

PROJECT CORRESPONDENCE

**Bullard Wash Channel Improvements - Final Design
Estrella Parkway, BID Canal to Yuma Road –
Final Design**



(Minutes, Memos and Telecons)

**Flood Control District of Maricopa County
Contract FCD 98-15**

Sverdrup Project No. 013884

September 1998

Sverdrup

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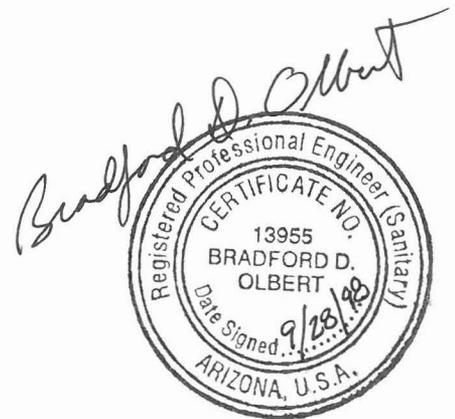
September 1998

Sverdrup



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**Bullard Wash Channel Improvements
Monthly Status Meetings**

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MEETING MINUTES

Sverdrup Civil, Inc.

Date: September 16, 1997

LOCATION Flood Control District of Maricopa County
AND DATE: September 12, 1997, 10:00 am
10

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Bruce Ward, MCDOT
Laura Fritschi, MCDOT
Brad Olbert, Sverdrup

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Monthly Status Meeting

SUMMARY:

Don Rerick said for each status meeting we will discuss the progress of line items that are relevant to the Project Schedule. Adjustments to the schedule will be discussed at that time. Next meeting Sverdrup needs to bring a quarterly payment schedule for the project.

The subject of survey needs was discussed. Mr. Olbert said he had a phone discussion with Al Aerni yesterday concerning the survey work. He mentioned that MCDOT will not renew their On-Call survey contract. The contract will expire at the end of this September. Brooks, Hersey had the contract for a couple of years and now the County needs to use other firms. There are a couple of outstanding items that Brooks, Hersey still needs to complete on this project. One concerns monumentation of MC 85, the second is about identifying property corners of parcels along Estrella Parkway. Sverdrup sent Brooks, Hersey a memo yesterday that identified immediate survey needs. A copy of the memo was distributed to the participants. Mr. Aerni said he would start on the work today.

Bruce Ward said it would be good to have John Rose, Al Aerni, Brad Olbert, Laura Fritschi in a meeting together to discuss the status of the survey work to date and identify work still needed to be done. A tentative date and time was set at 1:30 this Friday (time later revised to 10 am).

Mr. Olbert said that he would like to bring to the meeting on Friday, typical sections of the roadways and bridge for MCDOT to review and approve.

Bruce Ward stated that the IGAs between MCDOT and Goodyear are ready for signature.

Don Rerick questioned the Feasibility Study's recommendation to use a concrete lined channel for the East Local Tributary. Mr. Olbert said the close proximity of the high pressure gas line may be limiting the choice of channel sections. After the gas line is blue staked and surveyed, we can check if that is the case.

The participants agreed to meet each month on the second Wednesday at 1:30 pm. Next meeting will be October 8th.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: September 27, 1997

LOCATION AND DATE: Maricopa County Department of Transportation
September 25, 1997, 3:00 pm

PARTICIPANTS: Bruce Ward, MCDOT
Laura Fritschi, MCDOT
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Roadway Status Meeting

SUMMARY:

The above participants met to discuss issues pertaining to the MC 85/Estrella Parkway project, which included unfinished items, the horizontal geometry of MC 85 / Estrella Parkway and side streets, and new items relating to the progress of the project.

Mr. Olbert was given a recent set of sample roadway plans using English units.

The issue of monumentation for MC 85 was discussed. Mr. Olbert contacted Barbara Rust with CVL about a title survey for the Sunchase Property. She said that one had been done by Brady Aulerich and Associates for Sun Holdings, Inc. The survey drawing she had of the property was sealed 5/30/96. This information was passed along to John Rose on 9/15. Also, a set of as-built drawings of US 80 was sent to John through Bruce Ward on 9/17. John Rose was contacted by phone and he said he was waiting for some railroad right-of-way information before proceeding. Mr. Olbert will contact Dave Peterson about obtaining railroad right-of-way information from Union Pacific railroad.

Ms. Fritschi asked about the title reports. Mr. Olbert reviewed the title reports the previous week and contacted Fiesta Title about several discrepancies. Two memos (dated 9/19 and 9/23), which itemized the discrepancies, were sent to Russ Peterson, Fiesta Title, who said they would work on the reports this week. Mr. James Johnson, Fiesta Title, later contacted Mr. Olbert. He was charged with working on the items. New legal descriptions and documentation would be sent to Mr. Olbert. Ms. Fritschi said that Tony Chavez has ordered five additional title reports for the project, and these will take approximately three weeks to complete.

The plan scale to use for the project was discussed. Mr. Olbert said the scope identified both 1" = 20' and 1" = 40' scales. The project is located in a rural area which requires less detail than in an urban setting. The Bullard Wash Channel plans will be prepared at 1" = 40' scale. For consistency sake, it was decided to use 1" = 40' scale for the horizontal plan and profile sheets and use 1" = 20' scale for detail sheets where appropriate.

The roadway horizontal alignment was partially reviewed. Ms. Fritschi will review the alignments and return them with comments by next Wednesday morning (10/1/97). The following items were discussed:

- Use 160' long bay storage as a minimum.
- Review the Marking and Signing Manual for the Bay Taper configuration.
- Use a 45-foot radius returns for all intersections.
- Add pull boxes and conduits at section line and mid-section intersections.
- Use of a 55:1 taper rate for all of the tapers is acceptable to MCDOT for this project.
- A raised median will be used on MC 85 from the storage bay located on the west side of the MC 85/Estrella Parkway intersection to the new Bullard Wash bridge.
- North of the railroad tracks, a left-turn bay will be provided for the aluminum recycling facility located to the east of Estrella Parkway. The south access to the aluminum recycling facility appears to be using the railroad right-of-way. This access may be blocked with the roadway improvement. Sverdrup will check with the railroad to determine if they have obtained access from the railroad. There is inadequate distance to provide access to the recycling facility on the west side of Estrella Parkway, and this facility will only have a right in and right out. Provide a left-turn bay at Elwood.
- MCDOT will decide if a raised median should be used east and west of the intersection of Estrella Parkway and Yuma Road.
- Use curb and gutter for the returns at the intersections and as shown on the MC 85/Estrella Parkway intersection plan originated by Paul Sullivan.
- Utilize a 10-year 2-hour storm volume for sizing roadside retention. The volume collected is for the roadway R/W only.
- Crossover locations are typically at the ½-mile, ¼-mile and ⅛-mile locations. However, MCDOT will review the aerials of the farm road locations to decide what will be used for this project.
- The consultant selection process has only just begun for Estrella Parkway north of Yuma Road to I-10. The consultant for that project will not be on board until January. For Sverdrup's project, taper the five-lane roadway to match the two-lane roadway 2,600 feet north of Yuma Road. The future consultant for Estrella Parkway will need to coordinate with Sverdrup at a later date.

Ms. Fritschi will obtain a sample set of Right-of-Way plans for Sverdrup.

Mr. Olbert asked if existing raster images were available for Estrella Parkway. Sverdrup could attach vector images to the raster images for the upcoming Public Meeting. Ms. Fritschi will check if they are available. Mr. Ward said they will obtain them if they are not available.

Mr. Olbert asked for a copy of the checklist MCDOT uses for the 40, 70, and 90% submittals. The check list will help Sverdrup meet MCDOT's review requirements. Ms. Fritschi said she will provide a copy to Sverdrup.

MCDOT will coordinate with FCDMC on a Joint Title to use for this project.

MCDOT has scheduled a meeting with the City of Goodyear on Thursday (10/2) to discuss the IGA and R/W. Sverdrup will attend to discuss any roadway and irrigation issues, and to obtain a copy of Goodyear's retention policy.

After the meeting, Mr. Olbert obtained a copy of the Marking and Signing Manual from Mr. Ron Nell (506-4628). Mr. Nell will prepare the signalization plans for the MC 85 / Estrella Parkway intersection. Signalization plans will be prepared after the 70% submittal.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Don Rerick - FCDMC
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: October 10, 1997

LOCATION Flood Control District of Maricopa County
AND DATE: October 9, 1997, 8:30 am

PARTICIPANTS: Don Rerick - Flood Control District of Maricopa County
Bruce Ward, MCDOT
Laura Fritschi, MCDOT
Wayne Butch, MCDOT Utilities
Rick McFarlin, MCDOT Utilities
Todd Belzner, MCDOT R/W Review Appraiser
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Monthly Status Meeting

SUMMARY:

The above attendees met to discuss the status of the referenced project.

Mr. Belzner was recently assigned to the project to track the progress of the R/W acquisitions. Mr. Olbert provided a disk with existing and proposed R/W, section lines and property lines (per legal descriptions provided by the title reports), and edge of proposed pavement with striping. Mr. Belzner said he will also need the county tax code and item numbers to be shown on each lot. Sverdrup will add the information to the disk. Ms. Fritschi will drop by Sverdrup to pick up the disk when it is done.

Mr. Olbert reviewed a change in the proposed R/W needs along Lower Buckeye Road. A subdivision located about 660 feet west of Estrella Parkway and north of Lower Buckeye Road will interfere with the proposed R/W takes as originally identified by the Paul Sullivan in a preliminary R/W strip map. The south edge of the subdivision is located 33 feet north of the section line. The proposed 75-foot R/W width will affect thirty or more home sites. The Center City Area Plan for the City of Goodyear shows Lower Buckeye Parkway as a major arterial instead of Lower Buckeye Road at Estrella Parkway. Lower Buckeye Road should be classified as a local collector having three lanes at the intersection and tapering to two lanes west of the intersection. The existing 80 feet of R/W is adequate. The title report identifies 40 feet on the south side of the SE $\frac{1}{4}$ of the Section plus a 40-foot triangle at the SE section corner being conveyed as R/W. However, the subdivision which came along at a later date shows a south edge that is 33 feet from the section line. Mr. Belzner will check on the R/W issue regarding the subdivision. Ms. Fritschi will check on the classification of Lower Buckeye Road.

Mr. Butch asked who is responsible for delivering the 40% roadway plan sets to the utilities. This item

varies from contract to contract. Mr. Olbert said he will check the scope to determine the responsibility. The schedule shows the 40% roadway plan set is due on November 7th.

Mr. Rerick asked if there are any outstanding items with the utilities. Mr. Butch said there is still some question regarding APS ownership of some 12 kV lines. Mr. Olbert handed Mr. Rerick a letter from APS regarding encasing the 96-inch water line. Mr. Olbert also handed out copies of a letter from Southern Pacific Pipelines that appeared to have some prior rights information.

Mr. Rerick asked Mr. Butch if he had been in touch with Mr. Sutton regarding the acquisition of as-built information and prior rights information. Coordination between the two has been lacking. Mr. Rerick indicated that MCDOT and FCDMC were to share responsibility in obtaining prior rights information. Mr. Butch said that can be accomplished if he had a paper alignment of the channel relative to the sections and MC 85. Mr. Olbert said he can provide Mr. Butch with the channel alignment on a 24-inch x 36-inch blue-line sheet. Mr. Rerick said it is important to coordinate between the two utility departments as to whom will receive the prior rights information. MCDOT and FCDMC need to have a joint meeting on this issue.

Mr. Olbert said that, since the initial easement request from the railroad, additional easements are needed around the existing Bullard Wash bridge. Mr. Rerick suggested that a continuous easement from the proposed Bullard Wash channel crossing to the existing Bullard Wash bridge be requested. Grading throughout the area may be needed because of the existing conditions.

Mr. Rerick said he is expecting a revised cost estimate from Union Pacific Railroad on October 20th. The estimate will itemize the cost to construct the railroad bridge under traffic. Mr. Prince suggested earlier that it will run 10% higher than the earlier Southern Pacific Railroad estimate. Mr. Olbert presented his estimate of the cost to construct a box culvert using a shoofly. The estimated cost was \$395,000, which assumes the shoofly is constructed on the south side of the existing track. If the shoofly alignment is shifted to the north side, the estimate is low because the embankment requirements will be much greater.

Mr. Olbert handed out copies of the minutes for the two meetings held with the City of Goodyear. Mr. Rerick identified an item to add to the minutes for the Bullard Channel minutes. Mr. Olbert will revise and resubmit the minutes.

Mr. Olbert handed out the revised schedule. Mr. Rerick identified a slippage of six weeks for the channel design. Mr. Olbert said this was due in part to a switch in project managers by FCDMC, a delay in obtaining access to properties for field work, and difficulty in scheduling a meeting with the City of Goodyear on the channel concept. Mr. Rerick said there may be some opportunity to make up some of the delay with prompt turnarounds in the plan reviews. At this stage, there is no reason to request a change order.

Mr. Olbert handed out the quarterly estimate for the projected billings. The breakdown was adequate for the County's purposes. Mr. Olbert asked if there are particular forms to submit with the invoice package. Messrs. Rerick and Ward agreed the format used with the quarterly estimate could be modified to include percent completes for Sverdrup and each subconsultant as well as include the MBE/WBE form.

Mr. Rerick asked about progress concerning the survey work. Mr. Olbert said Sverdrup prepared a package for Brooks Hersey to begin picking up the property corners for the R/W plans. Brooks Hersey is also finish any remaining blue stake work and coordinate with us on locating the fiber optic conduit for QWEST. No information on MC 85 monumentation has been received from MCDOT. Mr. Ward said that delays on the monumentation will impact the R/W acquisition process. Ms. Fritschi will ask Mr. Rose to submit the MC 85 documentation through her.

Mr. Rerick requested another meeting with the City of Goodyear be scheduled in two weeks to discuss the channel alternatives. The recent IGA meeting with the City of Goodyear was very productive.

Mr. Olbert asked MCDOT if lighting was to be included at intersections north of MC 85. Mr. Ward said it generally is not included, but he will check on the request.

Mr. Olbert asked about the guardrail design at the BID canal bridge relative to protecting motorists from the bridge end and/or entering the canal. Ms. Fritschi will visit the site and determine the guardrail requirements. MCDOT uses GET devices at the ends of the guardrail installation.

Mr. Olbert asked about the taper rate requirements. Ms. Fritschi said to design according to the pavement marking manual. It is more stringent than the MUTCD. If costs escalate above the budget then the taper rates can be reduced to the MUTCD recommendation.

Mr. Rerick asked about progress in setting up the meeting with Sunchase and A-Tumbling-T Ranch. Mr. Olbert said that calls have been made concerning the meeting. Barbara Rust is OK for the 28th, however, further calls need to be made to confirm the date with Sunchase and A-Tumbling-T Ranch. The County is OK for either the morning or afternoon on the 28th.

Mr. Olbert asked Mr. Rerick to check if the County can relax the freeboard requirement for the bridges in order to steepen the channel profile and reduce the channel section. If the freeboard cannot be relaxed, the Q50 flow rate will be needed. Mr. Rerick will check on the request.

Mr. Olbert asked if the proposed project stationing for the roadway is acceptable (per the 9/12/97 drawing). Ms. Fritschi and Mr. Ward said that the proposed roadway stationing is approved.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Don Rerick - FCDMC
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: December 3, 1997

LOCATION AND DATE: Flood Control District of Maricopa County
November 12, 1997; 10:00 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County
Laura Fritschi, MCDOT
Wayne Butch, MCDOT Utilities
Dan Carroll, MCDOT Public Information Officer
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Project Status Meeting

SUMMARY:

The above participants met to discuss the status of the referenced project. Don Rerick reviewed the items on the project schedule as a lead for the meeting discussion.

