the Hydraulic Engineer has ruled that all progress estimates are subject to change and correction by final measurements at the time of completion of the work and issuance of a final estimate.

Yours very truly,

H.W.Rohl-T.E.Connolly

By (Signed) O C Steves
Superintendent

December 4, 1933

Messrs. H. W. Rohl & T. E. Connolly
4351 Alhambra Avenue
Los Angeles, California.

S-69

Subject: San Diego River Project, El Capitan
Feature, Progress Estimate No. 18
Determination of pay quantities.

Gentlemen:

Receipt is acknowledged of your letter dated December 1, 1933, objecting and protesting to the quantities and classification of quantities as shown in the different schedule items of Progress Estimate No. 18 for the month of October 1933, details of which, relating to excavation and embankment quantities for El Capitan Dam were set out in letter to you dated November 22, 1933.

Much excavation Class 2 has been placed by you in hydraulic fill and intermingled with embankment Class 2. In taking the overall measurements of hydraulic fill it has sometimes been referred to as embankment Class 2. However, the specifications state that embankment Class 2 originates in borrow pit only.

The above also applies to excavation Class 1, 3 and 5 and rock embankment where overall quantities have sometimes been referred to as Class 1 when the specifications state that embankment Class 1 originates only in borrow pit, i.e. quarry.

The Contractor's lack of an orderly program and method of work prior to April 1, 1933 made it physically impossible for the Engineer to identify the source of and to measure wasted material in spoil banks, and, therefore, in order to arrive at a proper quantity in lieu of spoil bank measurements, an estimated quantity due to probable swell in addition to excavation measurement was included to show as nearly as possible the volume which such materials actually occupied in the spoil bank. All excavation material wasted since April 1, 1933 has been measured in spoil banks.

All structure excavation is measured in excavation, but the contract specifications provide that embankment Class 1 and 2 include materials originating in borrow pits (and quarries) only, and therefore you are not entitled to the yardage represented by the swell of excavated material originating in structure excavation, especially excavation Class 1, 3 and 5 when placed in rock embankment.

The above statements apply to your general references to quantities under Schedule Items 1, 5, 7, 9, 10, 11, 12 and 14 wherein you state that the quantities are wrong as to method of measurement.

Your claim for \$131,289.83, which you allege was the amount of direct and unavoidable extra cost caused by your suspension of contract work April 10, 1933, was denied on September 18, 1933 by Council Resolution No. 60727.

The deduction of 3544 cubic yards from Item 5 was made in accordance with my letter to you of March 1, 1933 wherein it was made optional to you to remove and replace improperly placed material at your own expense, or proceed with the work, in which event the incompletely placed material not removed would not be included in the monthly estimates.

You state that the quantities under Schedule Items 10, 11, 12 and 14 are wrong as to classification but you do not state in what particular they are wrong so that proper investigation may be made.

Concrete placed in the outlet tower footing has been included in Item 17, and concrete placed in the outlet tower above the top of the footing has been included in Item 23. If this is not in accordance with your interpretation of the contract specifications, an additional statement from you will be appreciated.

You state that the quantities under Items 23, 24, 26, 33, and 34 in the estimate are not correct but you do not state in what particular they are incorrect so that proper investigation may be made.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

FDF/P

H. W. ROHL & T. E. CONNOLLY
Contractors

El Capitan Dam
Via-Lakeside, California
December 15, 1933.

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego, California.

Subject: San Diego River Project, El
Capitan Dam Feature, Estimate
No. 19 Month of November 1933.

Dear Sir:

Kindly furnish the contractor with a statement of the quantities and classifications between successive stations as provided in paragraph 54 and 55 of the specifications and contract for El Capitan Dam, Spillway and Outlet Works.

Yours very truly,

H. W. ROHL & T. E. CONNOLLY

By (Signed) T E Connolly

December 23, 1933

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-80

Subject: San Diego River Project, El Capitan
Feature, request for statement of
quantities and classifications,
Estimate No. 19.

Gentlemen:

Pursuant to your written request dated December 15, 1933 for a statement of the quantities and classification between successive stations of the excavation and embankment quantities shown on progress estimate No. 19 for contract work done on El Capitan Dam for the month of November 1933, you are herewith furnished the attached statement showing the information requested.

If this statement is not satisfactory to you, specific objections with reasons therefor should be filed in writing with the Engineer in accordance with paragraph 54 of the contract specifications.

Very truly yours,

H. N. Savage
Hydraulic Engineer.

/p
encl.

CITY OF SAN DIEGO, CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl & T. E. Connolly, under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including November 1933 and included in progress estimate No. 19.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 percent if measured in spoil bank or in rock embankment, and

That excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in hydraulic fill and

That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in hydraulic fill.

All quantities are stated in cubic yards.

ROCK EMBANKMENT: Stations, classification and quantities:

1. From N 3440 to N 3850 and from E 5590 to toe wall
(Above upstream toe wall)

Overall embankment measured in embankment 11,949

(9) Excavation Class 5	4,481
27.5 percent swell	<u>1,232</u>
As if measured in embankment	5,713
(2) Embankment Class 1	6,236

2. From N 3080 to N 4140 and from E 5135 to toe wall
(Below upstream toe wall)

Overall embankment measured in embankment 559,419

(1) Excavation Class 1	36,373
27.5 percent swell	<u>10,003</u>
As if measured in embankment	46,376
(7) Excavation Class 3	469
27.5 percent swell	<u>129</u>
As if measured in embankment	598
(9) Excavation Class 5	6,050
27.5 percent swell	<u>1,664</u>
As if measured in embankment	7,714
(2) Embankment Class 1	504,731

3. From N 3180 to N 3980 and from E 4752 to toe wall
(Above downstream toe wall)

Overall embankment measured in embankment 263,779

(1) Excavation Class 1 14,650
27.5 percent swell 4,029
As if measured in embankment 18,679

(7) Excavation Class 3 176
27.5 percent swell 48
As if measured in embankment 224

(9) Excavation Class 5 1,743
27.5 percent swell 479
As if measured in embankment 2,222

(2) Embankment Class 1 242,654

4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 23,379

(1) Excavation Class 1 926
27.5 percent swell 255
As if measured in embankment 1,101

(9) Excavation Class 5 28
27.5 percent swell 8
As if measured in embankment 36

(2) Embankment Class 1 22,162

HYDRAULIC FILL: Stations, classification and quantities.

1. From N 3120 to N 4110 and from E 4677 to E 5232

Overall embankment measured in embankment, except for
3,544 cubic yards material above the foundation line
of the hydraulic fill placed contrary to directions
of Hydraulic Engineer 1,233,959

(3) Excavation Class 2 225,352

(7) Excavation Class 3 4,255

(8) Excavation Class 4 1,136

(9) Excavation Class 5 measured
in excavation 1,941

(5) Embankment Class 2 (3544 cubic
yards class 2 embankment not
sorted by hydraulic means not
included in estimate) 1,001,275

EXCAVATION: Measured in excavation

1. Excavation Class 1, detached solid rock from stripping for base of dam, from structure and other excavation except spillway	13,490
2. Excavation Class 1, detached solid rock from spillway excavation	40,476
3. Excavation Class 1, detached solid rock from Station 0+14 to -2+95 tunnel entrance	276
4. Excavation Class 1, ledge rock in place from Station 0+14 to 0-50 tunnel entrance	2,537
5. Excavation Class 1, detached solid rock from Station 11+67.8 to 15+30 tunnel exit	356
6. Excavation Class 1, ledge rock in place from Station 11+67.8 to 13+82.8 tunnel exit	4,555
7. Excavation Class 1, ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	4,222
8. Excavation Class 1, ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5510	632
9. Excavation Class 1, ledge rock in place from N 3420 to N 3460 and from E 4474 to E 4512	234
10. Excavation Class 1, ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460	764
11. Excavation Class 2, Station 0+14 to -2+95 tunnel entrance	10,105
12. Excavation Class 2, Station 11+67.8 to 15+30 tunnel exit	10,467
13. Excavation Class 2, stripping for base of dam from N 3110 to N 3990 and from E 4320 to E 4800 under downstream rock embankment	73,991
14. Excavation Class 2, stripping for base of dam from N 3070 to N 4160 and from # 5140 to E 5590 under upstream rock embankment	92,162
15. Excavation Class 2, stripping for base of dam from N 3050 to N 4100 and from E 4680 to E 5220 under hydraulic embankment	96,441
16. Excavation Class 2, spillway excavation from Station 0+00 to 7+40	422,644
17. Excavation Class 3, downstream toe wall trench from Station 0-60 to 4+02.14	1,835

18.	Excavation Class 3, upstream toe wall trench from Station 0+00 to 4+85	2,199
19.	Excavation Class 3, main cutoff trench under dam	
	(a) 6' neat line trench from N 3060 to ogee 5+10	5,647
	(b) 6' bottom 1 on 1 slopes from N 3060 to N 4088	4,196
20.	Excavation Class 4 cutoff trench under spillway	
	(a) Under spillway ogee Station 0+48 to 5+10	1,087
	(b) Under spillway floor Station 2+55	20
	(c) Under spillway floor Station 5+10	29
21.	Excavation Class 5, tunnel excavation	
	(a) Station 0+00 to Station 11+72.77	29,370
	(b) Outlet tower shaft	1,923
	(c) Cleaning floor exploration tunnels 1 and 2	26

SUMMARY BY SCHEDULE ITEMS

Schedule Item	Determination of schedule items	
1.	Excavation Class 1, solid rock originating in structure excavation including placing and sorting in dam.	
	Rock embankment 2(1)	36,373
	3(1)	14,650
	4(1)	926
	Total schedule item 1	51,949
2.	Rock embankment Class 1 rock originating in borrow pit only including placing and sorting in dam, measured in embankment.	
	Rock embankment 1(2)	6,236
	2(2)	504,731
	3(2)	242,654
	4(2)	22,162
	Total schedule item 2	775,783
	(Estimate No. 19 - 775,773 cubic yards)	
3.	Excavation Class 2 earth, overburden, sand, gravel and other excavation originating in structure excavation, including placing and sorting in hydraulic fill.	
	Hydraulic fill 1(3)	225,352
	Total schedule item 3	225,352
5.	Embankment Class 2 clay, earth, sand, gravel and other embankment originating in borrow pit only including placing and sorting in hydraulic fill.	
	Hydraulic fill 1(5)	1,001,275
	Total schedule item 5	1,001,275

7. Excavation Class 3, cutoff trench excavation under dam including placing and sorting in dam.

Rock embankment	2(7)	469
	3(7)	176
Hydraulic fill	1(7)	4,255

Total schedule item 7 4,900

8. Excavation Class 4 cutoff trench excavation under spillway including placing and sorting in dam.

Hydraulic fill	1(8)	1,136
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Total schedule item 8 1,136

9. Excavation Class 5 outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.

Rock embankment	1(9)	4,481
	2(9)	6,050
	3(9)	1,743
	4(9)	28
Hydraulic fill	1	1,941

Total schedule item 9 14,243

10. Excavation Class 1, solid rock originating in structure excavation and wasted.

Overall excavation:

Excavation	1	13,490
	2	40,476
	3	276
	4	2,537
	5	356
	6	4,555
	7	4,222
	8	632
	9	234
	10	764

Total overall excavation Class 1 67,542

Excavation Class 1 placed in dam measured in excavation

Schedule item 1	51,949
Excavation wasted	15,593
27.5 percent swell	4,288
As if measured in spoil bank	<u>19,881</u>

Total schedule item 10 19,881

11. Excavation Class 2 earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.
Overall excavation

Excavation	11	10,105	
	12	10,467	
	13	73,991	
	14	92,162	
	15	96,441	
	16	<u>422,644</u>	
Total overall			705,810

Placed in dam

Hydraulic fill	2(3)		225,352
(schedule item 3)			

Excavation wasted, as if measured in spoil bank on basis of no swell or shrinkage
480,458

Swell on excavation wasted	item 16		56,220
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Total schedule item 11 536,678

12. Excavation Class 3 cutoff trench excavation under dam and wasted.
Overall excavation

Excavation	17	1,835	
	18	2,199	
	19a	5,647	
	19b	<u>4,196</u>	
Total overall excavation Class 3			13,877

Excavation Class 3 placed in dam measured in excavation

Schedule item 7			4,900
Excavation wasted			8,977
Swell 27.5 percent			2,469
As if measured in spoil bank			11,446

Total schedule item 12 11,446

14. Excavation Class 5, tunnel excavation excepting open cut excavation, but wasted.
Overall excavation

Excavation	21a	29,370	
	b	1,923	
	c	26	
Total overall tunnel excavation		<u>31,319</u>	

Tunnel excavation placed in dam measured in excavation schedule item 9 14,243

14. (continued)

Tunnel excavation wasted measured in excavation	17,076	
Swell 27.5 percent	<u>4,696</u>	
As if measured in spoil bank	21,772	
Total schedule item 14 as if measured in spoil bank		21,772

H. W. ROHL & T. E. CONNOLLY
Contractors

December 30, 1933

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego, California.

Subject: San Diego River Project, El Capitan
Dam Feature, Classification and
Measurement of Quantities.

Dear Sir:

In accordance with the Contractors' privilege of any monthly estimate, as set forth in paragraph 54 of the contract specifications, we specifically object to the quantities and classifications of quantities as for the different bid items of Estimate No. 19 for the month of November 1933, and as set forth in statement transmitted by Mr. H. N. Savage, Hydraulic Engineer, under date of December 23, 1933 for the following reasons:

The assumptions set forth under which the estimate is completed are erroneous to our contract in the following respects:

(a) There is no excavation Class 2 to be placed in embankment Class 2 and therefore no justification for the arbitrary assumption that excavation Class 2 would neither swell nor shrink if measured in embankment Class 2.

(b) There is no excavation either Class 1, 3 or 5 to be placed in embankment Class 2 and therefore there is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would neither swell or shrink if measured in embankment Class 2.

(c) There is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would swell 27½% if measured in embankment Class 1. Furthermore our contract provides such excavation shall be measured in excavation and not in embankment Class 1.

(d) The estimate does not include payment to the Contractors for idle equipment, stand by charges and damages for the period from April 10, 1933 to May 31, 1933 in accordance with our claim on file.

(e) There is no justification for the arbitrary assumption that Class 2 would not swell if measured in spoil bank.

Item 1. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(a) of the Contract Specifications.

Item 5. The deduction of 3,544 cubic yards is incorrect. the deduction of 7,793 cubic yards (November estimate) is incorrect. Not correct as to quantity.

Item 7. Not correct as to quantity.

Item 9. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 10. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 54, Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 11. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 54 and 55 (b) of the Contract Specifications.

Item 12. The quantities shown are wrong as to classification and method of measurement. Page 31 - Paragraph 55 (b) of the Contract Specifications.

Item 14. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (b) of the Contract Specifications.

Item 17. The quantities shown are wrong as to classification.

Item 23. Incorrectly computed.

Item 24. Incorrectly computed.

Item 26. Not correct as to quantity.

Item 33. Not correct as to quantity.

Item 34. Not correct as to quantity.

Items 3, 8, 16, 19, 20, 21, 22, 25, 27, 28, 29, 31, 35, 36, 37, 40, 43, 45 and 46 as set forth in Estimate No. 19 are acceptable only as an approximate estimate, it being the contractors understanding that the Hydraulic Engineer has ruled that all progress estimates are subject to change and correction by final measurement at the time of completion of the work and issuance of a final estimate.

Yours very truly,

H. W. ROHL & T. E. CONNOLLY

By (Signed) O C Steves
Superintendent

January 8, 1934

Messrs. H. W. Rohl and T. E. Connolly
4351 Alhambra Avenue
Los Angeles, California.

S-82

Subject: San Diego River Project, El Capitan
Feature, Progress Estimate No. 19
Determination of pay quantities.

Gentlemen:

Receipt is acknowledged of your letter dated December 30, 1933, objecting and protesting to the quantities and classification of quantities as shown in the different schedule items of Progress Estimate No. 19 for the month of November 1933, details of which, relating to excavation and embankment quantities for El Capitan Dam were set out in letter to you dated December 23, 1933.

Much excavation Class 2 has been placed by you in hydraulic fill and intermingled with embankment Class 2. In taking the overall measurements of hydraulic fill it has sometimes been referred to as embankment Class 2. However, the specifications state that embankment Class 2 originates in borrow pit only.

The above also applies to excavation Class 1, 3 and 5 and rock embankment where overall quantities have sometimes been referred to as Class 1 when the specifications state that embankment Class 1 originates only in borrow pit, i.e. quarry.

The Contractor's lack of an orderly program and method of work prior to April 1, 1933 made it physically impossible for the Engineer to identify the source of and to measure wasted material in spoil banks, and, therefore, in order to arrive at a proper quantity in lieu of spoil bank measurements, an estimated quantity due to probable swell in addition to excavation measurement was included to show as nearly as possible the volume which such materials actually occupied in the spoil bank. All excavation material wasted since April 1, 1933 has been measured in spoil banks.

All structure excavation is measured in excavation, but the contract specifications provide that embankment Class 1 and 2 include materials originating in borrow pits (and quarries) only, and therefore you are not entitled to the yardage

represented by the swell of excavated material originating in structure excavation, especially excavation Class 1, 3 and 5 when placed in rock embankment.

The above statements apply to your general references to quantities under Schedule Items 1, 5, 7, 9, 10, 11, 12 and 14 wherein you state that the quantities are wrong as to method of measurements.

Your claim for \$131,289.83, which you allege was the amount of direct and unavoidable extra cost caused by your suspension of contract work April 10, 1933, was denied on September 18, 1933 by Council Resolution No. 60727.

The deduction of 3544 cubic yards from Item 5 was made in accordance with my letter to you of March 1, 1933 wherein it was made optional to you to remove and replace improperly placed material at your own expense, or proceed with the work, in which event the incompletely placed material not removed would not be included in the monthly estimates.

The 7793 cubic yards deducted from schedule item 5 has been included in schedule item 3. The Contractor's total earnings are not affected.

You state that the quantities under schedule items 10, 11, 12 and 14 are wrong as to classification but you do not state in what particular they are wrong so that proper investigation may be made.

Concrete placed in the outlet tower footing has been included in item 17 and concrete placed in the outlet tower above the top of the footing has been included in item 23. If this is not in accordance with your interpretation of the contract specifications, an additional statement from you will be appreciated.

You state that the quantities under Items 23, 24, 26, 33, and 34 in the estimate are not correct but you do not state in what particular they are incorrect so that proper investigation may be made.

Very truly yours,

H. N. Savage
Hydraulic Engineer

FDP/p

H. W. ROHL & T. E. CONNOLLY
Contractors

El Capitan Dam
Via-Lakeside, Calif.
January 12, 1934

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego, California.

Subject: San Diego River Project,
El Capitan Dam Feature
Estimate No. 20
Month of December 1933

Dear Sir:

Kindly furnish the contractor with a statement of the quantities and classifications between successive stations as provided in paragraph 54 and 55 of the specifications and contract for El Capitan Dam, Spillway and Outlet Works.

Yours very truly,

H. W. ROHL & T. E. CONNOLLY

By (Signed) T E Connolly

January 19, 1934

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-84

Subject: San Diego River Project, El Capitan
Feature, request for statement of
quantities and classifications,
Estimate No. 20

Gentlemen:

Pursuant to your written request dated January 12, 1934 for a statement of the quantities and classifications between successive stations of the excavation and embankment quantities shown on progress estimate No. 20 for contract work done on El Capitan Dam for the month of December 1933, you are herewith furnished the attached statement showing the information requested.

If this statement is not satisfactory to you, specific objections with reasons therefor should be filed in writing with the Engineer in accordance with paragraph 54 of the contract specifications.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

/p
encl.

CITY OF SAN DIEGO, CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl & T. E. Connolly, under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including December 1933 and included in progress estimate No. 20.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 percent if measured in spoil bank or in rock embankment, and

That excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in hydraulic fill, and

That excavation Class 2, would neither swell nor shrink if measured in spoil bank or in hydraulic fill.

All quantities are stated in cubic yards.

ROCK EMBANKMENT: Stations, classification and quantities:

- From N 3440 to N 3850 and from E 5590 to toe wall
(Above upstream toe wall)

Overall embankment measured in embankment 11,949

(9) Excavation Class 5	4,481
27.5 percent swell	<u>1,232</u>
As if measured in embankment	5,713
(2) Embankment Class 1	<u>6,236</u>

- From N 3080 to N 4140 and from E 5135 to toe wall
(Below upstream toe wall)

Overall embankment measured in embankment 561,438

(1) Excavation Class 1	36,550
27.5 percent swell	<u>10,051</u>
As if measured in embankment	46,601
(7) Excavation Class 3	503
27.5 percent swell	<u>138</u>
As if measured in embankment	641
(9) Excavation Class 5	6,050
27.5 percent swell	<u>1,664</u>
As if measured in embankment	7,714
(2) Embankment Class 1	<u>506,480</u>

3. From N 3180 to N 3980 and from E 4752 to toe wall
(Above downstream toe wall)

Overall embankment measured in embankment 264,798

(1) Excavation Class 1 15,273
27.5 percent swell 4,200
As if measured in embankment 19,473

(7) Excavation Class 3 259
27.5 percent swell 71
As if measured in embankment 330

(9) Excavation Class 5 1,743
27.5 percent swell 479
As if measured in embankment 2,222

(2) Embankment Class 1 242,773

4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 23,379

(1) Excavation Class 1 926
27.5 percent swell 255
As if measured in embankment 1,181

(9) Excavation Class 5 28
27.5 percent swell 8
As if measured in embankment 36

(2) Embankment Class 1 22,162

HYDRAULIC FILL: Stations, classification and quantities.