Mr. Olbert stated that the Qwest conduit installation was not surveyed at the proposed channel crossing. Qwest notified Sverdrup after the open trenches were backfilled that the conduit work was completed. This was contrary to what was coordinated with Qwest the previous week. Qwest will submit as-built plans to Sverdrup at a later date. The conduit will need to be potholed after the fiber optic cable is installed in approximately 6 months.

Mr. Olbert said that the 96-inch APS water line was surveyed at two locations. The survey points are not at the location of the channel crossing but the information matched very closely with the as-built information. Additional pothole information can be obtained later this year at the channel crossing when the farmer ceases his operations in the channel alignment. Don Rerick said that the District wants APS to encase the pipeline. March will be the time line for APS to begin coordination with their contractor. Sverdrup will need to establish a target elevation for the top of encasement.

Mr. Butch said that the only utility outstanding on the project is the Roosevelt Irrigation District (RID). The RID has facilities around Yuma Road but does not have as-built information. The RID will redline the 40% plans. Mr. Olbert said that the RID facilities are located within the portion of the project for which Sverdrup does not have a notice to proceed. This situation will delay Sverdrup's receipt of redline information from them.

Mr. Butch said he would like a report from Sverdrup as soon as possible that identifies all of the possible roadway conflicts. The County can then identify utility costs for its budgeting purposes.

Mr. Butch also requested an updated submittal from Sverdrup on the railroad easements required. Mr. Olbert said the graphic for the railroad easement should be completed shortly. Mr. Rerick said that Cheryl Kinkel (Union Pacific Railroad) is the person to contact in Omaha for permits at (402) 997-3620.

Ms. Fritschi said that the preliminary 40% submittal for the roadway is incomplete until the bridge structural selection report and the geotechnical report are submitted. Mr. Olbert said that the submittal is being delayed because the county superior court selected our structural engineer for jury duty. This will delay the bridge submittal another week.

On the issue of the Advisory Committee for Aesthetics, Mr. Rerick said that the meetings we have been having with the City of Goodyear have been serving the same purpose. The last meeting and field trip to visit various channel sections and treatments have helped to identify the typical sections that the City feels are acceptable. Mr. Rerick said it would help if a graphic could be prepared to illustrate the uninterrupted access along the channel through the drop structures, the railroad and MC 85. Mr. Olbert said he would begin work on a plan view sketch. The sketch will incorporate the ramps and the dip section under the railroad.

Mr. Rerick said the City of Goodyear should be present when the Design Concept Report review meeting is held.

Ms. Fritschi said that soil removal needs to be addressed. This will require the identification of Temporary Construction Easements (TCE's) for the placement of soil removed from the channel for use in the roadway construction. In addition, roadway TCE's that are needed to reconstruct irrigation ditches should be identified. Mr. Rerick said that right-of-way (R/W) and TCE's for the airport need to be nailed down, and that he will set up a meeting with the Airport Authority. Mr. Olbert said that Sverdrup has been working on identifying the TCE's needed along the roadways. The City of Goodyear has mentioned in the past that some of the property owners were going to relocate their own irrigation facilities. These owners should be identified by the City. Sverdrup will identify all of the TCE's needed for the roadway work for now. Later when the property owners are identified that intend to do their own relocation work then those easements can be deleted.

It was agreed that Sverdrup will identify all of the roadway TCE's by the November 18th. The Bridge Structure Selection Report will be turned in on November 21st and the roadway utility conflicts will be identified by November 25th.

Mr. Rerick said that he has not received any response to his letters to the Union Pacific Railroad. Mr. Prince has not returned any of his calls for the last two weeks. The FCD is having similar problems on another project involving the Union Pacific Railroad. The two month slippage on the channel design can be made up some with the review time. Mr. Olbert said that with the recent success at the coordination meetings with the City, that Sverdrup has started the design process. We have been

developing the Inroads modeling and should begin plan sheet production work in the first week of December.

Mr. Olbert will prepare a memorandum on the meeting held with the City of Goodyear (11/10/97) and distribute the memo for comments shortly.

The remainder of the meeting was used to prepare for the upcoming meetings with the City of Goodyear.

- December 4th - Public Meeting to be held at the City Hall or the Community Center.
- December 9th - Work Session with the City Council.
- December 16th - Council meeting to approve the IGA for Bullard Wash and Estrella Parkway.

Mr. Rerick said that he will contact Mr. Martinez at the City to reserve either the City Hall chambers or the Community Center.

Mr. Olbert said he will begin preparation of the following for the public meeting.

Typical sections for the channel.

Aerial bluelines showing the channel alignment, proposed R/W, and property owner names.

Photo enlargements mounted on foam board showing the types of channel sections to be used.

Bullet items of main features for the channel and roadway.

Typical sections for the roadway.

Provide 1" = 20' scale drawing of each intersection along Estrella Parkway.

Provide raster image with new and existing R/W, owner names, streets on foam core boards.

Mr. Rerick said that the county will provide refreshments for the public, mailings to the public along the corridor, and information handouts.

A meeting date and time, December 1st at 10 am, was set to review the exhibits and make any final arrangements.

Ms. Fritschi requested a field meeting with Sverdrup at 8 a.m. on November 18th to review the roadway TCE's, utility conflicts and guardrail needs.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: December 11, 1997

LOCATION AND DATE: Flood Control District of Maricopa County
December 10, 1997; 10:30 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Laura Fritschi, MCDOT
Roger Miles, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Estrella Parkway Roadway Improvements - Final Design
Project Status Meeting

SUMMARY:

The above participants met to discuss the status of the referenced project. Mr. Olbert submitted aerial bluelines to Mr. Rerick for use in the Section 404 permit and hazardous material overviews to be done by FCDMC Environmental Staff. In addition, the first draft plan and profile sheets for the proposed Bullard Wash Channel showing the initial InRoads modeling of the channel was presented.

Mr. Rerick requested that schedule items be accelerated to help make up lost time to bring the project completion date back toward the original 6/23/97. The current scheduled completion date is 8/20/97. Mr. Olbert said Sverdrup is cognizant of the issue and identified several items in the new schedule to help keep the schedule from expanding further. Since the two projects are to be combined for bidding, the completion date for both projects must be watched. The original completion date for the roadway portion was 7/3/98. Items that Sverdrup has initiated to keep the schedule slippage to a minimum are:

- The scope allows for an extension of time to add the Estrella Parkway segment from Lower Buckeye Road to Yuma Road (1.0 mile) to the project. Four weeks of time has been added to the schedule to bring that portion of the plans up to 40% completion. No additional time has been added to the schedule for the 70%, 90% and 100% construction plan package submittals. In addition, the review time for the 40% (L. Buckeye to Yuma) plans will not impact the schedule. We will work on the 70% package for the previous 40% submittal. Ms. Fritschi indicated that Larry Martinez will be submitting a Notice to Proceed letter today (12/10/97) for the Estrella Parkway segment from Lower Buckeye to Yuma Road. If this occurs, the extension of time may be reduced by a week.

- The discussions involving the City of Goodyear to identify channel cross-sections that meet their aesthetic and recreational needs for the channel has narrowed the options for grade control structures to be used in this project. Thus, the Design Concept Report will no longer be controlling the major design elements. The report will be completed concurrently with the 30% design plans instead of being a predecessor to starting the plans.
- The channel design was initiated prior to the 12/8/97 startup date. Decisions made by the City of Goodyear staff have allowed an earlier start date.

Mr. Rerick indicated two items that would help his staff with their schedules; i.e., early utility conflict identification and required relocation work, and the identification of right-of-way (R/W) and temporary construction easement (TCE) needs. A discussion of the two items ensued identifying known utility conflicts and TCE needs.

Mr. Olbert identified known utility issues, such as SWG - 2" gas line south of the BID canal; sewer in Broadway Road and 96" APS line to be encased; fiber optic line, buried phone line and 12 kV power in Broadway Road; between MC 85 and UPRR facilities - two fiber optic lines, two petroleum pipe lines, railroad overhead communication lines, and the new underground Qwest fiber optic line (not located yet); and the El Paso Natural Gas - 8" high pressure gas line on the airport property.

Mr. Rerick identified possible TCE's and permanent construction easements (PCE's) (listed below) for access and construction purposes. Identification of the R/W items will be given to FCDMC by 12/29/97.

North and South banks of the BID canal (TCE)
 Broadway Road (TCE)
 Lower Buckeye Road (TCE)
 Widening of the channel at the ramps (PCE)

Mr. Rerick will check on the distinction between the railroad easement needed for the channel and an easement transfer for the tailwater ditch with Doug McLaughlin.

Mr. Rerick asked for a preliminary cost estimate for the channel work to check on the \$8.2 million price tag set in the feasibility study. He will need the estimate by Tuesday (12/16/97). Sverdrup was instructed to use \$20/SY for concrete channel section. Mr. Rerick will add costs for the MC 85 bridge, the APS encasement, UPRR, utility relocation and R/W.

Mr. Rerick said he has a tentative March 1, 1998 construction start date for the 96-inch APS line. He will need a temporary bench mark (TBM) set on the APS concrete manhole cover located near the channel and channel center line staking north from the BID canal past the APS line, and a flowline elevation for the top of the concrete encasement of the 96-inch pipe.

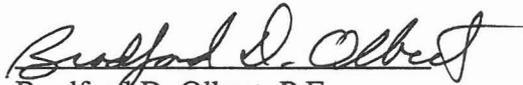
Mr. Rerick presented Mr. Olbert with two memos, one from APS on the 96-inch water line and the other regarding the aluminum oxide stockpiles on the IMSALCO property. The material is not a hazardous material and can be incorporated into the subbase material under the roadway. Ms. Fritschi will have the material analyzed in their labs to see if it is suitable for mixing with roadway fill material.

Mr. Miles presented Ms. Fritschi with a summary spreadsheet of the letter agreements for dedication of right-of-way (R/W) and utility relocation work. The summary identified all of the property owners along the project limits and the status of the agreements with each owner. The letter agreement did not mention drainage easements and TCE's. The summary indicated that much of the R/W dedication remains to be obtained. Exhibit A needs to be provided by the City of Goodyear to define the parcels that the letter agreements apply to. Also a clarification is needed on what utility relocation work by the owner includes. Concern was expressed about the timeliness of property owner relocation, design and construction. TCEs are currently shown, in the R/W strip maps, for all of the relocation requirements. Ms. Fritschi said that she will be meeting with Larry Martinez (with the City of Goodyear) this afternoon to finalize the Memorandum of Understanding. She will also discuss the status of the letter agreements with Mr. Martinez and attempt to obtain an Exhibit A for each of the existing letter agreements.

Ms. Fritschi will set up a meeting with Brooks, Hersey on the MC 85 R/W issue. Sverdrup will prepare a list of questions regarding the earlier plan sheet submitted by Brooks, Hersey. The tentative meeting time is 2 pm on Monday or anytime on Tuesday.

Mr. Miles reviewed two detour options on MC 85 for the Bullard Wash Bridge construction with Ms. Fritschi. Ms. Fritschi will review the options with MCDOT traffic personnel and give a response back to Sverdrup on the department's preference.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: January 12, 1998

LOCATION Maricopa County Department of Transportation
AND DATE: January 7, 1998; 10:00 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County
Laura Fritschi, MCDOT Engineering
John Palmieri, Flood Control District of Maricopa County
Roger Miles, Sverdrup Civil, Inc.
Dan Stough, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Bullard Wash Channel Improvement Project
Estrella Parkway - Buckeye Canal to Yuma Road
Project Status Meeting

SUMMARY:

Mr. Rerick reviewed the status on items 16 through 22 on the Bullard Wash schedule with Sverdrup. Mr. Olbert said that the Design Concept Report (DCR) is underway with Wood, Patel and Associates. Drop structure concepts have been sent to the City of Goodyear for comments. So far, no responses from the City have been received. Delays in the responses will delay the DCR, but Sverdrup is proceeding ahead with the 30% plans. The City's current review time now will reduce their review time later on the DCR and give Sverdrup time to prepare a better 30% submittal.

Mr. Rerick said that if MCDOT wants a Public Information meeting on the 12th of March, MCDOT and the FCD need to start now in preparing for the meeting. Minutes on the last public meeting have not been prepared by the public relations people. Mr. Rerick will check on when the minutes will be completed. Mr. Rerick said the FCD would rather have another property owner meeting instead of another public meeting. Ms. Fritschi said the City of Goodyear should be asked if another meeting would help serve its interests. Mr. Rerick said he would contact the City to check if they would like another public meeting and if so, when and where they would like the meeting.

Ms. Fritschi reviewed the status of the MCDOT roadway plans. The 40% plans have been reviewed for the first project involving MC 85 and Estella Parkway from the BID canal to north of Lower Buckeye Road. There are a few outstanding issues that need to be resolved. The main issue is the Bullard Wash Bridge. Others involve the R/W areas, the railroad, several details, construction notes, and the patterning of the plans. Based on the results of a January 6th meeting with MCDOT Bridge Section personnel, Mr. Olbert stated that the roadway profile over the bridge reviewed and a constant

0.6% slope on the bridge deck can be achieved. Sverdrup is preparing HEC-2 runs to compare changes in the water surface profile by adding columns in lieu of pier walls, and ATL has been contacted about providing a preliminary drilled shaft capacity vs. depth chart. Hopefully Sverdrup can provide the cost information to MCDOT January 9th. Mr. Olbert said the other issues, mainly involve items to be provided in the 70% submittal. Ms. Fritschi agreed that most of those items were not in the scope for the 40% submittal. On the railroad issue, UPRR will provide the design and construction for the at-grade crossing (see Meeting Minutes dated 9/4/97). Sverdrup will provide a coordination plan sheet of the crossing. Concerning patterning of the lines, Sverdrup is patterning the line work north of Lower Buckeye Road for the 40% submittal on January 16th. Two full-sized sets of plans will be submitted and reviewed by MCDOT prior to reproduction and distribution to the utilities. The remaining project sheets will be patterned by January 23rd and two full-sized copies will be provided to MCDOT. Ms. Fritschi is still waiting on review comments from the City of Goodyear and MCDOT's Traffic Division.

Ms. Fritschi said the well on Yuma Road will need to be capped by the contractor. Mr. Rerick said that Bob Stevens with FCDMC has dealt with ADWR on closing several wells. Mr. Stevens knows the process and should have the forms to fill out to receive approval for the work. Mr. Rerick also has some specifications for closing the well.

Mr. Rerick expressed concerned that the MC 85 bridge will cost more now that MCDOT wants the bridge lengthened and widened. Mr. Olbert said that in the last meeting with MCDOT, a sidewalk was to be added to the north side of the bridge and the bridge lengthened to place the abutments outside the channel section. An approximate increase in square footage is 1,450 SF at a cost of about \$80,000. Mr. Rerick said that the FCDMC would like some justification of the changes and have a say in the change. Ms. Fritschi asked Sverdrup to document the changes and present pro/con bullet items for further discussion. Sverdrup should have all the issues on the bridge together by January 9th.

Ms. Fritschi said that pothole work should be initiated shortly. Mr. Olbert will schedule the work in a couple of weeks. Sverdrup will be providing coordinates on the pothole locations to our subconsultant, Geotrack, who will located the boring sites, have them blue staked and then excavate the holes. Mr. Olbert said he would like to have MCDOT review the pothole locations prior to the actual work. Ms. Fritschi said that the utility people would want to review the locations.