1. From N 3120 to N 4110 and from E 4677 to E 5232

Overall embankment measured in embankment, except for
3,544 cubic yards material above the foundation line
of the hydraulic fill placed contrary to directions
of Hydraulic Engineer 1,234,435

(3) Excavation Class 2 225,352

(7) Excavation Class 3 4,709

(8) Excavation Class 4 1,158

(9) Excavation Class 5
measured in excavation 1,941

(5) Embankment Class 2 (3544 cubic yards
class 2 embankment not sorted by
hydraulic means not included in
estimate) 1,001,275

EXCAVATION: Measured in excavation

1713

1. Excavation Class 1, detached solid rock from stripping for base of dam, from structure and other excavation except spillway	13,490
2. Excavation Class 1, detached solid rock from spillway excavation	41,276
3. Excavation Class 1, detached solid rock from Station 0+14 to -2+95 tunnel entrance	276
4. Excavation Class 1, ledge rock in place from Station 0+14 to 0-50 tunnel entrance	2,537
5. Excavation Class 1, detached solid rock from Station 11+67.8 to 15+30 tunnel exit	356
6. Excavation Class 1, ledge rock in place from Station 11+67.8 to 13+82.8 tunnel exit	4,555
7. Excavation Class 1, ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	4,222
8. Excavation Class 1, ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5510	632
9. Excavation Class 1, ledge rock in place from N 3420 to N 3460 and from E 4474 to E 4512	234
10. Excavation Class 1, ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460	764
11. Excavation Class 2, Station 0+14 to -2+95 tunnel entrance	10,105
12. Excavation Class 2, Station 11+67.8 to 15+30 tunnel exit	10,467
13. Excavation Class 2, stripping for base of dam from N 3110 to N 3990 and from E 4320 to E 4800 under downstream rock embankment	73,991
14. Excavation Class 2, stripping for base of dam from N 3070 to N 4160 and from E 5140 to E 5590 under upstream rock embankment	92,162
15. Excavation Class 2, stripping for base of dam from N 3050 to N 4100 and from E 4680 to E 5220 under hydraulic embankment	96,441
16. Excavation Class 2, spillway excavation from Station 0+00 to 7+40	435,497
17. Excavation Class 3, downstream toe wall trench from Station 0-60 to 4+02.14	1,835
18. Excavation Class 3, upstream toe wall trench from Station 0+00 to 4+85	2,199

19.	Excavation Class 3, main cutoff trench under dam	
	(a) 6' neat line trench from N 3060 to ogee 5+10	6,218
	(b) 6' bottom 1 on 1 slopes from N 3060 to N 4088	4,196
20.	Excavation Class 4 cutoff trench under spillway	
	(a) Under spillway ogee Station 0+48 to 5+10	1,087
	(b) Under spillway floor Station 2+55	20
	(c) Under spillway floor Station 5+10	51
21.	Excavation Class 5, tunnel excavation	
	(a) Station 0+00 to Station 11+72.77	29,370
	(b) Outlet tower shaft	1,923
	(c) Cleaning floor exploration tunnels 1 and 2	26

SUMMARY BY SCHEDULE ITEMS

Schedule Item	Determination of schedule items		
1.	Excavation Class 1, solid rock originating in structure excavation including placing and sorting in dam.		
	Rock embankment 2(1)	36,550	
		3(1)	15,273
		4(1)	926
	Total schedule item 1		52,749
2.	Rock embankment Class 1 rock originating in borrow pit only including placing and sorting in dam, measured in embankment.		
	Rock embankment 1(2)	6,236	
		2(2)	506,480
		3(2)	242,773
		4(2)	22,162
	Total schedule item 2		777,651
3.	Excavation Class 2 earth, overburden, sand, gravel and other excavation originating in structure excavation, including placing and sorting in hydraulic fill.		
	Hydraulic fill 1(3)	225,352	
	Total schedule item 3		225,352
5.	Embankment Class 2 clay, earth, sand, gravel and other embankment originating in borrow pit only including placing and sorting in hydraulic fill.		
	Hydraulic fill 1(5)	1,001,275	
	Total schedule item 5		1,001,275
7.	Excavation Class 3, cutoff trench excavation under dam including placing and sorting in dam.		
	Rock embankment 2(7)	503	
		3(7)	259
	Hydraulic fill 1(7)	4,709	
	Total schedule item 7		5,471

8. Excavation Class 4 cutoff trench excavation under spillway including placing and sorting in dam.			
Hydraulic fill 1(8)			1,158
Total schedule item 8			1,158
9. Excavation Class 5 outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.			
Rock embankment 1(9)			4,481
2(9)			6,050
3(9)			1,743
4(9)			28
Hydraulic fill 1			1,941
Total schedule item 9			14,243
10. Excavation Class 1, solid rock originating in structure excavation and wasted.			
Overall excavation:			
Excavation 1			13,490
2			41,276
3			276
4			2,537
5			356
6			4,555
7			4,222
8			632
9			234
10			764
Total overall excavation Class 1			68,342
Excavation Class 1 placed in dam measured in excavation			
Schedule item 1			52,749
Excavation wasted			15,593
27.5 percent swell			4,288
As if measured in spoil bank			19,881
Total schedule item 10			19,881
11. Excavation Class 2 earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.			
Overall excavation:			
Excavation 11		10,105	
12		10,467	
13		73,991	
14		92,162	
15		96,441	
16		435,497	
Total overall			718,663
Placed in dam			
Hydraulic fill 2(3)(schedule item 3)			225,352
Excavation wasted, as if measured in spoil bank on basis of no swell or shrinkage			493,311
Swell on excavation wasted item 15			69,689
Total schedule item 11			563,000

12. Excavation Class 3 cutoff trench excavation under dam and wasted.

Overall excavation:

Excavation	17	1,835
	18	2,199
	19a	6,218
	19b	<u>4,196</u>

Total overall excavation Class 3 14,448

Excavation Class 3 placed in dam measured in excavation

5,471

Schedule item 7

5,471

Excavation wasted

8,977

Swell 27.5 percent

2,469

As if measured in spoil bank

11,446

Total schedule item 12

11,446

14. Excavation Class 5, tunnel excavation excepting open cut excavation, but wasted.

Overall excavation:

Excavation	21a	29,370
	b	1,923
	c	26

Total overall tunnel excavation

31,319

Tunnel excavation placed in dam measured in excavation schedule item 9

14,243

Tunnel excavation wasted measured in excavation

17,076

Swell 27.5 percent

4,696

As if measured in spoil bank

21,772

Total schedule item 14 as if measured in spoil bank

21,772

H. W. ROHL & T. E. CONNOLLY
Contractors

January 26, 1934

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego, California.

Subject: San Diego River Project, El Capitan Dam
Feature, Classification and Measurement
of Quantities.

Dear Sir:

In accordance with the Contractors' privilege of any monthly estimate, as set forth in paragraph 54 of the contract specifications, we specifically object to the quantities and classifications of quantities as for the different bid items of Estimate No. 20 for the month of December 1933, and as set forth in statement transmitted by Mr. H. N. Savage, Hydraulic Engineer, under date of January 19, 1934 for the following reasons:

The assumptions set forth under which the estimate is completed are erroneous to our contract in the following respects:

(a) There is no excavation Class 2 to be placed in embankment Class 2 and therefore no justification for the arbitrary assumption that excavation Class 2 would neither swell nor shrink if measured in embankment Class 2.

(b) There is no excavation either Class 1, 3 or 5 to be placed in embankment Class 2 and therefore there is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would neither swell or shrink if measured in embankment Class 2.

(c) There is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would swell 27½% if measured in embankment Class 1. Furthermore our contract provides such excavation shall be measured in excavation and not in embankment Class 1.

(d) The estimate does not include payment to the Contractors for idle equipment, stand by charges and damages for the period from April 10, 1933 to May 31, 1933 in accordance with our claim on file.

(e) There is no justification for the arbitrary assumption that Class 2 would not swell if measured in spoil bank.

Item 1. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(a) of the Contract Specifications.

Item 5. The deduction of 3,544 cubic yards is incorrect. The deduction of 7,793 cubic yards (November estimate) is incorrect. Not correct as to quantity.

Item 7. Not correct as to quantity.

Item 9. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 10. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 54, Page 32 - Paragraph 55 (b) of the Contract Specifications.

Item 11. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 54 and 55 (b) of the Contract Specifications.

Item 12. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 55(b) of the Contract Specifications.

Item 14. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 17. The quantities shown are wrong as to classification.

Item 23. Incorrectly computed.

Item 24. Incorrectly computed.

Item 26. Not correct as to quantity.

Item 33. Not correct as to quantity.

Item 34. Not correct as to quantity.

Items 3, 8, 16, 19, 20, 21, 22, 25, 27, 28, 29, 31, 35, 36, 37, 40, 43, 45 and 46 as set forth in Estimate No. 20 are acceptable only as an approximate estimate, it being the contractors understanding that the Hydraulic Engineer has ruled that all progress estimates are subject to change and correction by final measurement at the time of completion of the work and issuance of a final estimate.

Yours very truly,

H. W. Rohl & T. E. Connolly

By (Signed) T E Connolly

January 30, 1934

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-86

Subject: San Diego River Project, El Capitan Feature
Progress Estimate No. 20, determination of
pay quantities.

Gentlemen:

Receipt is acknowledged of your letter dated January 26, 1934, objecting and protesting to the quantities and classification of quantities as shown in the different schedule items of progress estimate No. 20 for the month of December 1933, details of which, relating to excavation and embankment quantities for El Capitan Dam were set out in letter to you dated January 19, 1934.

Much excavation Class 2 has been placed by you in hydraulic fill and intermingled with embankment Class 2. In taking the overall measurements of hydraulic fill it has sometimes been referred to as embankment Class 2. However, the specifications state that embankment Class 2 originates in borrow pit only.

The above also applies to excavation Class 1, 3 and 5 and rock embankment where overall quantities have sometimes been referred to as Class 1 when the specifications state that embankment Class 1 originates only in borrow pit, i.e. quarry.

The contractor's lack of an orderly program and method of work prior to April 1, 1933 made it physically impossible for the Engineer to identify the source of and to measure wasted material in spoil banks, and therefore, in order to arrive at a proper quantity in lieu of spoil bank measurements, an estimated quantity due to probable swell in addition to excavation measurement was included to show as nearly as possible the volume which such materials actually occupied in the spoil bank. All excavation material wasted since April 1, 1933 has been measured in spoil banks.

All structure excavation is measured in excavation, but the contract specifications provide that embankment Class 1

and 2 include materials originating in borrow pits (and quarries) only, and therefore you are not entitled to the yardage represented by the swell of excavated material originating in structure excavation, especially excavation Class 1, 3 and 5 when placed in rock embankment.

The above statements apply to your general references to quantities under Schedule Items 1, 5, 7, 9, 10, 11, 12 and 14 wherein you state that the quantities are wrong as to method of measurement.

Your claim for \$131,289.83, which you allege was the amount of direct and unavoidable extra cost caused by your suspension of contract work April 10, 1933, was denied on September 18, 1933 by Council Resolution No. 60727.

The deduction of 3544 cubic yards from Item 5 was made in accordance with my letter to you of March 1, 1933 wherein it was made optional to you to remove and replace improperly placed material at your own expense, or proceed with the work, in which event the incompletely placed material not removed would not be included in the monthly estimates.

The 7793 cubic yards deducted from schedule item 5 has been included in schedule item 3. The Contractor's total earnings are not affected.

You state that the quantities under schedule items 10, 11, 12 and 14 are wrong as to classification but you do not state in what particular they are wrong so that proper investigation may be made.

Concrete placed in the outlet tower footing has been included in item 17 and concrete placed in the outlet tower above the top of the footing has been included in item 23. If this is not in accordance with your interpretation of the contract specifications, an additional statement from you will be appreciated.

You state that the quantities under Items 23, 24, 26, 33, and 34 in the estimate are not correct but you do not state in what particular they are incorrect so that proper investigation may be made.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

FDE/p

H. W. ROHL & T. E. CONNOLLY
CONTRACTORS

El Capitan Dam
Via-Lakeside, Calif.
February 12, 1934.

Mr. H.N.Savage
Hydraulic Engineer
City of San Diego, California.

Subject: San Diego River Project.
El Capitan Dam Feature,
Estimate No. 21
Month of January 1934.

Dear Sir:

Kindly furnish the contractor with a statement of the quantities and classifications between successive stations as provided in paragraph 54 and 55 of the specifications and contract for El Capitan Dam, Spillway and Outlet Works.

Yours very truly,

H.W.Rohl & T.E.Connolly

By T. E. CONNOLLY (Signature)

February 19, 1934

Messrs. H. W. Rohl and T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California

S-89

Subject: San Diego River Project, El Capitan
Feature, request for statement of
quantities and classifications
Estimate No. 21

Gentlemen:

Pursuant to your written request dated February 12, 1934 for a statement of the quantities and classifications between successive stations of the excavation and embankment quantities shown on progress estimate No. 21 for contract work done on El Capitan Dam for the month of January 1934, you are herewith furnished the attached statement showing the information requested.

If this statement is not satisfactory to you, specific objections with reasons therefor should be filed in writing with the Engineer in accordance with paragraph 54 of the contract specifications.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

/p

encl.

cc-H.W.Rohl and T.E.Connolly

El Capitan Dam
Contractor's Resident Representative
John M. Martin, Attorney for Contractor
City Manager
City Attorney
Special Water Counsel
City's Resident Engineer

CITY OF SAN DIEGO, CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl & T. E. Connolly, under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including January 1934 and included in progress estimate No. 21.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 percent if measured in spoil bank or in rock embankment, and

That excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in hydraulic fill, and

That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in hydraulic fill.

All quantities are stated in cubic yards.

ROCK EMBANKMENT: Stations, classification and quantities:

1. From N 3440 to N 3850 and from E 5590 to toe wall
(Above upstream toe wall)

Overall embankment measured in embankment 11,949

(9) Excavation Class 5	4,481
27.5 percent swell	<u>1,232</u>
As if measured in embankment	5,713

(2) Embankment Class 1	6,236
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2. From N 3080 to N 4140 and from E 5135 to toe wall
(Below upstream toe wall)

Overall embankment measured in embankment 561,524

(1) Excavation Class 1	36,619
27.5 percent swell	<u>10,070</u>
As if measured in embankment	46,689

(7) Excavation Class 3	503
27.5 percent swell	<u>138</u>
As if measured in embankment	641

(9) Excavation Class 5	6,050
27.5 percent swell	<u>1,664</u>
As if measured in embankment	7,714

(2) Embankment Class 1	506,480
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3. From N 3180 to N 3980 and from E 4752 to toe wall
(Above downstream toe wall)

Overall embankment measured in embankment 264,798

(1) Excavation Class 1	15,273	
27.5 percent swell	<u>4,200</u>	
As if measured in embankment		19,473
(7) Excavation Class 3	259	
27.5 percent swell	<u>71</u>	
As if measured in embankment		330
(9) Excavation Class 5	1,743	
27.5 percent swell	<u>479</u>	
As if measured in embankment		2,222
(2) Embankment Class 1		242,773

4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 23,379

(1) Excavation Class 1	926	
27.5 percent swell	<u>255</u>	
As if measured in embankment		1,181
(9) Excavation Class 5	28	
27.5 percent swell	<u>8</u>	
As if measured in embankment		36
(2) Embankment Class 1		22,162

HYDRAULIC FILL: Stations, classification and quantities.

1. From N 3120 to N 4110 and from E 4677 to E 5232

Overall embankment measured in embankment,
except for 3,544 cubic yards material above the
foundation line of the hydraulic fill placed
contrary to directions of Hydraulic Engineer 1,234,694

(3) Excavation Class 2		225,352
(7) Excavation Class 3		4,865
(8) Excavation Class 4		1,261
(9) Excavation Class 5 measured in excavation		1,941
(5) Embankment Class 2 (3544 cubic yards class 2 embankment not sorted by hydraulic means not included in estimate)		1,001,275

EXCAVATION: Measured in excavation

1.	Excavation Class 1, detached solid rock from stripping for base of dam, from structure and other excavation except spillway	13,490
2.	Excavation Class 1, detached solid rock from spillway excavation	41,345
3.	Excavation Class 1, detached solid rock from Station 0+14 to -2+95 tunnel entrance	276
4.	Excavation Class 1, ledge rock in place from Station 0+14 to 0-50 tunnel entrance	2,537
5.	Excavation Class 1, detached solid rock from Station 11+67.8 to 15+30 tunnel exit	356
6.	Excavation Class 1, ledge rock in place from Station 11+67.8 to 13+82.8 tunnel exit	4,555
7.	Excavation Class 1, ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	4,222
8.	Excavation Class 1, ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5510	632
9.	Excavation Class 1, ledge rock in place from N 3420 to N 3460 and from E 4474 to E 4512	234
10.	Excavation Class 1, ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460	764
11.	Excavation Class 2, Station 0+14 to -2+95 tunnel entrance	10,105
12.	Excavation Class 2, Station 11+67.8 to 15+30 tunnel exit	10,467
13.	Excavation Class 2, stripping for base of dam from N 3110 to N 3990 and from E 4320 to E 4800 under downstream rock embankment	73,991
14.	Excavation Class 2, stripping for base of dam from N 3070 to N 4160 and from E 5140 to E 5590 under upstream rock embankment	92,162
15.	Excavation Class 2, stripping for base of dam from N 3050 to N 4100 and from E 4680 to E 5220	96,441
16.	Excavation Class 2, spillway excavation from Station 0+00 to 7+40	443,402
17.	Excavation Class 3, downstream toe wall trench from Station 0-60 to 4+02.14	1,835
18.	Excavation Class 3, upstream toe wall trench from Station 0+00 to 4+85	2,199

19.	Excavation Class 3, main cutoff trench under dam	
	(a) 6' neat line trench from N 3060 to ogee 5+10	6,374
	(b) 6' bottom 1 on 1 slopes from N 3060 to N 4088	4,196
20.	Excavation Class 4 cutoff trench under spillway	
	(a) Under spillway ogee Station 0+00 to 5+10	1,190
	(b) Under spillway floor Station 2+55	20
	(c) Under spillway floor Station 5+10	51
21.	Excavation Class 5, tunnel excavation	
	(a) Station 0+00 to Station 11+72.77	29,370
	(b) Outlet tower shaft	1,923
	(c) Cleaning floor exploration tunnels 1 and 2	26

SUMMARY BY SCHEDULE ITEMS

Schedule	Determination of schedule items		
Item			
1.	Excavation Class 1, solid rock originating in structure excavation including placing and sorting in dam.		
	Rock embankment	2(1)	36,619
		3(1)	15,273
		4(1)	926
	Total schedule item 1		52,818
2.	Rock embankment Class 1 rock originating in borrow pit only including placing and sorting in dam, measured in embankment.		
	Rock embankment	1(2)	6,236
		2(2)	506,480
		3(2)	242,773
		4(2)	22,162
	Total schedule item 2		777,651
3.	Excavation Class 2 earth, overburden, sand, gravel and other excavation originating in structure excavation, including placing and sorting in hydraulic fill.		
	Hydraulic fill	1(3)	225,352
	Total schedule item 3		225,352
5.	Embankment Class 2 clay, earth, sand, gravel and other embankment originating in borrow pit only including placing and sorting in hydraulic fill.		
	Hydraulic fill	1(5)	1,001,275
	Total schedule item 5		1,001,275
7.	Excavation Class 3, cutoff trench excavation under dam including placing and sorting in dam.		
	Rock embankment	2(7)	503
		3(7)	259
	Hydraulic fill	1(7)	4,865
	Total schedule item 7		5,627

8. Excavation Class 4 cutoff trench excavation under spillway including placing and sorting in dam.
Hydraulic fill 1(8) 1,261

Total schedule item 8 1,261

9. Excavation Class 5 outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.

Rock embankment 1(9) 4,481
2(9) 6,050
3(9) 1,743
4(9) 28
Hydraulic fill 1 1,941

Total schedule item 9 14,243

10. Excavation Class 1, solid rock originating in structure excavation and wasted.
Overall excavation:

Excavation 1 13,490
2 41,345
3 276
4 2,537
5 356
6 4,555
7 4,222
8 632
9 234
10 764

Total overall excavation Class 1 68,411

Excavation Class 1 placed in dam measured in excavation

Schedule item 1 52,818
Excavation wasted 15,593
27.5 percent swell 4,288
As if measured in spoil bank 19,881

Total schedule item 10 19,881

11. Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.
Overall excavation:

Excavation 11 10,105
12 10,467
13 73,991
14 92,162
15 96,441
16 443,402

Total overall 726,568

Placed in dam:

Hydraulic fill 2(3) 225,352
(schedule item 3)

Excavation wasted, as if measured in spoil bank on basis of no swell or shrinkage 501,216

Swell on excavation wasted item 16 71,484

Total schedule item 11 572,700

12. Excavation Class 3 cutoff trench excavation under dam and wasted.

Overall excavation:

Excavation	17	1,835	
	18	2,199	
	19a	6,374	
	19b	<u>4,196</u>	
Total overall excavation Class 3			14,604

Excavation Class 3 placed in dam measured in excavation

Schedule item 7 5,627

Excavation wasted 8,977

Swell 27.5 percent 2,469

As if measured in spoil bank 11,446

Total schedule item 12

11,446

14. Excavation Class 5, tunnel excavation excepting open cut excavation, but wasted.

Overall excavation:

Excavation	21a	29,370
	b	1,923
	c	<u>26</u>

Total overall tunnel excavation 31,319

Tunnel excavation placed in dam measured in excavation schedule item 9

14,243

Tunnel excavation wasted measured in excavation 17,076

Swell 27.5 percent 4,696

As if measured in spoil bank 21,772

Total schedule item 14 as if measured in spoil bank 21,772

H. W. ROHL & T. E. CONNOLLY
Contractors

February 28, 1934

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego, California.