Ms. Fritschi mentioned that MCDOT has recently revised its standard specifications. Sverdrup will need to pick up a new disk of the MCDOT specifications. Mr. Rerick said that for the 60%/70% submittal, the roadway and channel specifications will be two separate packages that are combined into one document. Mr. Rerick and Ms. Fritschi will work on the boiler plate information up front.

Ms. Fritschi requested that Sverdrup contact ATL and request additional information on the channel soil that can be used for the roadway fill material because the borings indicate additional areas meeting the MCDOT standard for fill material. MCDOT does not want to bring in borrow for this job. ATL should also determine what can be done to stabilize the channel soil to make it more suitable for roadway purposes. Modifying the subbase material should reduce the asphalt concrete design thickness and be less expensive than bringing in borrow material.

The detour options were reviewed for the MC 85 bridge. Ms. Fritschi would like a summary of the three detour options presented, including the costs associated with each of the options and pro/con bullet items. Mr. Rerick stated that the FCDMC has a specification that is available for rerouting traffic onto other streets.

Mr. Miles presented the concept of widening Estrella Parkway at the railroad crossing to the ultimate width. This would add approximately 9 feet of extra pavement on each side of the roadway through the railroad crossing and down to the intersection with MC 85, but it would preclude having to go back to the railroad a second time to widen the roadway in the future. A preliminary review indicated the cost would be minimal. Mr. Olbert said the extra southbound lane could serve as a right-turn only lane and the extra northbound lane could be striped off with a painted taper line similar to what the City of Phoenix has done at several of its intersections, such as the northbound lanes of 44th and Van Buren. Ms. Fritschi said to proceed with the change.

Mr. Miles said that Sverdrup will need additional survey for Estrella Parkway north of Lower Buckeye Road. Sverdrup will walk the alignment this week to check the existing topography provided. Missing field information will be identified in the survey request. Ms. Fritschi will request the additional survey through FCDMC.

Mr. Rerick requested that the top of encasement elevation be Faxed to Sarianne Rittenhouse with APS.

Mr. Olbert presented an option for the drop structure south of the BID canal. The option included grouted riprap for the channel between the BID overchute structure and the BID box culvert. The slope between the two structures will be flattened and riprap will be placed within the box culvert to roughen the surface. As with the drop structure proposed north of the railroad, a concrete paved pathway through the riprap will be used for maintenance/equestrian/pedestrian usage. Mr. Rerick said the concept looked good to him, and he will present the information to Risk Management for their review. Mr. Rerick requested that the information be presented to Chris Stevens for the City of Goodyear to review. Mr. Olbert said it will be forwarded to the City today.

The inlet to the East Tributary was discussed. Mr. Olbert presented a concept that would capture the storm flows and tailwater flows in a box culvert drop inlet. A schematic concept drawing was presented. The inlet would be depressed 2 feet below the box culvert to capture and convey tailwater flows south in a 48-inch diameter pipe. The inlet design would capture tailwater flows up to 23 cfs where spillover into the box culvert would then occur. The maximum discharge through the pipe would be 140 cfs during the 100-year storm event. The area on the north side of the railroad bridge will be filled in and compacted around the 48-inch pipe. The area between the railroad bed and the airport perimeter road will be raised above the perimeter road to force any water flowing parallel with the railroad tracks to flow toward the drop inlet. Mr. Rerick said the concept looks good, however, Sverdrup will need input from the farmers, i.e. A-Tumbling-T, on the pipe size.

Mr. Olbert presented a large drawing that illustrated the Bullard Wash project along with the proposed R/W and TCE's. The major change that had not been presented before is the inlet configuration. The drop inlet will utilize stepped gabions to dissipate energy and draw down the

spread of the flood water approaching Lower Buckeye Road. The Lower Buckeye Road alignment will be raised to force any flowby into the drop inlet. Upstream of the inlet, the tailwater sump ponds will be removed to help center the flood waters on the drop inlet. Wood, Patel and Associates will be reviewing the concept to determine how far upstream the drop needs to be constructed to ensure adequacy of the design. The drop inlet and sump ponds are located on Sunchase property. Mr. Olbert will call Mr. Christensen to discuss the removal of the sump ponds. Mr. Palmieri said he will check and determine if the Lower Buckeye Road R/W was ever deeded back to the local property owners. Mr. Palmieri also asked if the airport fence was located on the R/W line along the East Tributary alignment. Mr. Olbert said that he will overlay the computer R/W and topography files and check how close the two are to each other.

Mr. Olbert presented three alternatives for the outlet to the Gila River. The construction costs for providing channel improvements using gabions to contain the flow to the edge of the BID property (Alternatives 1 & 2) exceeded the cost of paying a premium for the entire parcel along with minor grading improvements (Alternative 3). Mr. Palmieri will make a recommendation then to purchase the parcel with the premium.

Mr. Rerick said we need to set up a joint meeting with the City of Goodyear, Sunchase, Buckeye Irrigation District, A-Tumbling-T Ranches to reach a concensus on the items we have covered. A tentative meeting date of Tuesday, January 13th, at 8:30 a.m. was set. Sverdrup will call Ron Rayner, Barbara Rust, and John Christensen. Mr. Rerick will contact the City of Goodyear and Jackie Meck. [Note: the meeting date and time were later rescheduled to January 20th at 1:30 pm.]

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

LOCATION Flood Control District
AND DATE: February 12, 1998; 8:30 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Laura Fritschi, Maricopa County Department of Transportation (MCDOT)
Roger Miles, Sverdrup Civil, Inc.
Dan Stough, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Project Status Meeting

SUMMARY:

The above participants met to discuss the above project status.

Mr. Rerick asked the general status of the Bullard Wash schedule and if there was room to improve on the schedule. Mr. Olbert said that delays in comments and decisions by the City of Goodyear has compressed the schedule to the point that there is no more room to improve upon the schedule. Mr. Rerick said that he should be able to compress the review process by a week or two but scheduling of the review meetings when everyone can meet is difficult.

Mr. Olbert said that Brooks, Hersey reported they have completed the 15 points of roadway survey work to do except the temporary benchmarks. John Rose approved the survey work earlier. The 4 points of channel survey work to do should be completed next week.

MCDOT Roadway Design Issues

Ms. Fritschi discussed the pavement design section. She suggested a "lime slurry" treatment to achieve a more economical structural section for the pavement. This should reduce the 7"AC over 10" ABC. The plans would have the minimum required pavement design. Quality control would be by the contractor or the Construction Manager. The contractor will prepare the traffic control plan for the roadway project. The plan must be acceptable to MCDOT.

Mr. Olbert questioned the need for the sidewalk on the north side of the MC-85 Bridge. The R/W to the north of the highway is fenced off from Estrella Parkway to Litchfield Road, thus there are no places where people come from nor are there any destination points to go to. The CAR has no sidewalk on the north side of the bridge for the ultimate section. The added cost to the bridge is approximately \$40,000+. This discussion has been added to the memo to Mr. Epstein.

Mr. Olbert reviewed the three options to constructing the proposed MC-85 Bridge. The full closure of MC-85 is the least costly. Ms. Fritschi said for Sverdrup to proceed on the basis of a full closure of MC-85. Single-phase construction will be the least costly.

Mr. Olbert said that David Hayes with ATL, has not returned numerous phone calls or responded to requests for design input for the MC-85 Bridge foundations. Sverdrup cannot complete the Bridge Structure Selection Report for MCDOT. A letter was sent to ATL by Fax and mail putting them on notice. Ms. Fritschi and Mr. Rerick will call ATL to express their concerns for the lack of response by ATL.

Mr. Olbert said that Sverdrup might seek another Subconsultant for the levee analysis. Mr. Rerick said that Sverdrup can submit the change to Ms. Birch and him by e-mail for approval.

The City of Goodyear has not responded to request at setting up meetings with property owners along Estrella Parkway regarding R/W, access, and irrigation relocation issues. No contact has yet been made with the IMSALCO facility. This is important because their use of the railroad R/W for parking and access to the south side of the property will be blocked. Ms. Fritschi and Mr. Olbert will contact Mr. Martinez to set up the meetings or have Sverdrup and/or MCDOT take the responsibility. Ms. Fritschi said that Mr. Cleveland wanted to take the lead but nothing has happened. This will seriously delay the roadway design process not to mention the R/W acquisition process. Ms. Fritschi will set up a meeting with IMSALCO and will write the City of Goodyear regarding the lack of timeliness on these issues.

Mr. Miles said that he is preparing a memo with drawings for MCDOT/City of Goodyear to take over the irrigation easement, located on the west side of Estrella Parkway from Elwood to UPRR R/W, from the Roosevelt Irrigation District. This would save considerable R/W and costs.

Mr. Olbert presented the signal costs to Ms. Fritschi for the Estrella Parkway/MC 85 intersection using the City of Tempe style poles. The Tempe style poles double the cost of the signalization.

MCDOT has a utility coordination meeting set up for next Tuesday. Mr. Rerick asked Sverdrup to bring sheets 13 – 15 of the East Tributary Channel to the meeting. He will request that El Paso NG pothole their line to check if the proposed channel will affect El Paso's facility.

FCDMC Channel Design Issues

The City of Goodyear has also not yet responded in writing on the various channel issues that were approved during the 1/20/98 meeting. Mr. Rerick and Olbert will call Mr. Stevens at the City of Goodyear asking again for the letter response.

Information on the Phoenix Goodyear Airport injection and monitoring wells will need to be placed into the channel construction documents. Mr. Rerick said that possibly an Appendix in the Supplemental General Conditions showing the well locations with a narrative or an overall plan sheet of the airport area be included in the construction drawings. The construction plan drawing could also include possible spoil sites.

Mr. Rerick said that TCE's should be obtained for all required fill areas, such as the Bullard Wash

tailwater ditch.

Mr. Rerick asked questions concerning the estimated channel excavation and roadway fill needs. Mr. Miles said that the roadway needs approximately 86,000 Cu. Yards. The earthwork quantity for the roadway includes the shrinkage factor. Mr. Stough said that the channel will have approximately 246,000 Cu. Yards of excavation. Next meeting, Mr. Stough will provide estimated earthwork quantities by phase (split at station 90+00) to determine if earth quantities for the roadway work can be met.

MCDOT and FCDMC need to determine the phasing of the project based on available funding.

Mr. Olbert said that Wood Patel would be submitting the Selected Alternative Report next week (2/17).

MCDOT just received comments from the City of Goodyear and will provide the comments to Sverdrup shortly.

Mr. Rerick requested that Sverdrup prepare a corrosion protection memo together for the file.

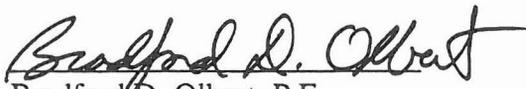
Mr. Rerick said that the Bullard Wash 30% review meeting has been scheduled for 2/25 at 1 p.m. The meeting for adjacent property owners and interested parties is scheduled for 2/26. Mr. Olbert set up a meeting with the Phoenix Goodyear Airport for 2/27.

The next monthly meeting is March 10th at 3:30 p.m.

Mr. Rerick will set up a meeting with UPRR to discuss roadway and channel project issues.

Please review these meeting minutes and call me (231-8999) if you have comments.

Signed:


Bradford D. Olbert, P.E.

Distribution: 013884-2B
Meeting Attendees

MEETING MINUTES

Sverdrup Civil, Inc.

LOCATION Sverdrup Office
AND DATE: March 17, 1998; 3:00 pm

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Bruce Ward, Maricopa County Department of Transportation (MCDOT)
Laura Fritschi, MCDOT
Roger Miles, Sverdrup Civil, Inc.
Dan Stough, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Project Status Meeting

SUMMARY:

The above participants met to discuss the above project status and to continue the discussion from the previous project status meeting on plan coordination and phasing.

Mr. Rerick requested information from Sverdrup as to the earthwork requirements of the roadway project.

Mr. Miles said that from the BID Canal to Elwood, including MC-85, a net of 40,000 Cu. Yards of material is needed. A total of 60,000 Cu. Yards are needed but 20,000 Cu. Yards are available from the R/W and drainage retention basins. From Elwood to north of Yuma Road, a net of 42,000 Cu. Yards of material is needed. A total of 69,000 Cu. Yards are needed but 27,000 Cu. Yards are available from the R/W and drainage retention basins. The total net is 82,000 Cu. Yards of material is needed for the roadway project. The earthwork numbers assume that the old asphalt pavement material is being hauled off for disposal and a 15% shrinkage factor has been applied. Mr. Stough said that 171,000 Cu. Yards of soil is available from the channel from the BID canal to Station 90+00. Ms. Fritschi will check with the City of Goodyear if material can be stockpiled on the city property at the NW corner of Estrella Parkway and Yuma Road for the next project. Soil amount would be estimated based on the Elwood to Yuma project.

Ms. Fritschi asked Mr. Miles if he could develop an inventory list of IMSALCO items to be removed or relocated. Forward list to Ms. Fritschi. The previous cost estimate prepared by MCDOT R/W was \$185,000. Mr. Olbert said that the IMSALCO area was just surveyed by Brooks, Hersey and we will forward the information to MCDOT. Mr. Miles said he would contact Todd Belzner about the estimate.

Ms. Fritschi said that the City of Goodyear now wants to abandon the existing well that is located east of Estrella Parkway and south of Yuma Road and relocate it further to the east. The well abandonment procedure will need to be in the specifications. Mr. Ward said he would try to get the ADWR # for the wells to be abandoned.

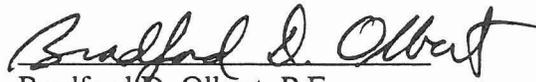
Ms. Fritschi had a recent meeting with SunChase and directed Sverdrup to remove the private concrete lined ditches at the following locations, south of Yuma Road and east of Estrella Parkway, south of Yuma Road and west of Estrella Parkway (southern most CLD of the two CLDs). Only replace the RID concrete lined ditches south of Yuma Road. Mr. Ward suggested that the ditches to be removed or abandoned be shown as such on the plans. Ms. Fritschi can then send the sheets to SunChase for their concurrence. MCDOT will need to do this with all of the property owners.

Ms. Fritschi said that the City of Goodyear wants all CLD relocations to be done by the contractor and not by the property owners.

Ms. Fritschi said that Mr. Butch will have all of the utilities relocated by Labor Day. All R/W is expected by August 1st. Mr. Butch to schedule the next utility coordination meeting on May 4th. Ms. Fritschi will need the utility pothole information as soon as it comes in.

Please review these meeting minutes and call me (303-9799) if you have comments.

Signed:



Bradford D. Olbert, P.E.

Distribution:

013884-2B
Meeting Attendees

MEETING MINUTES

Sverdrup Civil, Inc.

Date: April 27, 1998

LOCATION Flood Control District
AND DATE: April 15, 1998; 9:30 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Bruce Ward, Maricopa County Department of Transportation (MCDOT)
Laura Fritschi, MCDOT
Wayne Butch, MCDOT
Jim Neibergall, MCDOT
Roger Miles, Sverdrup Civil, Inc.
Dan Stough, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Project Status Meeting

SUMMARY:

The above participants met to discuss the above project status.

The project schedule shows that the Bullard Wash 60% plans will be submitted before or on 5/6/98, the Pre-final Selected Alternative Report will be submitted next week and the Estrella Parkway 70% roadway plans will be submitted 4/23/98. Mr. Rerick requested 3 sets of the 70% plans for the FCD. All reports, disks, plans, etc. are due by 8/22/98 according to the new schedule.