Subject: San Diego River Project, El Capitan
Dam Feature, Classification and
Measurement of Quantities.

Dear Sir:

In accordance with the Contractors' privilege of any monthly estimate, as set forth in paragraph 54 of the contract specifications, we specifically object to the quantities and classifications of quantities as for the different bid items of Estimate No. 21 for the month of January 1934, and as set forth in statement transmitted by Mr. H. N. Savage, Hydraulic Engineer, under date of February 19, 1934 for the following reasons:

The assumptions set forth under which the estimate is completed are erroneous to our contract in the following respects:

- (a) There is no excavation Class 2 to be placed in embankment Class 2 and therefore no justification for the arbitrary assumption that excavation Class 2 would neither shrink nor swell if measured in embankment Class 2.
- (b) There is no excavation either Class 1, 3 or 5 to be placed in embankment Class 2 and therefore there is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would neither swell or shrink if measured in embankment Class 2.
- (c) There is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would swell 27½% if measured in embankment Class 1. Furthermore our contract provides such excavation shall be measured in excavation and not in embankment Class 1.
- (d) The estimate does not include payment to the Contractors for idle equipment, stand by charges and damages for the period from April 10, 1933 to May 31, 1933 in accordance with our claim on file.
- (e) There is no justification for the arbitrary assumption that Class 2 would not swell if measured in spoil bank.

Item 1. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (a) of the Contract Specifications.

Mr. H. N. Savage, Hydraulic Engineer

#2

2/28/34

Item 5. The deduction of 3,544 cubic yards is incorrect. The deduction of 7,793 cubic yards (November estimate) is incorrect. Not correct as to quantity.

Item 7. Not correct as to quantity.

Item 9. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 10. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 54. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 11. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 54 and 55 (b) of the Contract Specifications.

Item 12. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 55(b) of the Contract Specifications.

Item 14. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 17. The quantities shown are wrong as to classifications.

Item 23. Incorrectly computed.

Item 24. Incorrectly computed.

Item 26. Not correct as to quantity.

Item 33. Not correct as to quantity.

Item 34. Not correct as to quantity.

Items 3, 8, 16, 19, 20, 21, 22, 25, 27, 29, 31, 35, 37, 40, 43, 45 and 46 as set forth in Estimate No. 21 are acceptable only as an approximate estimate, it being the contractors understanding that the Hydraulic Engineer has ruled that all progress estimates are subject to change and correction by final measurement at the time of completion of the work and issuance of a final estimate.

Yours very truly,

H.W.ROHL & T.E.CONNOLLY

By (Signed) T E Connolly

March 2, 1934

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhembra Avenue
Los Angeles, California.

S-92

Subject: San Diego River Project, El Capitan
Feature, Progress Estimate No. 21,
determination of pay quantities.

Gentlemen:

Receipt is acknowledged of your letter dated February 28, 1934, objecting and protesting to the quantities and classification of quantities as shown in the different schedule items of progress estimate No. 21 for the month of January 1934, details of which, relating to excavation and embankment quantities for El Capitan Dam were set out in letter to you dated February 19, 1934.

Much excavation Class 2 has been placed by you in hydraulic fill and intermingled with embankment Class 2. In taking the overall measurements of hydraulic fill it has sometimes been referred to as embankment Class 2. However the specifications state that embankment Class 2 originates in borrow pit only.

The above also applies to excavation Class 1, 3 and 5 and rock embankment where overall quantities have sometimes been referred to as Class 1 when the specifications state that embankment Class 1 originates only in borrow pit, i.e. quarry.

The contractor's lack of an orderly program and method of work prior to April 1, 1933 made it physically impossible for the Engineer to identify the source of and to measure wasted material in spoil banks, and therefore, in order to arrive at a proper quantity in lieu of spoil bank measurements, an estimated quantity due to probable swell in addition to excavation measurement was included to show as nearly as possible the volume which such materials actually occupied in the spoil bank. All excavation material wasted since April 1, 1933 has been measured in spoil banks.

All structure excavation is measured in excavation, but the contract specifications provide that embankment Class 1 and 2 include materials originating in borrow pits (and quarries) only, and therefore you are not entitled to the yardage represented by the swell of excavated material originating in structure excavation, especially excavation Class 1, 3 and 5 when placed in rock embankment.

The above statements apply to your general references to quantities under Schedule Items 1, 5, 7, 9, 10, 11, 12 and 14 wherein you state that the quantities are wrong as to method of measurement.

Your claim for \$131,289.83, which you allege was the amount of direct and unavoidable extra cost caused by your suspension of contract work April 10, 1933, was denied on September 18, 1933 by Council Resolution No. 60727.

The deduction of 3544 cubic yards from Item 5 was made in accordance with my letter to you of March 1, 1933 wherein it was made optional to you to remove and replace improperly placed material at your own expense, or proceed with the work, in which event the incompletely placed material not removed would not be included in the monthly estimates.

The 7793 cubic yards deducted from schedule item 5 has been included in schedule item 3. The Contractor's total earnings are not affected.

You state that the quantities under schedule items 10, 11, 12 and 14 are wrong as to classification but you do not state in what particular they are wrong so that proper investigation may be made.

Concrete placed in the outlet tower footing has been included in item 17 and concrete placed in the outlet tower above the top of the footing has been included in item 23. If this is not in accordance with your interpretation of the contract specifications an additional statement from you will be appreciated.

You state that the quantities under Items 23, 24, 26, 33 and 34 in the estimate are not correct but you do not state in what particular they are incorrect so that proper investigation may be made.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

FDP/f

5/16/34
copy /f

1733

H. W. ROHL & T. E. CONNOLLY
CONTRACTORS

March 17, 1934.

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego
San Diego, California.

Subject: San Diego River Project.
El Capitan Dam Feature.
Estimate No. 22
Month of February 1934.

Dear Sir:

Kindly furnish the contractor with a statement of the quantities and classifications between successive stations as provided in paragraph 54 and 55 of the specifications and contract for the El Capitan Dam, Spillway and Outlet Works.

Yours very truly,

H.W.Rohl & T.E.Connolly

By T. E. CONNOLLY (Signature)

March 26, 1934

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-99

Subject: San Diego River Project, El
Capitan Feature, request for
statement of quantities and
classifications Estimate No. 22.

Gentlemen:

Pursuant to your written request dated March 17, 1934 for a statement of the quantities and classifications between successive stations of the excavation and embankment quantities shown on progress estimate No. 22 for contract work done on El Capitan dam for the month of February 1934, you are herewith furnished the attached statement showing the information requested.

If this statement is not satisfactory to you, specific objections with reasons therefor should be filed in writing with the Engineer in accordance with paragraph 54 of the contract specifications.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

/p
encl.

CITY OF SAN DIEGO, CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl & T. E. Connolly, under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including February 1934 and included in progress estimate No. 22.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 percent if measured in spoil bank or in rock embankment, and

That excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in hydraulic fill, and

That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in hydraulic fill.

All quantities are stated in cubic yards.

ROCK EMBANKMENT: Stations, classification and quantities:

1. From N 3440 to N 3850 and from E 5590 to toe wall
(Above upstream toe wall)

Overall embankment measured in embankment 11,949

(9) Excavation Class 5	4,481
27.5 percent swell	<u>1,232</u>
As if measured in embankment	5,713
(2) Embankment Class 1	6,236

2. From N 3080 to N 4140 and from E 5135 to toe wall
(Below upstream toe wall)

Overall embankment measured in embankment 561,524

(1) Excavation Class 1	36,619
27.5 percent swell	<u>10,070</u>
As if measured in embankment	46,689
(7) Excavation Class 3	503
27.5 percent swell	<u>138</u>
As if measured in embankment	641
(9) Excavation Class 5	6,050
27.5 percent swell	<u>1,664</u>
As if measured in embankment	7,714
(2) Embankment Class 1	506,480

3. From N 3180 to N 3980 and from E 4752 to toe wall
(Above downstream toe wall)

1736

Overall embankment measured in embankment 264,798

(1) Excavation Class 1 15,273
27.5 percent swell 4,200
As if measured in embankment 19,473

(7) Excavation Class 3 259
27.5 percent swell 71
As if measured in embankment 330

(9) Excavation Class 5 1,743
27.5 percent swell 479
As if measured in embankment 2,222

(2) Embankment Class 1 242,773

4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 23,379

(1) Excavation Class 1 926
27.5 percent swell 255
As if measured in embankment 1,181

(9) Excavation Class 5 28
27.5 percent swell 8
As if measured in embankment 36

(2) Embankment Class 1 22,162

HYDRAULIC FILL: Stations, classifications and quantities.