Setting temporary benchmarks (TBMs) for the project was discussed. Normally, TBMs are placed at 500-foot intervals. The reconstruction activity will disturb the entire corridor so placement of TBMs that will not be disturbed by farming activity or construction work will be difficult. Mr. Rerick suggested using a minimal number of TBMs and allowing the contractor to set his own. Sverdrup will come up with a plan to position TBMs throughout the project. Mr. Ward will review the plan on the final positioning.

Mr. Rerick asked about the R/W acquisition on the project. Ms. Fritschi said that much of the roadway R/W has been obtained already and that MCDOT should have all of it by September 1. Mr. Rerick said that the FCD will have all of the property by September 1 as well.

Additional R/W work was discussed. Mr. Miles said that he needed an additional TCE along the south side of Elwood Street. Ms. Fritschi said that there were a couple of legal descriptions and individual parcel maps that Sverdrup needs to adjust. Mr. Olbert said that we had agreed to supply the items to MCDOT by this Friday. The additional TCE on Elwood can be supplied by this Friday as well. Mr.

Miles asked if MCDOT had determined what agreements had been made with the BID on the existing BID bridge construction. Ms. Fritschi will check with the City of Goodyear on any existing agreements and will have Mr. Neibergall write a letter to BID requesting the information. Mr. Miles said that we will need additional agreements with BID to construct the guardrail improvements to the bridge.

Mr. Rerick said that the only R/W that remains to be identified on the Bullard Wash project is for the inlet area on the East Local Tributary. The FCD is working on the SunChase property now. The Wood farm will follow and the Airport and UPRR property will be last.

The IMSAMET property will be paid via an escrow account to remove and replace all of their facilities displaced by the project. Ms. Fritschi said that they know that the remove and replacement work will need to be done by September 1. Ms. Fritschi asked if Sverdrup was proposing a retaining wall along the IMSAMET property. Mr. Miles said that with a rural typical section a retaining wall will be needed because the backslope along the property is too steep. Mr. Ward suggested an urban section with curb and gutter in lieu of the rural section. The section can be built to the ultimate section on the east side only up to the entrance. The backslopes can be steeper and the City of Goodyear can add future sidewalks when desired. Sverdrup agreed to add the wider section in this area.

Ms. Fritschi said that the irrigation well located SW of the intersection of Yuma Road and Estrella Parkway will be abandoned and capped. The City of Goodyear will get the approval of the property owner and the identification number for the well. Sverdrup has received copies of the well abandonment forms to add to the specifications.

Mr. Ward said that the 70% roadway plans need to include the diversion plans with the bridge construction plans. Mr. Miles said that the diversion plans will be included in the plan set.

Mr. Rerick and Mr. Ward said that they need to have a construction duration presented with the 60% channel plans and the 70% roadway plans. The county needs to develop a timetable for disbursement of the construction dollars. Mr. Rerick said that if he can get Mr. Cleveland to move funding up to the fiscal year 2000 the entire Bullard Wash project can be done in one phase instead of two.

Mr. Rerick said that utility relocations should be done by September 1. Mr. Butch said that the utilities are coordinating between each other on their relocation efforts. It would be best if all the R/W was obtained before the end of May. Mr. Butch said that those properties that have not been obtained by then will be identified for condemnation and right of entry obtained. Utility design work should proceed based on the preliminary plans. Mr. Olbert said that Qwest supplied as-built plans two weeks ago. The plans show only a horizontal location for their facility. Mr. Rerick will have Mr. Sutton request new as-builts from Qwest with the vertical information. If they can't provide the vertical data then they will need to pothole the line. The new fiber optic line is being installed along MC 85. MCDOT will supply the as-builts of the line. Mr. Miles requested a list of the utility contact names and phone numbers for the specifications. Mr. Neibergall will provide that list to Sverdrup.

Mr. Ward said that MCDOT has not heard anything from UPRR on the at-grade crossing on Estrella Parkway. Mr. Rerick said the FCD received a private road crossing agreement, and samples of the assignment rider and Contractor's Right of Entry Agreement. Mr. Rerick will continue with his calls to Bob Prince for the Bullard Wash Bridge agreement. Mr. Rerick suggested that MCDOT call Terry Minarick about the Estrella Parkway crossing at 402-997-3587. Mr. Olbert said that he had a call from

Kelly Swa with UPRR. They were interested in information on the existing Bullard Wash Bridge. UPRR intends to remove and replace the existing bridge with a RCP to convey the tailwater flows. Timing of the proposed work was not discussed. Sverdrup needs to continue with coordination effort and include any information in the special provisions.

John Goodman with APS is the new utility contact person for this project. The County needs to request prior rights information from APS again.

Neither Sverdrup nor the FCD have received any further comments back from Coe & Van Loo / SunChase. Mr. Olbert will contact Barbara Rust for additional information. Mr. Rerick will check with Jean Rice (FCD attorney) for any other comments.

The FCD will provide Sverdrup and the City of Goodyear with copies of WAPA and PVNGS Agreements. The FCD is getting a clarification on a letter from WAPA on the clearance under their power lines. Need to state in special provisions that existing clearance is 27 ft between ground and the wires. Contractor needs to follow electrical guidelines for proper clearance under the power lines.

Mr. Rerick identified several Bullard Wash issues to be addressed at the inlet end of the East Local Tributary Channel. The pipes under the airport perimeter road should be skewed to the right to reduce the inlet angle. Need to indicate what the surface of the airport perimeter road is to be. Need to come up with a final layout of the inlet area and R/W needs to provide to the airport and UPRR for review and comment. At the 96-inch APS line near the BID canal, Sverdrup will come up with a final layout of the access ramp. A memorandum to the City of Goodyear identifying the channel n-value is needed. Information on the n-value and coatings for the gabions need to be added to the DCR.

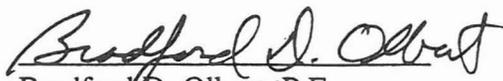
ATL has not started its levee stability analysis yet. The calculations are needed as soon as possible after the 60% submittal. Mr. Olbert said that Sverdrup just received the change order confirmation. A meeting with ATL has been scheduled for next week to get them started on the fieldwork and report.

The FCD and MCDOT will need to resolve funding adjustments with the City of Goodyear in order to determine the final packaging/phasing of the construction plans and specifications. Mr. Rerick to ask Steve Cleveland to shift funding up one quarter to enable the entire project to be bid as one package.

Ms. Fritschi said that the signing, striping, and signal plans are being prepared by MCDOT. Striping plans have not been started as of yet. MCDOT will send them out to the utilities in a package separate from Sverdrup's 70% submittal.

Please review these meeting minutes and call me (303-9799) if you have comments.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Meeting Attendees

MEETING MINUTES

Sverdrup Civil, Inc.

LOCATION AND DATE: Maricopa County Department of Transportation
May 14, 1998; 10:00 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Laura Fritschi, Maricopa County Department of Transportation (MCDOT)
Roger Miles, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Project Status Meeting

SUMMARY:

The above participants met to discuss the above project status after the Estrella Parkway Utility Coordination Meeting.

Mr. Rerick said the utility relocation effort appears to be on schedule for the channel portion of the project. The roadway utility crossings of the railroad are of concern as well as the R/W acquisition for the roadway corridor for the utility work to begin.

The new schedule reflects the change order date of August 21 as the end date for both the channel and roadway plans.

Mr. Rerick said that the City of Goodyear has agreed to accelerating the funding of the Bullard Wash project. This will allow the roadway and channel to be bid in one phase.

Ms. Fritschi said that she has been unable to locate the well number for the well located south and west of the intersection of Yuma Road and Estrella Parkway. The well along the east side of Estrella Parkway located south of Yuma Road will be protected by guardrail. Mr. Olbert suggested that she contact Mr. Tim Smith who may have farmed the land earlier or at least may have a contact person to call.

Mr. Rerick said that Sverdrup needs to use Section 215 of the MAG specifications to identify the locations of the spoil sites and call out the persons to contact along with their telephone numbers.

Mr. Rerick reminded Sverdrup of the need for the n-value and corrosion memorandums. Also the riprap drop structure sizing and structural integrity calculations.

Mr. Rerick needs input/information on the concrete paint and stain charts to send over to the City of

Goodyear. Mr. Olbert said that so far all the contacts he has made have said that they can match any color requested they only request a sample of the color desired.

Mr. Olbert said that ATL will have a draft of the report to Sverdrup by June 1st.

Mr. Rerick requested a set of the 70% specifications for Estrella Parkway. Ms. Fritschi requested a set of the 60% Bullard Wash plans and specifications.

Mr. Rerick said that he would like to use the FCDMC sequential numbering for the specifications.

Mr. Rerick said that the FCD will generate the Bid Tab from the Engineers Estimate.

Mr. Rerick said that he has not yet received the April invoice from Sverdrup. Mr. Olbert thought it had been mailed but will check on its status.

Please review these meeting minutes and call me (303-9799) if you have comments.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Meeting Attendees

MEETING MINUTES

Sverdrup Civil, Inc.

LOCATION Maricopa County Department of Transportation
AND DATE: June 29, 1998; 8:30 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Bruce Ward, Maricopa County Department of Transportation (MCDOT)
Laura Fritschi, (MCDOT)
Dan Stough, Sverdrup Civil, Inc.
Roger Miles, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Project Status Meeting

SUMMARY:

The above participants met to discuss the above project status.

Mr. Rerick handed to Sverdrup the City of Phoenix Characterization Report on the debris fill located at the southwest end of the Phoenix Goodyear Airport. The limits of the debris fill have been identified along with depths of the debris. Sverdrup will incorporate the limit information on the construction plans. The debris will be overexcavated within the TCE's to remove the material completely from the R/W. The City of Phoenix can remove the remaining debris at a later date from the airport without having to remove the fence at the R/W line.

Sverdrup submitted the 90% plans to MCDOT on 6/25. Mr. Rerick requested a set of roadway plans from MCDOT. Ms. Fritschi will send a copy over to FCDMC.

Sverdrup will need additional time to submit the Bullard Wash Channel 90% construction plans to FCDMC. The submittal date will be moved to 7/10 from 7/7.

MCDOT Roadway Issues

Mr. Ward agreed with Mr. Rerick that the additional work that the City of Goodyear would like to have done at the intersection of Estrella Parkway and Yuma Road would be completed as a change order after completion of the current scope of work. The existing scope of work items can be advertised and the additional work would be added as a change order to the contractor's contract. Sverdrup would make the changes when appropriate. Mr. Ward and Ms. Fritschi will meet with the City of Goodyear later this week to further the discussion.

The project construction time was analyzed by Sverdrup and determined to be 230 working days or 340 calendar days for both the channel and roadway construction. Mr. Rerick said that FCDMC CM Branch review suggested a contract duration of 365 days. Mr. Rerick suggested that 365 days be used instead of 340 days. The longer duration was agreed to.

MCDOT will be providing a full time inspector for the roadway work that will have all approval authority for the roadway and bridge elements. The MCDOT inspector will coordinate roadway work with the FCD inspector. Ms. Fritschi will provide the name of the individual to Mr. Rerick so that the FCD/MCDOT inspectors can begin meeting to discuss the project.

Mr. Rerick said that the SGC's need to be enhanced by adding roadway information and any unique items to each section. Under Section 105.6, Utility Coordination, the list of names and numbers of the contact persons for the channel needs to be modified to include the roadway contact names. Sverdrup to provide brief description of the facilities for each utility for the roadway and the channel. Format MCDOT and FCD Special Provisions the way each entity likes them. Send a copy of the 90% Channel specifications to MCDOT when completed.

Mr. Miles said that the as-built information from IXC indicates that there may be a conflict between their fiber optic conduit and the tailwater culvert under MC-85 just west of the Bullard Wash Bridge. Mr. Rerick said he would have Mr. Sutton contact IXC and get a pothole check (Geotrack) on the line.

Conduits needed under the railroad were discussed. A 2-inch conduit will be needed for the Estrella Parkway intersection traffic signal loop detectors. Ms. Fritschi will check with APS to determine whether they need a conduit under the UPRR tracks for their lighting needs. Mr. Rerick suggested that a large sleeve be set to handle additional unknown users. If APS does not respond by July 10th, then conduits will be placed across the four legs of the Estrella Parkway/MC-85 intersection to accommodate the future street lighting.

Mr. Rerick said that the contractor would be responsible for all construction survey staking. The section in the MCDOT specification can be deleted.

Mr. Rerick asked how much MCDOT wanted in the Community Relations Section. MCDOT has some standard language that can be used if a public meeting is desired. Mr. Ward will get Sverdrup the information if the community relation meeting is desired.

Mr. Rerick said that the channel and roadway mobilization would be one item and also include the Engineers Office. MCDOT and FCD will split the cost of this item.

Mr. Rerick directed Sverdrup to use the FCD supplementals for the partnering items. Use six signs for the project signs allowance. For the Bid Tab use \$5,000 for project signs, \$5,000 for partnering, and \$15,000 for public information and notification allowance. Mr. Ward will check on the NPDES needs for the project, may need \$5,000. For UPRR flagmen use an allowance of \$20,000.

Mr. Miles said that MCDOT is using the 1998 MAG spec. Mr. Rerick agreed to use the new 1998 version. The verbage on the boring logs should be adjusted to mention that roadway geotechnical information and roadway boring logs are available at MCDOT for review and will not be placed in the plans.

Mr. Rerick suggested that coordination issues between the farmers and contractor for the roadway and the channel be combined in one section.

Mr. Rerick said that all of the utility relocation work for the channel is underway or will be shortly. Sverdrup still needs the Southwest Gas relocation plans. Mr. Rerick said that Mr. Sutton will deliver them to Sverdrup.

Mr. Rerick said that R/W acquisition for the roadway is a barrier for the utility work to start. Ms. Fritschi said that most of the parcels have been obtained and that Rights of Entry should be acquired on the remaining parcels this week. There are a couple of parcels that will require condemnation.

Ms. Fritschi said that Jim Neibergall is the main roadway utility person for this project. All utilities have initiated their design work and they will complete their design work, schedule their crews and be in the field 20 days after the Rights of Entry are received. Ms. Fritschi said that MCDOT has scheduled a utility coordination meeting on July 7th at 2:30 pm. Mr. Rerick requested a history report and status list of all of the utilities and the R/W. A meeting will be scheduled to discuss coordination and timing of the utilities and R/W. Mr. Rerick will invite Mr. Sutton to attend. The City of Goodyear requested steel poles for the 12 kV power lines along Estrella Parkway.

Mr. Rerick will write a letter to Mr. Cleveland to help speed up the utility relocation process and to prevent further delays.

Mr. Rerick will call Mr. Prince on the bridge agreements that need to be signed. MCDOT has had difficulty in getting a response from UPRR on the at-grade crossing for Estrella Parkway. Mr. Rerick suggested that Sverdrup contact UPRR local people to get a sequence of events for the UPRR work, and the number of day notice required for UPRR to place conduits/signals. This information should be added to the specifications to identify the contractor coordination effort required with the UPRR. Mr. Miles will contact Mr. Piper (signals), Mr. Houk (at-grade crossing), and Mr. Tripp (bridge) for the information. Mr. Rerick will provide phone numbers for these individuals. Sverdrup to send ½ size sets of the construction plans to help speed up the review and scheduling of work process.

The 90% roadway plans show the installation of sleeves for both median streetlights and median landscape irrigation. APS will review these locations and recommend modifications for the lighting sleeves.

Sverdrup needs to return the Bullard Wash 60% plan markups with the 90% submittal.

Mr. Olbert needs to get Change Order No. 2 amount to Ms. Fritschi as soon as possible for processing.

MCDOT needs to provide utility relocation plans to Sverdrup for review and placement in the plans.

FCDMC Design Issues

Sverdrup to add 24-inch pipe and inlet to drain area between the East Tributary Channel and the UPRR. New pipe will be located on the east side of the channel. Mr. Rerick reviewed the concept with Mr. Stough and agreed that the pipe should be added.

Gabion mattresses will be used at the ramps near Broadway Road and south of the BID canal in lieu of the stepped baskets. The principal reason is that it will be easier to construct. Mr. Rerick reviewed the concept with Mr. Stough and agreed with the change. Mr. Rerick requested a counterfort (thickened edge on the slope mattress) at the junction between the stepped gabions and the slope mattress.

Mr. Stough reviewed the location of the pipe gates at the north side of the BID Canal. Mr. Rerick said that the gates need to be positioned at the head of each ramp to preclude vehicles from entering the channel. It was agreed to place a double gate arrangement at the top of the ramp to block entrance to the O & M road as well.

Mr. Rerick requested that Sverdrup contact the contractors to receive an updated bid price for the gabions. The Skunk Creek project bid price of \$120/Cu. Yd. was a surprise. Bid was thrown out because only one bidder.

Use a lump sum bid item for each of the irrigation structures. For instance, the siphon structure at Broadway Road would include the manholes, headwall, and trash rack in the lump sum bid. The pipe would be a separate bid item.

Please review these meeting minutes and call me (303-9799) if you have comments.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Meeting Attendees

MEETING MINUTES

Sverdrup Civil, Inc.

LOCATION Maricopa County Department of Transportation
AND DATE: July 28, 1998; 8:30 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Fred Fuller, FCDMC
Tim Burkeen, FCDMC
Laura Fritschi, Maricopa County Department of Transportation (MCDOT)
Herb Miller, MCDOT
Dan Stough, Sverdrup Civil, Inc.
Roger Miles, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Project Status Meeting

SUMMARY:

The above participants met to discuss the above project status.

Mr. Rerick opened the meeting by reviewing the project schedules for the channel and roadway work. The schedule presented does not reflect the recent change order requests by the FCD and MCDOT. Change Order 3 by the FCD will add 14 days to the September 5th end date. The MCDOT change order (No. 4) will be completed after the current plan set has been completed. The project is on schedule to be completed by mid September. Sverdrup and MCDOT need to set the days extension for the change order by Tuesday of next week (8/4).

Sverdrup needs to review the roadway compaction/placement effort and make sure that the county is not paying twice for earthwork. MCDOT SP's 301 will include the placement and compaction of fill material for the roadway construction excluding lime stabilized fill material. The material source will be paid for in the channel excavation bid item 215-1. The FCDMC SP's will identify the channel excavation to include disposal, including locations required for roadway fill. This bid item will be only for the excavation, hauling and disposal. Approximately 80,000 cubic yards of the channel excavation material (actually 114,000 cubic yards per 90% submittal) will be used for the roadway construction.

All bid items such as dumped or grouted riprap, gabions, concrete channel lining, and channel excavation should identify that payment is to the neat line as shown on the plans.

Sverdrup to identify in the specifications that the City of Goodyear will provide the construction water for the channel and roadway construction work. Mr. Rerick will contact Mr. Martinez with the City and check if the water will be provided for free and from which hydrants. This item needs to be noted in the SP's Section 225 as a non-pay item.

Sverdrup will leave the City of Goodyear stockpile clause in the SP's until the City of Goodyear gives direction to the contrary. Amount to be stockpiled was on the order of 40,000 cubic yards for use on the next project.

The MCDOT survey direction will be included in the SGC's Section 105.8 and will be identified as a lump sum bid item 105-X.

Contractor will provide and set the survey monuments for the project. Mr. Miller will check with John Rose if he wants to stamp the elevation on the survey markers or direct the contractor to do so.

MCDOT has new verbiage for the Uniformed Officer item. It will be based on an allowance. Joel Liebermann of MCDOT has the new verbiage. Ms. Fritschi will contact Mr. Liebermann to obtain this section

MCDOT utility relocation work is moving ahead with completion scheduled for Labor Day. Two exceptions are APS (conflict with R/W acquisition at IMSAMET) and the relocation of above ground facilities by US Sprint/Cox. US Sprint/Cox are concerned about possible damage to relocated facilities in a cotton field prior to harvest. The major issue on the IMSAMET R/W is the relocation of facilities on the property. IMSAMET is required to relocate their facility prior to construction. A specific date for completion of the relocation is necessary for APS to plan its relocation work. Todd Belzner is working on the issue for MCDOT. APS won't relocate its power poles until IMSAMET relocations are complete.

UPRR agreements on the at-grade crossing at Estrella Parkway are still delayed. The UPRR work may now be done in January 1999. Sverdrup to include lead times, duration, contacts for the construction elements in the SGC's.

Sverdrup received comments from Ms. Fritschi and the City of Goodyear on the Estrella Parkway 90% roadway plans. Mr. Miles stated that he has reviewed the MCDOT traffic signal plan and noticed some conflicts. He will fax a list to Ms. Fritschi to give to MCDOT Traffic.

Sverdrup met with Larry Martinez, Joe Evans and Chris Stevens on 7/27/98 concerning the City of Goodyear change order at Yuma Road. They were concerned about the well site and wanted to discuss adjustments to miss the well. The change requested adjusts the roadway concept. The loop road around the Estrella Parkway/Yuma Road intersection will be a six-lane divided roadway. The segments of Yuma Road and Estrella Parkway within the loop road will be reduced to a 4-lane divided roadway with curb and gutter. Considering the narrower Estrella Parkway section (ultimate section was a 6-lane divided section) the City of Goodyear wanted the roadway realigned six feet to the west to miss the well. Sverdrup agreed that the roadway could be realigned to miss the well using the new concept. The City recognized that if their concept of Estrella Parkway changed in the future that they would need to make changes to the roadway. The City agreed that 60:1 tapers are necessary until the area develops.

The change order work will be done after the current design is finalized in August. The longest lead item is the R/W work. Two parcels will be affected. One parcel is a new one that will require a title report and appraisal. The second parcel needs the R/W takes adjusted. Sverdrup requested an advance notice to proceed with the R/W work and that the change order time be tied to the 40% work to the next

project to the north. A right of entry could be obtained to move forward with the construction work ahead of the R/W.

Mr. Rerick requested comments from Mr. Burkeen and Mr. Fuller on the MCDOT 90% plans and specifications.

Sverdrup has not received any comments from Mr. Ogden (FCDMC) on the ATL letter. Mr. Rerick will check with Mr. Ogden and forward any comments to Sverdrup.

Mr. Rerick stated that utility relocation work on Bullard Wash will be completed by this Labor Day.

Mr. Rerick has redlined a joint cover sheet that he will send to Sverdrup with his review comments on Bullard Wash. Sverdrup to include additional signature blocks on the MCDOT plan cover sheet (City of Goodyear and Roosevelt Irrigation District). Sverdrup will also to add a block to the Bullard Wash plans identifying the work as being "In Cooperation with the City of Goodyear".

Mr. Rerick asked Sverdrup to adjust the cul-de-sac on the East Tributary to the west, so that it is closer to Bullard Wash. In addition, a barricade will be needed at the end of the cul-de-sac for safety purposes.

Mr. Rerick asked Sverdrup to develop a basis for the landfill material removal and disposal. Costs for dump fees are in the range of \$16 to \$23/ton. Use tonnage as the unit for removal and disposal.

The channel cross section change was discussed. Sverdrup brought to the meeting a preliminary channel layout at the BID canal location. The concrete lining is shown to be transitioned before the 96" APS encasement (Sta. 33+30). Mr. Rerick pointed out the APS power pole locations at the BID canal is in conflict and will be checked with Phil Hobday (APS). The one APS pole needs to be moved out of the O&M Road. R/W changes will be reviewed by Mr. Rerick and discussed over the phone with Mr. Stough. Add note warning the contractor not to overexcavate past the end of the APS 96" encasement.

Mr. Rerick requested a 99% submittal that would incorporate the 90% comments and the changes to the channel section between the BID canal and Broadway Road.

The locations for the handrail will be checked. May not be needed for the 3:1 slopes.

Sverdrup to get comments from Barbara Rust on the siphon crossings.

Sverdrup to add a detail on the bridges that shows expansion joints between the channel section and the abutments/piers. Also a joint detail where the UPRR bridge H-piles penetrate the channel floor.

Please review these meeting minutes and call me (303-9799) if you have comments.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Meeting Attendees

MEETING MINUTES

Sverdrup Civil, Inc.

LOCATION Flood Control District of Maricopa County
AND DATE: August 17, 1998; 8:30 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Olin Sutton, FCDMC
John Palmieri, FCDMC
Bruce Ward, Maricopa County Department of Transportation (MCDOT)
Laura Fritschi, MCDOT
Wayne Butch, MCDOT
Jim Neibergall, MCDOT
Roger Miles, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Project Status Meeting

SUMMARY:

The above participants met to discuss the project status.

Mr. Rerick opened the meeting by reviewing the project schedule. The tentative plans/construction schedule is as follows: Interim Plan Check Set - Aug. 25, Final Plan Set - Sept. 18, Advertise Project - Sept. 28, Project Pre-bid Meeting Oct. 7, Bid opening Oct. 26, and Notice to Proceed Dec. 1.

Mr. Butch has a standard pre-bid letter that can be used for this project. Mr. Butch will forward a copy to Mr. Rerick. Mr. Rerick stated that he would like this meeting to be mandatory for the contractors. Mr. Butch said that all the utilities will be notified. The FCDMC will notify the property owners and the airport if they wish to attend.

Mr. Rerick said that the contractors need to know ahead of the bid date about several items such as the layout of the ultimate earth limits of Lower Buckeye Road for Tim Smith and RID irrigation dry-up periods, etc. Sverdrup to add a Section 216 to the Roadway Specification package to cover irrigation by-pass work required for the RID and private irrigation work. It is anticipated that the contractor will not begin construction until after the RID dry up schedule for November 9th - 23rd and RID is only willing to allow for 24-hour dry-up periods in December and January.

Utilities -

See attached utility status for the roadway package. Two utilities, US West and APS, may have an impact upon the project construction schedule. US West just went on strike and APS have had poles

delivered for this project diverted for storm damage emergencies. FCDMC attorneys are reviewing the UPRR agreements for the channel work prior to signature. UPRR could possibly start construction work within 30 days. UPRR sent agreements for review on the at-grade crossing of Estrella Parkway last week. Cost estimates have yet to arrive.

Right-of-Way –

The City of Goodyear will take over the responsibility of operation and maintenance of the RID irrigation/drainage ditch south of Elwood Street. The reason for the change in responsibility is to allow irrigation and storm water to use the same ditch for conveyance of flows as shown on the construction plans. The City has written a letter of agreement to RID that is being reviewed by RID's attorneys and board. The RID easement with UPRR needs to be transferred to the City of Goodyear. The City will need to process the agreement through Mary Gross with UPRR.

Concerning the BID Canal R/W, Mr. Palmieri stated that 40 feet of Roadway easement already exists on each side of the section line. The title report for the east parcel has the recorded easement. Sverdrup will limit the roadway construction work on the west side of the section line to be contained within the existing R/W. On the east side of the section line, the FCDMC will append the TCE to include roadway work items.

Right of Entry has been obtained for all parcels except the IMSAMET parcel for the roadway work. The IMSAMET parcel will be clear when MCDOT delivers a "cost of cure" check to IMSAMET.

Right of Way for the channel is either being resolved in court (Woods property), waiting for City Council approval (Airport), or is in the final agreement stage (BID and UPRR).

Other Issues –

Mr. Miles again requested a list of items needed for the roadway plans from the R/W agreements made with the property owners along MC 85. This would include items like driveway locations and fence replacement.

Mr. Miles again requested the stripping quantities from MCDOT.

MCDOT will provide any SGC changes to Mr. Rerick for review. Mr. Rerick will forward the changes to Sverdrup.

Ms. Fritschi said she has not heard from Todd Tupper or Michael Brooks regarding the private irrigation ditches on the south side of Yuma Road west of Estrella Parkway. Mr. Rerick and Ms. Fritschi directed Sverdrup to put these private ditches back into the plans. It is easier to delete the ditch work than to add it later.

Mr. Rerick requested that Sverdrup send him the revised SP Sections 211, 301 and 309 for him to review. Also send the revised engineers cost estimate that incorporates the requested format changes. Mr. Miles stated that the format changes should be completed tomorrow. The engineers estimate will lack updated channel and roadway quantities.

Mr. Neibergall is still waiting on the Geotrack pothole report. Geotrack still has not been able to pothole the 8-inch COG water line because the City had not blue staked the line. Mr. Miles requested a copy of the data when the report arrives. Mr. Neibergall will call Geotrack and check the status of the work.

The next monthly meeting was tentatively scheduled for September 3rd, 1998, at 8:30 am.

Please review these meeting minutes and call me (303-9799) if you have comments.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Meeting Attendees



 AVERY

Bullard Wash Channel Improvements Other Meeting Minutes

<u>No.</u>	<u>Meeting Minutes</u>	<u>Date</u>
1	Bullard Wash, Kickoff Meeting	Aug. 14, 1997
2	Bullard Wash, Field Walkdown	Aug. 21, 1997
3	Bullard Wash, Field Meeting with BID	Aug. 22, 1997
4	Bullard Wash, Partner Kickoff Meeting	Aug. 28, 1997
5	Meeting with UPRR	Sept. 3, 1997
6	Estrella Parkway, Status Meeting on Survey	Sept. 12, 1997
7	Utility Kickoff Meeting	Sept. 17, 1997
8	Bullard Wash, Field Review Meeting with Qwest	Sept. 19, 1997
9	Bullard Wash, Coord. Mtg with Phoenix Goodyear Airport	Sept. 29, 1997
10	Bullard Wash, Channel Coord. Mtg with the City of Gdyr	Oct. 2, 1997
11	Estrella Parkway, Rdwy Coord. Mtg with the City of Gdyr	Oct. 2, 1997
12	Bullard Wash, Property Owner Meeting with SunChase	Oct. 28, 1997
13	Bullard Wash, Property Owner Meeting with Wood Family	Oct. 28, 1997
14	Bullard Wash, Channel Aesthetics Coordination Meeting	Nov. 10, 1997
15	Estrella Parkway, Roadway Field Review Meeting	Nov. 18, 1997
16	Bullard Wash, Meeting with Phoenix Goodyear Airport	Nov. 24, 1997
17	Estrella Parkway, Right-of-Way Meeting	Dec. 5, 1997
18	Estrella Parkway, 40% Construction Plan Review Meeting	Jan. 5, 1998
19	Estrella Parkway, Structure Selection Report Review Mtg	Jan. 6, 1998
20	Bullard Wash, Meeting with UPRR	Jan. 13, 1998
21	Estrella Parkway, Right-of-Way Meeting	Jan. 15, 1998
22	Bullard Wash, APS 96" Encasemt Pre-Constr. Meeting	Jan. 30, 1998
23	Bullard Wash, 30% Utility Coordination Meeting	Feb. 17, 1998
24	Bullard Wash, 30% Plans Review Landowner Meeting	Feb. 26, 1998
25	Estrella Parkway, 40% Construction Plan Review Meeting	Feb. 26, 1998

**Bullard Wash Channel Improvements
Other Meeting Minutes**

<u>No.</u>	<u>Meeting Minutes</u>	<u>Date</u>
26	Bullard Wash, Interior Drainage Coord. Mtg.	Feb. 28, 1998
27	Bullard Wash, Hydraulic Review Mtg.	Mar. 17, 1998
28	Bullard Wash, 30% Airport Plan Review Meeting	Mar. 25, 1998
29	Estrella Parkway, 70% Comment Review Meeting	May 18, 1998
30	Estrella Parkway, Utility Coordination Meeting	May 25, 1998
31	Bullard Wash, 60% Comment Review Meeting	May 29, 1998
32	Bullard Wash, Field Trip and Constructability Analysis	June 3, 1998
33	Estrella Parkway, 90% Comment Review Meeting	July 28, 1998
34	Bullard Wash, 90% Comment Review Meeting	Aug. 11, 1998
35	Estrella Parkway, Issue Resolution Meeting	Aug. 12, 1998
36	Bullard Wash, 90% Hydraulic Review Mtg.	Aug. 12, 1998
37	Estrella Parkway, RID Meeting	Aug. 14, 1998

**BULLARD WASH PHASE 1 - "KICKOFF" MEETING
AUGUST 14, 1997**

See attached list of attendees. Below is a summary of the discussion and action items (**) identified.