1. From N 3110 to N 4110 and from E 4672 to E 5232

Overall embankment measured in embankment, except for
3,544 cubic yards material above the foundation line
of the hydraulic fill placed contrary to directions
of Hydraulic Engineer 1,273,627

(3) Excavation Class 2 225,352

(7) Excavation Class 3 4,929

(8) Excavation Class 4 1,300

(9) Excavation Class 5 measured
in excavation 1,941

(5) Embankment Class 2 (3544 cubic
yards Class 2 embankment not
sorted by hydraulic means not
included in estimate 1,040,105

EXCAVATION: Measured in excavation

1. Excavation Class 1, detached solid rock from stripping for base of dam, from structure and other excavation except spillway	13,490
2. Excavation Class 1, detached solid rock from spillway excavation	41,345
3. Excavation Class 1, detached solid rock from Station 0+14 to -2+95 tunnel entrance	276
4. Excavation Class 1, ledge rock in place from Station 0+14 to 0-50 tunnel entrance	2,537
5. Excavation Class 1, detached solid rock from Station 11+67.8 to 15+30 tunnel exit	356
6. Excavation Class 1, ledge rock in place from Station 11+67.8 to 13+82.8 tunnel exit	4,555
7. Excavation Class 1, ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	4,222
8. Excavation Class 1, ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5510	632
9. Excavation Class 1, ledge rock in place from N 3420 to N 3460 and from E 4474 to E 4512	234
10. Excavation Class 1, ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460	764
11. Excavation Class 2, Station 0+14 to -2+95 tunnel entrance	10,105
12. Excavation Class 2, Station 11+67.8 to 15+30 tunnel exit	10,467
13. Excavation Class 2, stripping for base of dam from N 3110 to N 3990 and from E 4320 to E 4800 under downstream rock embankment	73,991
14. Excavation Class 2, stripping for base of dam from N 3070 to N 4160 and from E 5140 to E 5590 under upstream rock embankment	92,162
15. Excavation Class 2, stripping for base of dam from N 3050 to N 4100 and from E 4680 to E 5220	96,441
16. Excavation Class 2, spillway excavation from Station 0+00 to 7+40	445,873
17. Excavation Class 3, downstream toe wall trench from Station 0-60 to 4+02.14	1,835
18. Excavation Class 3, upstream toe wall trench from Station 0+00 to 4+85	2,199

19.	Excavation Class 3, main cutoff trench under dam	
	(a) 6' neat line trench from N 3060 to ogee 5+10	6,438
	(b) 6' bottom 1 on 1 slopes from N 3060 to N 4088	4,196
20.	Excavation Class 4 cutoff trench under spillway	
	(a) Under spillway ogee Station 0+00 to 5+10	1,190
	(b) Under spillway floor Station 2+55	20
	(c) Under spillway floor Station 5+10	51
	(d) Under spillway floor Station 7+10	39
21.	Excavation Class 5, tunnel excavation	
	(a) Station 0+00 to Station 11+72.77	29,370
	(b) Outlet tower shaft	1,923
	(c) Cleaning floor exploration tunnels 1 and 2	26

SUMMARY BY SCHEDULE ITEMS

Schedule Determination of schedule items
Item

1.	Excavation Class 1, solid rock originating in structure excavation including placing and sorting in dam.		
	Rock embankment	2(1)	36,619
		3(1)	15,273
		4(1)	926
	Total schedule item	1	<u>52,818</u>
2.	Rock embankment Class 1 rock originating in borrow pit only including placing and sorting in dam, measured in embankment.		
	Rock embankment	1(2)	6,236
		2(2)	506,480
		3(2)	242,773
		4(2)	22,162
	Total schedule item	2	<u>777,651</u>
3.	Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation, including placing and sorting in hydraulic fill.		
	Hydraulic fill	1(3)	225,352
	Total schedule item	3	225,352
5.	Embankment Class 2, clay, earth, sand, gravel and other embankment originating in borrow pit only including placing and sorting in hydraulic fill.		
	Hydraulic fill	1(5)	1,040,105
	Total schedule item	5	1,040,105
7.	Excavation Class 3, cutoff trench excavation under dam including placing and sorting in dam		
	Rock embankment	2(7)	503
		3(7)	259
	Hydraulic fill	1(7)	4,929
	Total schedule item	7	5,691

8.	Excavation Class 4 cutoff trench excavation under spillway including placing and sorting in dam.		
	Hydraulic fill	1(8)	1,300
	Total schedule item 8		1,300
9.	Excavation Class 5 outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.		
	Rock embankment	1(9)	4,481
		2(9)	6,050
		3(9)	1,743
		4(9)	28
	Hydraulic fill	1	1,941
	Total schedule item 9		14,243
10.	Excavation Class 1, solid rock originating in structure excavation and wasted.		
	Overall excavation:		
	Excavation	1	13,490
		2	41,345
		3	276
		4	2,537
		5	356
		6	4,555
		7	4,222
		8	632
		9	234
		10	764
	Total overall excavation Class 1		<u>68,411</u>
	Excavation Class 1 placed in dam measured in excavation		
	Schedule item	1	52,818
	Excavation wasted		15,593
	27.5 percent swell		4,288
	As if measured in spoil bank		<u>19,881</u>
	Total schedule item 10		19,881
11.	Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.		
	Overall excavation:		
	Excavation	11	10,105
		12	10,467
		13	73,991
		14	92,162
		15	96,441
		16	<u>445,873</u>
	Total overall		729,039
	Placed in dam:		
	Hydraulic fill	2(3)	
	(schedule item 3)		225,352
	Excavation wasted, as if measured in spoil bank on basis of no swell or shrinkage		503,687
	Swell on excavation wasted item 16		72,413
	Total schedule item 11		576,100

12. Excavation Class 3 cutoff trench excavation under dam and wasted.

Overall excavation:

Excavation	17	1,835
	18	2,199
	19a	6,438
	19b	<u>4,196</u>

Total overall excavation Class 3 14,668

Excavation Class 3 placed in dam measured in excavation

Schedule item 7 5,691

Excavation wasted 8,977

Swell 27.5 percent 2,469

As if measured in spoil bank 11,446

Total schedule item 12

11,446

14. Excavation Class 5, tunnel excavation excepting open cut excavation, but wasted

Overall excavation:

Excavation	21a	29,370
	b	1,923
	c	<u>26</u>

Total overall tunnel excavation 31,319

Tunnel excavation placed in dam measured in excavation

Schedule item 9 14,243

Tunnel excavation wasted measured in excavation 17,076

Swell 27.5 percent 4,696

As if measured in spoil bank 21,772

Total schedule item 14 as if measured in spoil bank

21,772

H. W. ROHL & T. E. CONNOLLY
Contractors

April 4, 1934

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego, California.

Subject: San Diego River Project,
El Capitan Dam Feature, Classification
and Measurement of Quantities.

Dear Sir:

In accordance with the Contractors' privilege of any monthly estimate, as set forth in paragraph 54 of the contract specifications, we specifically object to the quantities and classifications of quantities as for the different bid items of Estimate No. 22 for the month of February 1934, and as set forth in statement transmitted by Mr. H. N. Savage, Hydraulic Engineer, under date of March 26th, 1934 for the following reasons:

The assumptions set forth under which the estimate is completed are erroneous to our contract in the following respects:

(a) There is no excavation Class 2 to be placed in embankment Class 2 and therefore no justification for the arbitrary assumption that excavation Class 2 would neither shrink nor swell if measured in embankment Class 2.

(b) There is no excavation either Class 1, 3 or 5 to be placed in embankment Class 2 and therefore there is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would neither swell or shrink if measured in embankment Class 2.

(c) There is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would swell 27½% if measured in embankment Class 1. Furthermore our contract provides such excavation shall be measured in excavation and not in embankment Class 1.

(d) The estimate does not include payment to the Contractors for idle equipment, stand by charges and damages for the period from April 10, 1933 to May 31, 1933 in accordance with our claim on file.

(e) There is no justification for the arbitrary assumption that Class 2 would not swell if measured in spoil bank.

Item 1. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (a) of the Contract Specifications.

Mr. H. N. Savage - Hydraulic Engineer

#2 4/4/34

Item 5. The deduction of 3,544 cubic yards is incorrect. The deduction of 7,793 cubic yards (November estimate) is incorrect. Not correct as to quantity.

Item 7. Not correct as to quantity.

Item 9. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 10. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 54. Page 32 - Paragraph 55 (b) of the Contract Specifications.

Item 11. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 54 and 55 (b) of the Contract Specifications.

Item 12. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 55 (b) of the Contract Specifications.

Item 14. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (b) of the Contract Specifications.

Item 17. The quantities shown are wrong as to classifications.

Item 23. Incorrectly computed.

Item 24. Incorrectly computed.

Item 26. Not correct as to quantity.

Item 33. Not correct as to quantity.

Item 34. Not correct as to quantity.

Items 3, 8, 16, 19, 20, 21, 22, 25, 27, 28, 29, 31, 35, 36, 37, 40, 43, 45 and 46 as set forth in Estimate No. 22 are acceptable only as an approximate estimate, it being the contractors understanding that the Hydraulic Engineer has ruled that all progress estimates are subject to change and correction by final measurement at the time of completion of the work and issuance of a final estimate.

Yours very truly,

H.W.Rohl & T.E.Connolly

By (Signed) O. C. Steves
Superintendent.

April 10, 1934

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California

S-102

Subject: San Diego River Project, El Capitan
Feature, Progress Estimate No. 22,
determination of pay quantities

Gentlemen:

Receipt is acknowledged of your letter dated April 4, 1934, objecting and protesting to the quantities and classification of quantities as shown in the different schedule items of progress estimate No. 22 for the month of February 1934, details of which, relating to excavation and embankment quantities for El Capitan Dam were set out in letter to you dated March 26, 1934.

Much excavation Class 2 has been placed by you in hydraulic fill and intermingled with embankment Class 2. In taking the overall measurements of hydraulic fill it has sometimes been referred to as embankment Class 2. However, the specifications state that embankment Class 2 originates in borrow pit only.

The above also applies to excavation Class 1, 3 and 5 and rock embankment where overall quantities have sometimes been referred to as Class 1 when the specifications state that embankment Class 1 originates only in borrow pit, i.e. quarry.

The contractor's lack of an orderly program and method of work prior to April 1, 1933 made it physically impossible for the Engineer to identify the source of and to measure wasted material in spoil banks, and therefore, in order to arrive at a proper quantity in lieu of spoil bank measurements, an estimated quantity due to probable swell in addition to excavation measurement was included to show as nearly as possible the volume which such materials actually occupied in the spoil bank. All excavation material wasted since April 1, 1933 has been measured in spoil banks.

All structure excavation is measured in excavation but the contract specifications provide that embankment Class 1 and 2 include materials originating in borrow pits (and quarries) only, and therefore you are not entitled to the yardage represented by the swell of excavated material originating in structure excavation, especially excavation Class 1, 3 and 5 when placed in rock embankment.

The above statements apply to your general references to quantities under Schedule Items 1, 5, 7, 9, 10, 11, 12 and 14

H. W. Rohl & T. E. Connolly

4/10/34

S-102

2

wherein you state that the quantities are wrong as to method of measurement.

Your claim for \$131,289.83, which you allege was the amount of direct and unavoidable extra cost caused by your suspension of contract work April 10, 1933, was denied on September 18, 1933 by Council Resolution No. 60727.

The deduction of 3544 cubic yards from Item 5 was made in accordance with my letter to you of March 1, 1933 wherein it was made optional to you to remove and replace improperly placed material at your own expense, or proceed with the work, in which event the incompletely placed material not removed would not be included in the monthly estimates.

The 7793 cubic yards deducted from schedule item 5 has been included in schedule item 3. The contractor's total earnings are not affected.

You state that the quantities under schedule items 10, 11, 12 and 14 are wrong as to classification but you do not state in what particular they are wrong so that proper investigation may be made.

Concrete placed in the outlet tower footing has been included in item 17 and concrete placed in the outlet tower above the top of the footing has been included in item 23. If this is not in accordance with your interpretation of the contract specifications and additional statement from you will be appreciated.

You state that the quantities under items 23, 24, 26, 33 and 34 in the estimate are not correct but you do not state in what particular they are incorrect so that proper investigation may be made.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

FDP/p

H. W. ROHL & T. E. CONNOLLY
CONTRACTORS

April 11, 1934.

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego
San Diego, California.

Subject: San Diego River Project.
El Capitan Dam Feature,
Estimate No. 23
Month of March 1934.

Dear Sir:

Kindly furnish the contractor with a statement of the quantities and classifications between successive stations as provided in paragraph 54 and 55 of the specifications and contract for the El Capitan Dam, Spillway and Outlet Works.

Yours very truly,

H.W.Rohl & T.E.Connolly

By T. E. CONNOLLY (Signature)

April 23, 1934

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-104

Subject: San Diego River Project, El Capitan
Feature, request for statement of
quantities and classifications
Estimate No. 23

Gentlemen:

Pursuant to your written request dated April 11, 1934 for a statement of the quantities and classifications between successive stations of the excavation and embankment quantities shown on progress estimate No. 23 for contract work done on El Capitan dam for the month of March 1934, you are herewith furnished the statement attached showing the information requested.

If this statement is not satisfactory to you, specific objections with reasons therefor should be filed in writing with the Engineer in accordance with paragraph 54 of the contract specifications.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

/p
encl.

CITY OF SAN DIEGO, CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl & T. E. Connolly, under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including March 1934 and included in progress estimate No. 23.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 percent if measured in spoil bank or in rock embankment, and

That excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in hydraulic fill, and

That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in hydraulic fill.

All quantities are stated in cubic yards.

ROCK EMBANKMENT: Stations, classification and quantities:

1.	From N 3440 to N 3850 and from E 5590 to toe wall (Above upstream toe wall)		
	Overall embankment measured in embankment		11,949
	(9) Excavation Class 5	4,481	
	27.5 percent swell	<u>1,232</u>	
	As if measured in embankment	5,713	
	(2) Embankment Class 1	6,236	
2.	From N 3080 to N 4140 and from E 5135 to toe wall (Below upstream toe wall)		
	Overall embankment measured in embankment		561,524
	(1) Excavation Class 1	36,619	
	27.5 percent swell	<u>10,070</u>	
	As if measured in embankment	46,689	
	(7) Excavation Class 3	503	
	27.5 percent swell	<u>138</u>	
	As if measured in embankment	641	
	(9) Excavation Class 5	6,050	
	27.5 percent swell	<u>1,664</u>	
	As if measured in embankment	7,714	
	(2) Embankment Class 1	506,480	

3. From N 3180 to N 3980 and from E 4752 to toe wall
(Above downstream toe wall)

Overall embankment measured in embankment 264,798

(1) Excavation Class 1 15,273
27.5 percent swell 4,200
As if measured in embankment 19,473

(7) Excavation Class 3 259
27.5 percent swell 71
As if measured in embankment 330

(9) Excavation Class 5 1,743
27.5 percent swell 479
As if measured in embankment 2,222

(2) Embankment Class 1 242,773

4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 23,379

(1) Excavation Class 1 926
27.5 percent swell 255
As if measured in embankment 1,181

(9) Excavation Class 5 28
27.5 percent swell 8
As if measured in embankment 36

(2) Embankment Class 1 22,162

HYDRAULIC FILL: Stations, classification and quantities.

1. From N 3100 to N 4110 and from E 4672 to E 5232

Overall embankment measured in embankment, except for
3,544 cubic yards material above the foundation line
of the hydraulic fill placed contrary to directions
of Hydraulic Engineer 1,300,806

(3) Excavation Class 2 225,352

(7) Excavation Class 3 5,387

(8) Excavation Class 4 1,326

(9) Excavation Class 5 measured in
excavation 1,941

(5) Embankment Class 2 (3544 cubic yards
Class 2 embankment not sorted by
hydraulic means not included in
estimate 1,066,800

19. Excavation Class 3, main cutoff trench under dam		
(a) 6' neat line trench from N 3015 to ogee 5+10		6,780
(b) 6' bottom 1 on 1 slopes from N 3032 to N 4088		4,312
20. Excavation Class 4 cutoff trench under spillway		
(a) Under spillway ogee Station 0+00 to 5+10		1,190
(b) Under spillway floor Station 2+55		20
(c) Under spillway floor Station 5+10		51
(d) Under spillway floor Station 7+10		65
21. Excavation Class 5, tunnel excavation		
(a) Station 0+00 to Station 11+72.77		29,370
(b) Outlet tower shaft		1,923
(c) Cleaning floor exploration tunnels 1 and 2		26

SUMMARY BY SCHEDULE ITEMS

Schedule Item	Determination of schedule items		
1.	Excavation Class 1, solid rock originating in structure excavation including placing and sorting in dam.		
	Rock embankment	2(1)	36,619
		3(1)	15,273
		4(1)	926
	Total schedule item 1		52,818
2.	Rock embankment Class 1 rock originating in borrow pit only including placing and sorting in dam, measured in embankment		
	Rock embankment	1(2)	6,236
		2(2)	506,480
		3(2)	242,773
		4(2)	22,162
	Total schedule item 2		777,651
3.	Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation, including placing and sorting in hydraulic fill.		
	Hydraulic fill	1(3)	225,352
	Total schedule item 3		225,352
5.	Embankment Class 2, clay, earth, sand, gravel and other embankment originating in borrow pit only including placing and sorting in hydraulic fill.		
	Hydraulic fill	1(5)	1,066,800
	Total schedule item 5		1,066,800
7.	Excavation Class 3, cutoff trench excavation under dam including placing and sorting in dam		
	Rock embankment	2(7)	503
		3(7)	259
	Hydraulic fill	1(7)	5,387
	Total schedule item 7		6,149

EXCAVATION: Measured in excavation

1.	Excavation Class 1, detached solid rock from stripping for base of dam, from structure and other excavation except spillway	13,490
2.	Excavation Class 1, detached solid rock from spillway excavation	41,345
3.	Excavation Class 1, detached solid rock from Station 0+14 to -2+95 tunnel entrance	276
4.	Excavation Class 1, ledge rock in place from Station 0+14 to 0-50 tunnel entrance	2,537
5.	Excavation Class 1, detached solid rock from Station 11+67.8 to 15+30 tunnel exit	356
6.	Excavation Class 1, ledge rock in place from Station 11+67.8 to 13+82.8 tunnel exit	4,555
7.	Excavation Class 1, ledge rock in place from N 3440 to N 3790 and from E 4967 to E 5023	4,222
8.	Excavation Class 1, ledge rock in place from N 3480 to N 3540 and from E 5450 to E 5510	632
9.	Excavation Class 1, ledge rock in place from N 3420 to N 3460 and from E 4470 to E 4512	234
10.	Excavation Class 1, ledge rock in place from N 3440 to N 3560 and from E 4390 to E 4460	764
11.	Excavation Class 2, Station 0+14 to -2+95 tunnel entrance	10,105
12.	Excavation Class 2, Station 11+67.8 to 15+30 tunnel exit	10,467
13.	Excavation Class 2, stripping for base of dam from N 3110 to N 3990 and from E 4320 to E 4800 under downstream rock embankment	73,991
14.	Excavation Class 2, stripping for base of dam from N 3070 to N 4160 and from E 5140 to E 5590 under upstream rock embankment	92,162
15.	Excavation Class 2, stripping for base of dam from N 3050 to N 4130 and from E 4680 to E 5820	96,441
16.	Excavation Class 2, spillway excavation from Station 0+00 to 7+40	446,100
17.	Excavation Class 3, downstream toe wall trench from Station 0-60 to 4+02.14	1,835
18.	Excavation Class 3, upstream toe wall trench from Station 0+00 to 4+85	2,199

8.	Excavation Class 4 cutoff trench excavation under spillway including placing and sorting in dam.			
	Hydraulic fill	1(8)	1,326	
	Total schedule item	8		1,326
9.	Excavation Class 5 outlet tunnel excavation excepting open cut excavation and including placing and sorting in dam.			
	Rock embankment	1(9)	4,481	
		2(9)	6,050	
		3(9)	1,743	
		4(9)	28	
	Hydraulic fill	1	1,941	
	Total schedule item 9			14,243
10.	Excavation Class 1, solid rock originating in structure excavation and wasted.			
	Overall excavation:			
	Excavation	1	13,490	
		2	41,345	
		3	276	
		4	2,537	
		5	356	
		6	4,555	
		7	4,222	
		8	632	
		9	234	
		10	764	
	Total overall excavation Class 1		<u>68,411</u>	
	Excavation Class 1 placed in dam measured in excavation			
	Schedule item	1	52,818	
	Excavation wasted		15,593	
	27.5 percent swell		4,288	
	As if measured in spoil bank		<u>19,881</u>	
	Total schedule item 10			19,881
11.	Excavation Class 2, earth, overburden, sand, gravel and other excavation originating in structure excavation and wasted.			
	Overall excavation:			
	Excavation	11	10,105	
		12	10,467	
		13	73,991	
		14	92,162	
		15	96,441	
		16	<u>446,100</u>	
	Total overall			729,266
	Placed in dam:			
	Hydraulic fill	2(3)		
	(schedule item 3)			225,352
	Excavation wasted, as if measured in spoil bank on basis of no swell or shrinkage			503,914
	Swell on excavation item 16			72,496
	Total schedule item 11			576,410

12. Excavation Class 3 cutoff trench excavation under dam and wasted.

Overall excavation:

Excavation	17	1,835
	18	2,199
	19a	6,780
	19b	4,312

Total overall excavation Class 3 15,126

Excavation Class 3 placed in dam measured in excavation

Schedule item 7 6,149

Excavation wasted 8,977

Swell 27.5 percent 2,469

As if measured in spoil bank 11,446

Total schedule item 12 11,446

14. Excavation Class 5, tunnel excavation excepting open cut excavation, but wasted

Overall excavation:

Excavation	21a	29,370
	b	1,923
	c	26

Total overall tunnel excavation 31,319

Tunnel excavation placed in dam measured in excavation

Schedule 14,243

Tunnel excavation wasted

measured in excavation 17,076

Swell 27.5 percent 4,696

As if measured in spoil bank 21,772

Total schedule item 14 as if measured in spoil bank 21,772

H. W. ROHL & T. E. CONNOLLY
Contractors

May 2, 1934

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego, California.