General Issues -

1. (**) Obtain copy of SOW from Russ. Consultants are Sverdrup and WPA, along with ATL.
2. Project partners include MCDOT (Bruce Ward) and Goodyear (Chris Stevens and Tim Edwards), and CVL (representing the "A Tumbling T Ranch" developers south of MC 85), and the B.I.D..
3. (**) What flexibility do we have in implementing aesthetic design elements; who pays, change order impacts, etc.?
4. Written contract NTP given on July 25, 1997.

(**) Contract duration in total calendar days = 334. Need to monitor for C.O. contract extensions in excess of contract end date of .
5. (**) How are the construction documents to be packaged; as two separate contracts MCDOT and FCDMC, or as one? As minimum, the MC 85 improvements at the Bullard Wash crossing must be part of the FCDMC wash improvements contract.
6. All invoices for project routed to FCDMC with project feature breakdown for MCDOT costs. MCDOT to review and authorize payment, FCDMC to pay, and MCDOT to reimburse FCD.
7. (**) CIP budget showing MCDOT reimbursements for their design costs rather than showing all as FCD costs?
8. (**) Need copy of IGA between MCDOT and FCD. How is funding to be handled between us? Between FCD/MCDOT and Goodyear?
9. Sverdrup suggested that if submittal review comments cannot be obtained in their entirety, then the review meetings and therefore the project schedule should be slipped accordingly until they are available. Concern that a 30% level comment is not received until 90%.
10. All contract impact related requests and information through FCD to Sverdrup, including MCDOT related. None contract impact information, data,,etc. from MCDOT can go directly to Sverdrup.
11. There will be regular monthly status/update meeting with the consultant and MCDOT.
12. (**) Aesthetics related impacts and funding to be covered by Goodyear; need IGA.

FCDMC Project Features -

- D&R
1. An alternatives analysis is to be done for the possible channel linings; concrete, gabions and

soil, earthen only, and for various aesthetics elements. Sverdrup to do the analysis, coordinate with FCD and Good and get consensus before beginning final design.

2. (**) Any aesthetics related costs will be borne by Good for design and construction. Need IGA.
3. (**) Aesthetic impacts on the channel, i.e.; a wider channel may cause R/W impacts. Need to be identified ASAP.
- PLNS 4. Concrete channel lining will be used through the bridge crossing at MC 85. Some thoughts about equestrian access along the channel, but not enough clearance under bridge.
- PLND 5. A low berm along the east side of the aluminum plant, west side of channel R/W to be constructed to prevent direct discharge of runoff from the plant into the channel.
- SGC^s 6. Need to consider BID dry-up schedule and construction of the overchute; construct in the wet. Include narrative in the SGC's.
- PLNS 7. BID O&M roads must be maintained through the channel crossing; at least the north road minimum. Will require a drying crossing of the channel.
- PLNS 8. The BID has insisted that the west side of the channel be sufficient in height to prevent breakout of 100-year Gila River flows from backing up the channel and breaking out of the channel to the west, north of the BID.
- PLNS 9. At Lower Buckeye Road, training dikes or some other feature will be required to direct the flows from the poorly defined wash north of the road into the channel which begins at the road. May include dikes along the road alignment east and west of the channel, or some kind of wide mouth transition lining upstream of the end of the channel.

MCDOT Project Features -

1. Estrella Parkway improvements from BID to Lower Buckeye Road. Done in two phases; BID to Elwood, then Elwood to Lower Buckeye, and this includes the improvements to MC 85 from Estrella to the wash improvements. North of Lower Buckeye to be done at a later date.
2. (**) MCDOT to give written NTP to Sverdrup for the first phase.
3. (**) MCDOT/Goodyear IGA for the Estrella improvements?? How MCDOT to reimburse FCD for MCDOT/Goodyear design elements to be partially funded by Goodyear??

Design Elements -

1. A DCR to be prepared outlining various project features and options including overchute at BID, bridge at MC 85, and channel lining alternatives. WPA doing the DCR.
2. Public meetings for the project will be tied to the Estrella Parkway and MCDOT PIO efforts.

(**) Who will take the lead on the PIO efforts, scheduling, mailings, etc.?

BULLARD WASH IMPROVEMENTS PROJECT - FIELD WALKDOWN
AUGUST 21, 1997

The following action items (**) were identified during the field walk through meeting -

1. (**) There is a P/P on the north side of the BID Canal that will require relocation. Appears to be serving via U/G lines the PVNGS 96" water supply pipeline.
2. (**) May need to relocate the O/HE along the south side of the BID Canal for construction purposes.
3. (**) Must acquire ingress/egress TCE's along both sides of the BID Canal off Estrella Pkwy.
4. (**) Must determine need for TCE's along both sides of the PCE alignment from Lower Buckeye Road to the river.
5. (**) Will need to coordinate with the UPRR regarding relocation of the signals, switching cabinet, etc. at the crossing of Estrella Pkwy. May also need to raise the UPRR O/HE lines along the south side of the tracks.
6. The Estrella Pkwy improvements are to end at the north side of the BID Canal bridge. The new pavement will transition to the existing pavement north of the bridge.
7. (**) The BID stated that they will require the south side O&M road only to be maintained across the channel. The north side road can terminate with a "turn-around" on either side of the channel.

It was also suggested that the north road have gated access to the channel O&M roads going north to MC85, using double locked gates.

8. (**) The SP's will have a stand alone 201 bid item for clearing and grubbing.
9. (**) Need to determine the type of Broadway Road crossing required; at-grade or none at all.
10. (**) Consultant needs to set up the following meetings:
 - Meeting with UPRR to discuss all aspects of the project impacts to the UPRR; including utilities, culvert construction, timing and funding of UPRR construction, signal relocation and scheduling, etc.
 - Meeting with the farmers impacted to discuss; maintenance during construction and relocation/reconstruction of delivery and tailwater facilities, to the BID Canal (?), farm road access during and after construction, etc.
 - Meeting with airport staff to discuss such things as construction access limitations, requirements, project features versus future airport expansion, etc.
11. (**) R/W issues north of MC85 along east side of Estrella Pkwy must be resolved including removal/relocation of masonry walls, landscaping, and on west side including irrigation and road drainage ditches.

12. (**) O/HE along east side of Estrella Pkwy may require relocation north of MC85.
13. (**) Must determine with MCDOT who is going to follow the utility relocation issues for the roadway improvements, especially at the UPRR crossing.
14. (**) Must discuss the "packaging" for the construction documents, P&S for the various components of the project; i.e., channel versus roadway components, all together, phased, some by FCD, some by MCDOT, etc.
15. (**) FCD and MCDOT must review the CIP budget schedule versus documents packaging and anticipated advertising dates.
16. The BID said they do not want any "low side" design of the channel that would allow breakout of flows from the channel into the canal or into the fields north of the canal. They also expressed concern that the Gila River flows cannot backup into the channel and breakout into the canal.

NATURE SAVER™ FAX MEMO 01616		Date	8/26/97	# of pages	2
To	BLAD OLSON				
From	DAN RUTLAND				
Co./Dept	SUNBELT				
Co.	FCD/ME				
Phone #	506-0678				
Fax #	220-9189				

3. (**) Need clarification on what additional survey work is required to tie down control for the MCDOT features (see sketch from Brad at meeting).

(**) Need MCDOT authorization to do survey work, need Sverdrup input on what SOW requires and what costs required, and how to fund via MCDOT.

4. Topo mapping is complete for FCD features.

- DCR
5. Hydrology based on ADMS with refinement by Stanley. Being reviewed by WPA but not expected to spend any time revising. The peak discharges from the ADMS/Stanley work to be basis of design. May be some increases from the airport and MC 85 and this will be looked at. Sverdrup will put letter together on the hydrology to be included in the DCR.

6. FCD and Sverdrup to do all CLOMR and LOMR paperwork for project.

(**) Need to get with Kofi on the paperwork and any design concerns/considerations to be taken care of as design and calculations proceed so FEMA package can be easily done.

Rights-of-way -

1. (**) Need R/W status from JPP on TCE, PCE, and ROE.
2. Target for construction and for R/W certification is 6/30/98.
3. (**) Need ROE for geotech purposes ASAP. Have problems entering farm lands along alignment due to crops.
4. Have OIP on all property north/west of airport and south of MC 85.
5.  Aesthetics impacts on channel width may affect R/W acquisition limits.
6. MCDOT to obtain all MCDOT improvements related R/W.

(**) Need MCDOT R/W certification package by June 1, 1998 for any R/W required at the Bullard Wash crossing.
7. (**) Need to identify all potential TCE's early and get into the acquisition process; irrigation feature relocations, construction access, etc.
8. Record surveys to be used for all R/W acquisitions.

Ground surveys and coordinates to be used for the project layout. There may be some minor differences between the project layout control and R/W control of about 0.2' +/-.
9. (**) A 60 +/- acre BID parcel in the river may be acquired in order to avoid substantial channel improvements in the river to minimize impacts to the BID property. Suggestion is to obtain PCE for the channel and flowage easements over the remaining parcel.

10. (**) Need input from Sverdrup on any additional R/W that may be required for the training dikes or other related features at Lower Buckeye Road.

Utilities -

1. Pothole layout to be determined by Sverdrup; get blue stake out, get vert/horiz on all possible utility conflicts. Sverdrup has been given utility plans from previous consultant to use as starting point.
2. (**) SPRR permit to be handled by consultant and JPP. Dealing with Bob Prinz at 213-780-6956.
- SGC^s 3. SPRR offered to do the design and construction without track downtime if FCD funds both. FCD has given go ahead.
4. (**) Need agreement in place or developed to permit SPRR work and funding.
- SEC^s 5. Existing irrigation facilities must be maintained during construction and after construction. Need designs and SP's narrative accordingly.

Environmental -

- SGC^s
PLNS
" 1. COE jurisdiction limit is "tree line" along north side of Gila River. Therefore, by ending the project comfortably north of this line, no 404/401 is required. Letter in file form COE on this.
2. Archaeological clearances have been done along the entire alignment. No concerns and have SHPO concurrence. Need to be cautious during construction along the river bank area.
3. (**) Need limits of archaeological survey to Sverdrup so can maintain channel limits to these limits. If not, need to redo clearance.

MEETING MINUTES

Sverdrup Civil, Inc.

Date: August 22, 1997

LOCATION AND DATE: On-Site, Bullard Avenue and Buckeye Irrigation Canal
August 21, 1997, 9:00 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Jackie Meck, Buckeye Irrigation Company
Brad Olbert, Sverdrup
Dan Stough, Sverdrup
Roger Miles, Sverdrup
Scott Gehrke, Sverdrup

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Field Meeting with Buckeye Irrigation District

SUMMARY:

Introductions were made between the participants at the meeting.

Mr. Meck showed the group the problems that have occurred at the Bullard Avenue bridge over the Buckeye Irrigation District (BID) canal. The bridge construction diverts sheet flow south along the east side of the roadway and over the north bank into the canal. The diverted flow has caused damage to the canal on several occasions due to erosion. Letters from the BID to the County have been sent concerning the problem. To date, there have been no responses from the County on this issue. Mr. Meck stated that the Irrigation District Board will not work with the Flood Control District on the Bullard Wash project if similar concerns about the project are not fully addressed.

Don Rerick said that the Bullard Avenue roadway and bridge were constructed by MCDOT and that issues related to these facilities should be directed to MCDOT. The Bullard Wash project is being designed for the FCDMC by Sverdrup.

The discussion then moved to the Bullard Wash proposed alignment near the BID Canal. Mr. Meck identified several concerns (listed below) that he and the Board had relative to the wash crossing.

Mr. Meck asked what assurances could be given that the proposed channel would be able to convey the flows to the Gila River without breaking out of its channel. Don Rerick said that the consultant that prepared the earlier feasibility study for the Bullard Wash channel also prepared a computer model of the drainage area above this location. Over the last few years, large portions of the upstream drainage basin have been diverted to the Agua Fria. The diversion of drainage basin area will reduce future flows at this location. The Bullard Wash channel will be designed to convey the 100-year storm from the revised drainage basin. Mr. Meck requested a copy of the drainage basin map. When the information is available, Sverdrup will send it to Mr. Meck.

Another major concern of this project was making sure that Gila River flood water does not back up into the proposed Bullard Wash channel and flow out of its banks and into the Buckeye Irrigation Canal. In the past few years, the Gila River has risen to such high levels that flows from the River have entered the canal from pipes used to discharge excess flows from the canal into the Gila River. The BID would like to see a profile of the proposed channel and any information to be assured this situation will not occur at this location in the future.

Mr. Meck also does not want the flood water that flows west along the north side of the canal to enter the BID canal as presently occurs at Bullard Avenue. Don Rerick said the proposed channel will be designed to collect the flood water and discharge it to the Gila River. Mr. Meck wanted to be sure that the flows from the Gila River cannot backup through the channel, over the spillway, and flow into the irrigation canal.

The BID will require that access be maintained along the south bank maintenance road. This will require a bridge over the proposed channel. The bridge will need to be designed to carry heavy equipment and must be as wide as the existing maintenance roadway. The north bank is not as critical as the south bank. Mr. Meck felt that a turnaround on each side of the proposed channel will be satisfactory. Don Rerick said that arrangements could be made to provide a double keyed lock to allow the irrigation district access along the proposed channel maintenance road. The present concept of the channel has fencing along both sides to restrict access to the channel.

Don Rerick mentioned that letters in the project file called out that the bottom of the flume over the BID canal can be no lower than the existing 42-inch corrugated metal pipe that hangs from the bottom of the Estrella Parkway Bridge over the BID canal. Mr. Meck indicated that would be adequate.

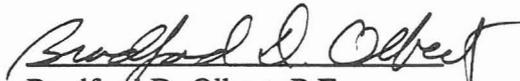
The existing tailwater ditch that parallels the canal on the north side currently discharges into the canal near Estrella Parkway. Don Rerick asked if there was any concern about severing that ditch and discharging the tailwater at a location just east of the overchute and into the BID canal. Mr. Meck said that he will need to pass that concept by his engineers (Stanley Franzoy Corey Engineering) and lawyers before agreeing to it. FCDMC should also talk with the local farmer about

his use of the tailwater. This farmer (Ronald Rayner/SunChase) is an independent water user who has his own wells and also uses tailwater from the Roosevelt Irrigation District (RID).