Subject: San Diego River Project,
El Capitan Dam Feature, Classifica-
tion and Measurement of Quantities.

Dear Sir:

In accordance with the Contractors' privilege of any monthly estimate, as set forth in paragraph 54 of the contract specifications, we specifically object to the quantities and classifications of quantities as for the different bid items of Estimate No. 23 for the month of March 1934, and as set forth in statement transmitted by Mr. H.N.Savage, Hydraulic Engineer, under date of April 23, 1934 for the following reasons:

The assumptions set forth under which the estimate is completed are erroneous to our contract in the following respects:

(a) There is no excavation Class 2 to be placed in embankment Class 2 and therefore no justification for the arbitrary assumption that excavation Class 2 would neither shrink nor swell if measured in embankment Class 2.

(b) There is no excavation either Class 1, 3 or 5 to be placed in embankment Class 2 and therefore there is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would neither swell or shrink if measured in embankment Class 2.

(c) There is no justification for the arbitrary assumption that excavation Class 1, 3 and 5 would swell 27½% if measured in embankment Class 1. Furthermore our contract provides such excavation shall be measured in excavation and not in embankment Class 1.

(d) The estimate does not include payment to the Contractors for idle equipment, stand by charges and damages for the period from April 10, 1933 to May 31, 1933 in accordance with our claim on file.

(e) There is no justification for the arbitrary assumption that Class 2 would not swell if measured in spoil bank.

Item 1. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55 (a) of the Contract Specifications.

Item 5. The deduction of 3,544 cubic yards is incorrect. The deduction of 7,793 cubic yards (November Estimate) is incorrect. Not correct as to quantity.

Item 7. Not correct as to quantity.

Item 9. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 10. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 54. Page 32- Paragraph 55(b) of the Contract Specifications.

Item 11. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 54 and 55 (b) of the Contract Specifications.

Item 12. The quantities shown are wrong as to classifications and method of measurement. Page 31 - Paragraph 55(b) of the Contract Specifications.

Item 14. The quantities shown are wrong as to method of measurement. Page 32 - Paragraph 55(b) of the Contract Specifications.

Item 17. The quantities shown are wrong as to classification.

Item 23. Incorrectly computed.

Item 24. Incorrectly computed.

Item 26. Not correct as to quantity.

Item 33. Not correct as to quantity.

Item 34. Not correct as to quantity.

Items 3, 8, 16, 19, 20, 21, 22, 25, 27, 28, 29, 31, 35, 36, 37, 40, 43, 45 and 46 as set forth in Estimate No. 23 are acceptable only as an approximate estimate, it being the contractors understanding that the Hydraulic Engineer has ruled that all progress estimates are subject to change and correction by final measurement at the time of completion of the work and issuance of a final estimate.

Yours very truly,

H. W. Rohl & T. E. Connolly

By (Signed) T E Connolly

May 4, 1934

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-107

Subject: San Diego River Project, El Capitan
Feature, Progress Estimate No. 23,
determination of pay quantities.

Gentlemen:

Receipt is acknowledged of your letter dated May 2, 1934, objecting and protesting to the quantities and classification of quantities as shown in the different schedule items of progress estimate No. 23 for the month of March, 1934, details of which, relating to excavation and embankment quantities for El Capitan Dam were set out in letter to you dated April 23, 1934.

Much excavation Class 2 has been placed by you in hydraulic fill and intermingled with embankment Class 2. In taking the overall measurements of hydraulic fill it has sometimes been referred to as embankment Class 2. However, the specifications state that embankment Class 2 originates in borrow pit only.

The above also applies to excavation Class 1, 3 and 5 and rock embankment where overall quantities have sometimes been referred to as Class 1 when the specifications state that embankment Class 1 originates only in borrow pit, i.e. quarry.

The Contractor's lack of an orderly program and method of work prior to April 1, 1933 made it physically impossible for the Engineer to identify the source of and to measure wasted material in spoil banks, and therefore, in order to arrive at a proper quantity in lieu of spoil bank measurements, an estimated quantity due to probable swell in addition to excavation measurement was included to show as nearly as possible the volume which such materials actually occupied in the spoil banks. All excavation material wasted since April 1, 1933 has been measured in spoil banks.

All structure excavation is measured in excavation but the contract specifications provide that embankment Class 1 and 2

include materials originating in borrow pits (and quarries) only, and therefore you are not entitled to the yardage represented by the swell of excavated material originating in structure excavation, especially excavation Class 1, 3 and 5 when placed in rock embankment.

The above statements apply to your general references to quantities under Schedule Items 1, 5, 7, 9, 10, 11, 12 and 14 wherein you state that the quantities are wrong as to method of measurement.

Your claim for \$131,289.83, which you allege was the amount of direct and unavoidable extra cost caused by your suspension of contract work April 10, 1933, was denied on September 18, 1933 by Council Resolution No. 60727.

The deduction of 3544 cubic yards from Item 5 was made in accordance with my letter to you of March 1, 1933 wherein it was made optional to you to remove and replace improperly placed material at your own expense, or proceed with the work, in which event the incompletely placed material not removed would not be included in the monthly estimates.

The 7793 cubic yards deducted from schedule item 5 has been included in schedule item 3. The contractor's total earnings are not affected.

You state that the quantities under schedule items 10, 11, 12 and 14 are wrong as to classification but you do not state in what particular they are wrong so that proper investigation may be made.

Concrete placed in the outlet tower footing has been included in item 17 and concrete placed in the outlet tower above the top of the footing has been included in item 23. If this is not in accordance with your interpretation of the contract specifications an additional statement from you will be appreciated.

You state that the quantities under items 23, 24, 26, 33 and 34 in the estimate are not correct but you do not state in what particular they are incorrect so that proper investigation may be made.

Very truly yours,

FDP/p

H. N. Savage,
Hydraulic Engineer.

8/3/34
copy /f

1757

H. W. ROHL & T. E. CONNOLLY
CONTRACTORS

El Capitan Dam
Via-Lakeside, California.
May 15, 1934.

Mr. H. N. Savage
Hydraulic Engineer
City of San Diego, California.

Re: Estimate No. 24
Month of April 1934.

Dear Sir:

Kindly furnish the Contractor with a statement of the quantities and classifications between successive stations as provided in paragraphs 54 and 55 of the specifications and contract for El Capitan Dam, Spillway and Outlet Works.

Yours very truly,

H. W. Rohl & T. E. Connolly

By O. C. STEVES (Signature)
Superintendent.

May 24, 1934

Messrs. H. W. Rohl & T. E. Connolly
Contractors El Capitan Dam
4351 Alhambra Avenue
Los Angeles, California.

S-110

Subject: San Diego River Project, El Capitan
Feature, request for statement of
quantities and classifications
Estimate No. 24

Gentlemen:

Pursuant to your written request dated May 15, 1934, for a statement of the quantities and classifications between successive stations of the excavation and embankment quantities shown on progress estimate No. 24 for the contract work done on El Capitan dam for the month of April 1934, you are herewith furnished the statement attached showing the information requested.

If this statement is not satisfactory to you, specific objections with reasons therefor should be filed in writing with the Engineer in accordance with paragraph 54 of the contract specifications.

Very truly yours,

H. N. Savage,
Hydraulic Engineer.

/p
cc-City Manager
City Attorney
Special Water Counsel
Resident Engineer

CITY OF SAN DIEGO, CALIFORNIA

San Diego River Project, El Capitan Feature

Statement of stations, classifications and quantities of embankment and excavation and summary by schedule items of certain work done by H. W. Rohl & T. E. Connolly, under their contract for construction of El Capitan Reservoir Dam, Spillway and Outlet Works up to and including April 1934 and included in progress estimate No. 24.

In lieu of spoil bank measurements it was deemed proper to consider that excavation Class 1, 3 and 5 measured in excavation would swell 27.5 percent if measured in spoil bank or in rock embankment, and

That excavation Class 1, 3 and 5 measured in excavation would neither swell nor shrink if measured in hydraulic fill, and

That excavation Class 2 would neither swell nor shrink if measured in spoil bank or in hydraulic fill.

All quantities are stated in cubic yards.

ROCK EMBANKMENT: Stations, classification and quantities:

1. From N 3440 to N 3850 and from E 5590 to toe wall
(Above upstream toe wall)

Overall embankment measured in embankment 11,949

(9) Excavation Class 5	4,481
27.5 percent swell	<u>1,232</u>
As if measured in embankment	5,713

(2) Embankment Class 1	6,236
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2. From N 3060 to N 4140 and from E 5135 to toe wall
(Below upstream toe wall)

Overall embankment measured in embankment 568,851

(1) Excavation Class 1	37,538
27.5 percent swell	<u>10,323</u>
As if measured in embankment	47,861

(7) Excavation Class 3	503
27.5 percent swell	<u>138</u>
As if measured in embankment	641

(9) Excavation Class 5	6,050
27.5 percent swell	<u>1,664</u>
As if measured in embankment	7,714

(2) Embankment Class 1	512,635
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3. From N 3180 to N 3980 and from E 4752 to toe wall
(Above downstream toe wall)

Overall embankment measured in embankment 264,798

(1) Excavation Class 1	15,273
27.5 percent swell	<u>4,200</u>
As if measured in embankment	19,473
(7) Excavation Class 3	259
27.5 percent swell	<u>71</u>
As if measured in embankment	330
(9) Excavation Class 5	1,743
27.5 percent swell	<u>479</u>
As if measured in embankment	2,222
(2) Embankment Class 1	242,773

4. From N 3440 to N 3860 and from E 4380 to toe wall
(Below downstream toe wall)

Overall embankment measured in embankment 24,565

(1) Excavation Class 1	926
27.5 percent swell	<u>255</u>
As if measured in embankment	1,181
(9) Excavation Class 5	28
27.5 percent swell	<u>8</u>
As if measured in embankment	36
(2) Embankment Class 1	23,348

HYDRAULIC FILL: Stations, classification and quantities.

1. From N 3100 to N 4110 and from E 4672 to E 5232

Overall embankment measured in embankment, except
for 3,544 cubic yards material above the foundation
line of the hydraulic fill placed contrary to
directions of Hydraulic Engineer 1,301,832

(3) Excavation Class 2	224,102
(7) Excavation Class 3	5,615
(8) Excavation Class 4	1,326
(9) Excavation Class 5 measured in excavation	1,941
(5) Embankment Class 2 (3544 cubic yards Class 2 embankment not sorted by hydraulic means not included in estimate.)	1,065,304