Mr. Meck said the best time to construct anything over the canal is during their dryup period. Last year, the dryup period started about November 10th. The BID has the same dryup period as the RID. The dryup period lasts approximately two weeks.

Sverdrup agreed to prepare the minutes of this meeting and distribute them to the participants. Sverdrup will follow up with a concept plan of the over chute structure over the BID canal including items like the maintenance bridge and tailwater discharge pipe into the canal. The minutes and concept plans will be reviewed by Mr. Meck. Following Mr. Meck's review, a meeting with the Buckeye Irrigation District board will be scheduled to present the information and to answer any questions that the board may have.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Participants

**BULLARD WASH - "PARTNER KICKOFF" MEETING
AUGUST 28, 1997**

See attached list of attendees. Below is a summary of the discussion and action items (**) identified.

Goodyear & Airport

1. (**) Airport issues including access, spoil sites, etc. to be discussed directly with the City of Phoenix Airport Authority. Consultant to set up this meeting.
2. The IGA and cost share discussions between the City and FCD will be continued in separate meetings. Russ Miracle will continue to follow the IGA process.

Construction Sequence

3. Original intent was to split construction at the UPRR; south and north as separate contracts. The south channel work would also include the MCDOT work requiring roadway fill material.
4. MCDOT expressed interest in attempting to achieve one set of construction documents to contract all channel and roadway construction in one contract at the same time.

(**) The contraction document packaging and contract sequence is directly related to funding capabilities for the FCD and MCDOT, as well as cost share contributions from Goodyear.

Intergovernmental Agreements

5. IGA between FCD and MCDOT in place to cover all design related costs for all channel and roadway work south of Lower Buckeye Road. MCDOT will fund the MCDOT and Goodyear cost share responsibilities for design and receive reimbursement from Goodyear.
6. MCDOT is continuing their efforts to finalize design and construction IGA with Goodyear for roadway work north of Lower Buckeye.
7. FCD is continuing its efforts with Goodyear to finalize an IGA for the construction of the channel.
8. (**) The IGA with Goodyear on channel construction cannot be finalized until the Design Alternatives Analysis for the channel has been done, reviewed, and a decision made on the channel cross section and aesthetics treatment to be used.
9. (**) Once Goodyear and FCD decision made on channel, and once MCDOT/Goodyear IGA finalized, then a decision on the packaging of the P&S for construction can be made.

A-Tumbling-T Ranch

10. Rayner said he needs fill material, and wants the topsoil saved on his farm property.

(**) The projects first obligation for soil is to the MCDOT project. Any "left-over" material is available for the contractor to get rid of at the best price. The project SGC's will include airport and Rayner names and numbers for material disposal.

(**) The FCD is not obligated to provide the topsoil to Rayner. However, in an attempt to help settle the condemnation case for value, we can consider doing this.

(**) The P&S may also include specific direction to place material on airport or Rayner land.

(**) Sverdrup must determine cut and fill quantities, roadway needs and excess material to help determine what "excess" material can be taken where.

11. The contacts for dealing with resolution of impacts to the ranch will be Rayner and Barbara Rust of CVL.

B.I.D.

12. The BID expressed interest in receiving any concrete rubble for stockpiling on BID land for their use in river bank armoring.

(**) The SGC's and SP's can include this direction.

13. BID expressed concern about how future Sunchase development drainage will be handled WRT the Bullard Wash Channel. FCD stated that this will typically be the responsibility of Goodyear to enforce development and drainage regulations. The development could be permitted post event discharge to the channel using flapgated pipe.

Rights-of-way

14. It is anticipated that additional R/W along the south side of MC85 will be required.

(**) MCDOT must acquire and certify to the FCD by June 1, 1998 all R/W required for the construction project(s).

15. All required R/W for a 150' wide strip from Lower Buckeye Road to the Gila River has been acquired via O.I.P.'s for the entire channel length.

Utilities

16. The ANPP contact may be Jerry Moreland at Palo Verde.
17. Rayner stated that we can send a survey crew out to get shots on the ANPP pipeline on his ranch when APS excavates and exposes the pipeline, which is occurring at this time. No special permissions required.
18. (**) Olin Sutton will be coordinating setting up a utility coordination meeting NLT the week of 9/15. Wayne Butch of MCDOT will also be attending; as he will be responsible for all MCDOT utility relocation requirements.
19. MCDOT (Wayne Butch) will obtain the UPRR permit to include all project needs for both the Estrella Pkwy and channel improvements.

(**) Sverdrup and Olin must work with MCDOT to ensure that all needs are met. Also, to coordinate the UPRR effort to design and construction the RR crossing in advance of project construction.

- 20. Goodyear has indicated that they will use their prior rights control over utilities to force relocations at the utilities expense where possible.

Public Meetings

- 21. Public meetings will generally be limited to the primary developers and large land owners, the City and the airport, and the BID
- 22. Use the mailing list in the feasibility study as a resource for public meeting attendance.

MCDOT

- 23. Sverdrup to do a "Roadway Drainage Report" for MCDOT to be used by MCDOT to determine design requirements, and R/W acquisition requirements.

NATURE SAVER™ FAX MEMO 01616		Date	8.27.97	# of pages	3
To	BOB OUBERT	From	Don B. Boyer		
Co./Dept.	SVERDRUP	Co.	FEPMC		
Phone #		Phone #	506.4878		
Fax #	220.9199	Fax #			

MEETING MINUTES

Sverdrup Civil, Inc.

Date: September 4, 1997

LOCATION AND DATE: Maricopa County Department of Transportation
September 3, 1997, 2:00 pm

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Bruce Ward, MCDOT
Laura Fritschi, MCDOT
Wayne Butch, MCDOT Utilities
Olin Sutton, FCD Utilities
Rick McFarlin, MCDOT Utilities
Bob N. Prince, Union Pacific Railroad
Brad Olbert, Sverdrup
Dan Stough, Sverdrup
Scott Gehrke, Sverdrup

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Meeting with Union Pacific Railroad

SUMMARY:

Don Rerick opened the meeting and had each person introduce themselves. Mr. Rerick passed along to Sverdrup example plans and specifications, earlier correspondence with the railroad, and copies of right of access permits for this project. Mr. Olbert said that Sverdrup received coordinate information on section and quarter corner information from Brooks, Hersey and Associates this morning.

Mr. Rerick identified Sverdrup to Mr. Prince as the firm to coordinate with on the railroad crossing of the Bullard Wash channel. Mr. Prince said that since the change in ownership from the Southern Pacific Lines to the Union Pacific Railroad that it will have a major effect upon this project. Prior to the change in ownership the concept of the bridge crossing of the wash was to have Southern Pacific construct the bridge under traffic. Union Pacific will require the bridge to be designed by the County which will require a shoofly around the bridge site. The coordination of this design work will be through John Tripp in Tucson. His phone number is (520) 629-2222.

Don Rerick asked if there is an opportunity that Union Pacific would change its position and construct the bridge under traffic as originally planned? Mr. Prince said that we should contact Mr.

Tripp and check with him. The top decision maker on this issue would be Ken Wammel.

Mr. Rerick asked if Mr. Prince could sign a letter allowing right of entry onto their property. Mr. Prince said that in the past he could but that now those signatures must come out of their Omaha office. He would Fax out our request from his office this Friday. The Omaha office may require the County to sign one of its own form letters regarding rights of entry. The document can be Faxed to the County for signature and returned by mail. The contact person in Omaha for the permits is Cheryl Kinkel (402) 997-3620.

Mr. Rerick mentioned that the permit is needed to obtain borings along the channel and at the bridges. Mr. Rerick asked that if the railroad constructs the bridge under traffic, will borings be needed for the bridge design? Bob Prince said that for their bridges boring are often not needed. Piles are driven to refusal by special equipment that operate from the railroad tracks.

Mr. Prince said that the railroad will design and construct the at grade crossing and signals. To initiate that process, they will need an official letter from the County. Also a preliminary drawing of the railroad crossing location will be needed to start the design work. Bruce Ward said he can send a letter to Union Pacific along with the preliminary crossing plans. Mr. Prince said that once all the signatures are in place, then it takes 7 to 9 months to get ready to construct the surface improvements. It will take 45 to 60 days to develop preliminary plans. The cost estimates are prepared and agreements between the County and UP are made. The construction effort requires a 30 day lead time with approximately 5 days needed to construct the crossing. The signal work will require a 45 day lead time with 12 days needed for construction. Two different persons will need to be contacted for the work on the crossing. The roadway will need to closed during the 5 day construction period for the roadway work effort.

Mr Prince said that the design of the signals for the railroad crossing is per the Manual of Uniform Traffic Control Devices (MUTCD).

Mr. Prince said that the present backlog in the at-grade work is with the signal work to wire the panels. The construction is very efficient because the crews are dedicated only to constructing at-grade facilities.

Only two trains a day utilize the existing track. The track goes out to the Palo Verde nuclear power plant and the train travels at 40 mph. Thus approximately 700 feet of shoofly will be needed each side of the proposed bridge crossing. The petroleum pipelines and the fiberoptic MCI cable will need to be relocated at the wash crossing but not necessarily under the shoofly. Explore the possiblity of placing the shoofly on the north side of the existing tracks within the railroad right-of-way.

The railroad bridge design will accommodate an AREA E-80 loading. Mr. Prince will provide sample specifications to Sverdrup that have been used for railroad underpass projects as well as details and guidelines for the shoofly design. The signal communication lines located to the south of the tracks will also need to be relocated. Contact Rodney Piper in Tucson at (520) 629-2237. He

is the signal person for Union Pacific. Typically a 45 day lead time is needed for scheduling. Construction will take one to two weeks depending on the length of relocation involved. The span distance between poles is usually 170 feet.

Because of the different processes involved with the railroad, it would probably be better to have one agreement for the channel and one for the at-grade crossing. The channel will involve design review time where the at-grade crossing will require railroad design time. This will require more time for the roadway project than the channel project. Plan review time is usually 30 days, 45 days max. Structures review will go through John Tripp.

Wayne Butch will be involved in the railroad permitting process for the County.

Mr. Olbert asked if Union Pacific had any requirements or policies concerning at-grade crossings of the railroad for the purpose of providing a maintenance roadway parallel with the channel. Mr. Prince said that the only requirement would be to provide a locked gates at the access points. The County's smooth wire fence standard should be sufficient to exclude vehicular traffic.

Mr. Olbert also asked if the railroad had any policies regarding recreational use of the channel limits under the railroad bridge. Mr. Prince said that the railroad will exercise its rights to try to limit the recreational use of the channel. The channel will need to be fenced to prevent any access from the channel below to the railroad right-of-way above.

To secure a right-of-way easement from Union Pacific it is typically a 6 month process. Mr. Prince thought that Cheryl Kinkel is also the person involved in the R/W easement process.

The time frames for Union Pacific to design their bridge under traffic is 90 days lead time for notification, 30 days to design and 60 days for construction. Coordination would be through John Tripp. Bob Prince would coordinate the at-grade crossing. John can be reached between 7 am to 4 pm, Monday through Friday.

The typical cost for a shoofly is \$120/ft which includes rail removal, rail placement and rail replacement including all appurtenances except fill material. Cost for a concrete at-grade crossing is \$950/ft. Flagmen will not be needed for work at the roadway crossing as the construction will be performed by Union Pacific forces.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: September 15, 1997

LOCATION AND DATE: Maricopa County Department of Transportation
September 12, 1997, 10:00 am

PARTICIPANTS: Bruce Ward, MCDOT
Laura Fritschi, MCDOT
John Rose, MCDOT Survey
Al Aerni, Brooks, Hersey & Associates
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Status Meeting on Survey

SUMMARY:

Bruce Ward opened the meeting by stating its purpose was to determine the status of the existing survey for the above referenced project and identify any additional survey needs.

Al Aerni said he received a recent memo from Sverdrup that identified additional survey needs. If the memo identifies all remaining items that are needed, they will be done by the end of next week. The items identified on the list will only take one or two days of survey time to complete. Mr. Olbert said the memo from Sverdrup will clear up the immediate needs, however, there are two other outstanding items. First is the monumentation of MC 85, and second, the pickup of property corners primarily along Estrella Parkway.

Al Aerni gave Mr. Olbert a sheet with the coordinates of the south ¼ corner of Section 19. The data was inadvertently omitted from the last coordinate listing for the monuments. The remaining items on the list are being picked up right now. Mr. Olbert said the most critical item is the top of pipe elevations on the 96-inch water line near the BID canal. The pipe was recently uncovered for repair work and the trenches will not be open long. The top of pipe elevations are critical to subsequent coordination meetings with the City of Goodyear. Mr. Aerni said he will Fax the coordinates and elevations of the pipe to us on Monday. The remaining items will follow by the end of the week.

Mr. Olbert said the first outstanding item is the monumentation on MC 85. MC 85 still has not been tied down so that Sverdrup can identify the R/W needs for this roadway. John Rose said that both he and Brooks, Hersey & Assoc., have spent a good deal of time at ADOT to research the roadway. The information that has been obtained is very old and vague. The roadway was originally built back

in 1926. Al Aerni said that a check of some of the information in the field showed one area to be off by as much as 20 feet. John Rose said that he didn't feel that it was Brooks, Hersey's obligation to determine the location of the roadway beyond what they have presently done. Mr. Olbert said that Sverdrup's contract with MCDOT was based on MCDOT providing the information to Sverdrup. It may not be Brooks, Hersey's responsibility, but the County needs to provide the information to Sverdrup.

Mr. Olbert said the as-built plans for US 80 (MC 85) show dimensions to the center of the railroad tracks in several locations along the highway. The plans date back to the fifties (plans approved on 6/26/57, the as-built date is 12/22/61) and show that US 80's R/W width is 100 feet adjacent to the railroad R/W. Mr. Rose said that he did not have a copy of the as-built plans. Mr. Olbert said that he will supply a copy of the plans to him. Ms. Fritschi said that she will check with Carlos in R/W to see if there is some information there. Mr. Olbert will check with his St. Louis connection to determine where the railroad may keep its R/W information.

Mr. Olbert said that he believes that the railroad R/W width is based on the center of the tracks and that they have 100 feet each side through the project area. If the monumentation cannot be established from the 1926 information, then possibly the highway as-builts can be used to confirm the location of the railroad relative to the roadway and then identify the location of the MC 85 R/W. Since Sunchase is the major property owner to the south, we can bring them into the process of identifying the south edge of the MC 85 R/W. If they agree to the location, then they will be more willing to accept the final R/W takes. If the as-builts are not adequate to determine the monumentation, Mr. Olbert will contact Barbara Rust with Coe & Van Loo to set up a meeting on Thursday afternoon.

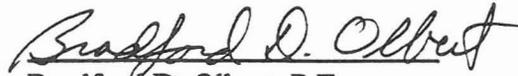
The second item of concern involves picking up property corners on parcels along Estrella Parkway. If Brooks, Hersey's contract for On-Call services expires at the end of this month, this will cause delays bringing another surveyor on board. In addition, we will need more than just a casual search for property pins. Mr. Rose said that the direction for a casual search was his because it was not their intention to have Brooks, Hersey set corners for properties. Al Aerni said this is probably beyond Sverdrup's scope, but if Sverdrup can locate approximate property corners using Assessors / legal descriptions then Mr. Aerni can spend about a week in the field checking for the pins. He will need a .dxf file from Sverdrup to locate the approximate coordinate for the pins. Mr. Olbert agreed that it was not in their scope to lay out the properties using the Assessor maps and legals, but possibly we can make up the time with the field data. The R/W plan development has stalled but we need to keep the project moving ahead. John Rose said that he can give an extension of time to Brooks Hersey to complete work orders already in progress.

Mr. Olbert will check the title reports this week. If any of the reports are bad, the title company will be contacted by Friday. A rough CADD strip map should be produced by the first week of October. Information files will be given to Brooks, Hersey on a 3½" disk. Brooks, Hersey will go in the field to located the property corners by the second week of October.

Mr. Olbert asked if Brooks, Hersey will be used to set bench marks along the project for the final plan set. John Rose said no, and stated the County will set those for Sverdrup when they are needed.

Mr. Olbert went over the roadway and bridge typical sections for the project with Bruce Ward and Laura Fritschi. They will review them and provide any comments to Mr. Olbert by the first of next week.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Don Rerick - FCDMC
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: September 17, 1997

LOCATION Flood Control District of Maricopa County
AND DATE: September 17, 1997, 9:00 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Olin Sutton, FCD Utilities
Bruce Ward, MCDOT
Wayne Butch, MCDOT Utilities
Rick McFarlin, MCDOT Utilities
Larry Martinez, City of Goodyear
Bob Bott, Arizona Public Service
Sarianne Rittenhouse, Arizona Public Service
Wade Patrick, Southwest Gas Corporation
Phil Young, Tucson Electric Power Company
Scott Peterson, Tucson Electric Power Company
Richard Linebarger, US Sprint
Dan Tarango, Santa Fe Pacific Pipeline
Pat Kavanaugh, MCI
John McNeely, El Paso Natural Gas Company
Jackie Meck, Buckeye Irrigation Company
Dan Stough, Sverdrup
Brad Olbert, Sverdrup

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Utility Kickoff Meeting

SUMMARY:

Don Rerick presented an overview of the project for the benefit of those in attendance. The project consists of a flood control project, Bullard Wash Channel Improvement, and two roadway projects (Estrella Parkway, Buckeye Canal to MC 85 and MC 85 to Yuma Road). The attendees were given two agendas one from the FCDMC and a second from MCDOT. Because of the roadway and bridge work associated with the channel work for this project, the bid package will be a joint package. Comments from the various utilities at the meeting are listed below.

APS - Mr. Bott mentioned that APS recently installed a 12 kV service pole and conduit run to a cathodic protection manhole on the 96" reclaimed water line near the BID canal. The pole and conduit run may be in conflict with the proposed channel. Don Rerick said we will need as-built plans of the facilities.

APS Ms. Rittenhouse said she has been in touch with Sverdrup and has submitted as-built plans and typical wash crossing details to Sverdrup. Mr. Olbert said that one typical section was for a river crossing showing an 18-inch encasement thickness, and asked if APS would consider a lesser thickness for this channel crossing. Ms. Rittenhouse said that APS would consider less thickness, however, it will need to be designed by a structural engineer to protect the pipeline from lateral and heavy equipment loadings. See additional discussion at the end of this memorandum.

SWG Mr. Patrick is aware that APS has facilities near the Buckeye Canal but does not know its exact location or if there is a conflict.

Mr. Meck with the Buckeye Irrigation Company said that his maintenance people located a 4 to 6 inch steel pipeline on the north bank of the canal this week. Recent rains crossed the north maintenance road of the canal a few hundred feet east of the proposed Bullard Wash Channel. The flows eroded a section of the bank exposing the steel line. Mr. Meck requested that SWG check to see if this is one of their lines and check if it is abandoned or live.

Power Transmission Lines - Mr. Rerick said, in general, if there are any criteria to be aware of in constructing the channel near the foundations of the towers, to be sure to pass that information to the consultant.

TEP Mr. Young brought information to the meeting to review with the consultant. The information includes tower foundation type.

SRP Mr. Olbert said that Sverdrup requested plans for the 500 kV transmission line twice from SRP but has received no response. Don Rerick said he will have Olin Sutton contact SRP and check on the delay. SRP was not represented in this meeting.

US Sprint Mr. Linebarger confirmed the general location of US Sprint facilities on Broadway Road and Estrella Parkway. Potholes will be needed to identify exact locations of their facilities. All US Sprint cables in this area are buried.

City of Gdyr Mr. Rerick requested the City of Goodyear provide any sewer crossing criteria that they may have, such as sewer encasement, siphon, or DIP replacement requirements. The channel will not have much clearance over the 15-inch sewer at Broadway Road.

Sverdrup has a general location map for the 15-inch water line, but needs as-built construction plans. (Mr. Martinez later mentioned that the city recently installed a 24-inch reclaimed water line on Estrella Parkway from Elwood to Yuma Road. A set of as-built plans was also requested from the City.)

SFPP SFPP's 20-inch petroleum pipeline along MC 85 is a critical pipeline for the valley. It supplies most of the valley's gasoline. SFPP will need a minimum of 2 feet of cover over the pipeline from the bottom of the channel lining. They also have a minimum cover requirement to protect the line against construction equipment traffic. Sverdrup needs to

notify SFPP at least 48 hours in advance of any pothole work. SFPP would like to have a representative present to observe the pothole excavation work. They will send information to Sverdrup on the minimum cover requirements. SFPP requested three sets of roadway and channel construction plans for their review needs.

MCI Mr. Kavanaugh said MCI lines are located between the highway and the railroad. Don Rerick asked if MCI has manholes near the project. Mr. Kavanaugh said that manholes are spaced at ½ mile intervals. MCI may be able to lower their existing line in the area of the channel. Sverdrup can contact Gary Nelson who is located in their Richmond, Texas office for more information.

Mr. Kavanaugh said that the railroad is now installing a fiber optic conduit in the railroad R/W. The railroad fiber optic company is called QWEST and the contact person is George Lascor in Denver [(303) 312 - 2998].

EPNG Mr. McNeely said EPNG will require a 5 foot vertical clearance between their gas line and any lining for the channel. EPNG will provide clearance criteria to Sverdrup.

Mr. Olbert said that all of the utility companies need to realize that the proposed Bullard Wash Channel Improvement is a new alignment that is located approximately ¼ mile west of the existing Bullard Wash bridge crossing. This means that relocation of underground utilities will most likely be needed along the channel alignment.

Don Rerick said it is important to know now that the design of utility relocation will need to start with the 30% plans for the FCD, and with the 40% plans for MCDOT. All relocation work will need to be completed by June 30, 1998. There are locations along the proposed channel route where several utilities are present. Bracing of railroad overhead communication poles may be needed. Utility companies must communicate with each other to avoid conflicts. The utilities should talk to Olin Sutton (FCDMC) and Wayne Butch (MCDOT) concerning their prior rights. Prior rights issues need to be settled before the 30/40% plan submittal. This means that all of the utility companies need to submit prior rights documentation to FCDMC or MCDOT early to identify reimbursement requirements. Utility reimbursements will be handled by MCDOT for the roadway and by FCDMC for the channel.

Bruce Ward (MCDOT) needs to find out from the City of Goodyear what agreements have been made by the city with property owners concerning R/W and irrigation relocation. The schedule for 40% plans applies only to MCDOT Work Order # 68947. This includes Estrella Parkway located 1,500 feet north of Lower Buckeye Road.

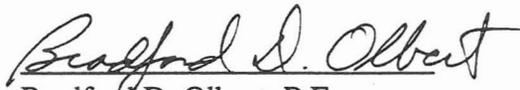
Wayne Butch emphasized that prior rights for the roadway work may not be the same for the channel work. There is limited R/W for the roadway work. The proposed roadway R/W will typically be 75 feet each side of the monument line. The corridor is being planned for a 6-lane divided roadway with adjacent linear retention facilities. If additional R/W is needed for electrical cabinets or manholes outside of the proposed 75 feet, MCDOT needs to know early. The joint use of duct banks is encouraged because of the limited R/W.

A discussion was held with Ms. Rittenhouse (APS) regarding the 96-inch reclaimed water line after the meeting. APS can provide construction forces to encase the 96-inch line prior to construction of the channel. Benefits include:

- APS will be responsible for design and construction liabilities,
- Work needs to be done during short time duration windows of opportunity that typically lasts one to two weeks (pipeline must be drained for construction work), which their contractors understand and are prepared to do,
- Work would clear a critical utility prior to channel construction, and
- APS contractors have performed the encasement task many times and typically work 24 hours a day to ensure completion of work tasks within the window of opportunity.

Ms. Rittenhouse will provide Sverdrup with an estimate of construction costs. Encasement is usually installed for the full length of the channel R/W. APS would prefer construction of the standard encasement to forego the need for future pipe repairs. Mr. Rerick said he will need to evaluate the construction costs and risks associated with this pipeline before making a recommendation on which method of encasement to use.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: September 19, 1997

LOCATION

AND DATE: September 19, 1997

PARTICIPANTS: Dick Eldridge and Jerry Straw (SP Construction), Dan Stough and Greg Froelich (Sverdrup Civil, Inc.)

FROM: Daniel E. Stough, P.E.
Project Engineer
Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Relocation of Quest Conduit, Field Review Meeting

SUMMARY:

This memorandum is a summary of the field meeting held Friday (9/19/97) to discuss possible conflicts with the proposed Bullard Wash Channel Improvements project and the recently installed conduit for future QWEST fiber-optic cable.

Mr. Stough met Mr. Eldridge and Mr. Straw at 8:00 AM (9/19/97) and drove to the site approximately 1500-feet east of Estrella Parkway along Maricopa County Highway 85 (MC 85). Mr. Stough showed Mr. Eldridge and Mr. Straw the location of the centerline stakes for the proposed Bullard Wash crossings under the Union Pacific Railroad (UPRR) and MC 85. Mr. Stough then described the nature of the channel improvements and the extent of the Estrella Parkway and MC 85 roadway widening. Mr. Eldridge suggested that the Denver office should be contacted for a project of this scope. Mr. Stough confirmed that he had contacted Mr. Lascor before arranging the field meeting.

George Lascor
555 N. 17th Street
Denver, Colorado 80202
(303) 312-2998

Mr. Stough described the proposed channel design concept (80-foot bottom width, trapezoidal channel, 2:1 sideslopes). Mr. Stough explained that the channel would most likely be fully lined with 8-inch thick concrete on the sides and bottom, from the north side of the UPRR bridge to the south side of the MC 85 bridge. He noted that concrete box culverts might be substituted for single span bridges, to reduce the channel invert depth. Mr. Stough stated that the channel profile was not finalized but would need to be cut to a depth as much as ten feet in the vicinity of the QWEST conduits. He added that heavy construction traffic is expected over the entire area between the railroad and MC 85.

Mr. Eldridge described the newly installed conduits (three, 3-inch diameter, flexible plastic conduits, and buried at an average 4-foot depth). The center of the trench was located 8-feet south of and parallel to the overhead railroad switching lines. Mr. Eldridge stated that the conduits would need to be relocated to a depth at least ten feet below the anticipated channel improvements.

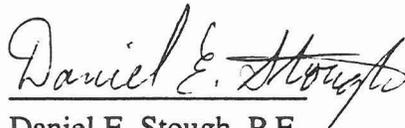
Mr. Eldridge explained that the fiber optic cable had not yet been strung and the relocation should be performed as soon as possible. He stated that the SP Construction crew had finished with this particular installation, but were still in the area. Mr. Eldridge recommended that arrangements be made (through George Lascor) for the relocation to take place sometime in the next two weeks, to avoid the additional cost of bringing the crew and equipment back into the area. He estimated that this swift action could save Maricopa County approximately \$50,000.

Mr. Stough agreed that he would contact Don Rerick (FCDMC) and Brad Olbert (Sverdrup) to determine the County and Sverdrup's course of action. Brad Olbert would call Mr. Lascor to make arrangements for the conduit relocation.

Upon return to the SVC office, the required channel excavation depth was determined and the following information was given to Mr. Lascor by phone (09/22/97) :

The proposed channel invert is approximately TEN feet below the existing ground over the QWEST conduit. Therefore, the total relocated depth for the conduits should be at least 20 feet below existing grade.

Signed:



Daniel E. Stough, P.E.
Project Engineer
Sverdrup Civil Inc.

Distribution:

013884-2A

MEETING MINUTES

Sverdrup Civil, Inc.

Date: October 1, 1997

LOCATION AND DATE: Phoenix Goodyear Municipal Airport, Building 1 Executive Terminal
September 29, 1997, 2:00 pm

PARTICIPANTS: Peter Best, City of Phoenix - Aviation Department
Dana Coast, City of Phoenix - Aviation Department
Don Rerick - Flood Control District of Maricopa County
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Coordination Meeting

SUMMARY:

The above participants met to discuss issues pertaining to the Bullard Wash Channel Improvements. Mr. Olbert opened the meeting with a description of the Bullard Wash relocation work that will parallel the west side of the airport and the construction of a smaller channel along the south fence line of the airport.

Mr. Olbert discussed the placement of the smaller channel along the south fence line and adjacent to a perimeter maintenance/security road. An existing high pressure gas line also parallels the fence line approximately 60 feet to the north. Mr. Rerick said it may be necessary to construct the channel adjacent to the fence and move the roadway to the north of the channel. Mr. Best said relocating the road to the north side of the channel would not compromise the airport's security.

Mr. Coast said that excess fill material from airport projects have been placed at the south end of the property where the proposed channel alignment crosses onto the property. The fill area contains some construction material. Mr. Rerick said that Sverdrup may need to have additional borings in the fill area to help characterize the material.

The Flood Control District would like any potential soil waste areas for the airport identified by the airport. If the airport has any site preparation and compaction requirements to let Sverdrup or FCDMC know. The information can be included in the special provisions.

Mr. Rerick said that the channel improvement project will have fencing along the edge of the easement. The new fencing will redefine the southwest end of the airport. MAG standards for fencing will be used to match the fencing used at the airport.

Mr. Coast gave Sverdrup a copy of a letter that was recently sent by the City of Phoenix to the Roosevelt Irrigation District (RID). The letter serves as a license agreement for the RID to maintain the stormwater/irrigation tailwater ditches on the airport's property.

Access to the construction site through the airport was discussed. Mr. Coast said that access to the project from Litchfield Road will not be a problem if the contractor can work within specific requirements. Mr. Best and Mr. Coast will provide the requirements to be included in the project special provisions. Several items briefly identified included: maintaining the perimeter fence at all times, provide identification of all workers on the site, stay within specific project limits, possible construction time restrictions, and use specific gates for access. A new rolling gate was recently installed on the west side that is used as access to some new property acquired on the west side of the airport. Mr. Rerick said that access to the project on the west side may be possible if there is right-of-way along the Lower Buckeye Road alignment through the Woods property. Mr. Olbert will check if there is right-of-way available along Lower Buckeye Road.

Mr. Rerick said that training dikes may be needed at the north end of the project along the Lower Buckeye Road alignment to direct flood waters into the channel. This may require additional property takes from the Woods property and the airport.

The participants visited the project alignment stopping at five locations (see attached map with the five sites marked). The locations are described below along with observations made.

Site 1- Located just north of the existing Bullard Wash Railroad Bridge. The existing East Tributary Channel was shallow and choked with vegetation. It appeared that major runoff in this area would need to spread out between the railroad embankment and the airport runway. Collecting runoff using the proposed channel will collect the existing channel flows, however, flows adjacent to the railroad may require filling in existing Bullard Wash upstream of the railroad bridge to form a berm that would force the runoff into the proposed tributary channel. The high pressure gas line appeared to be approximately 60 feet north of the fence line. The maintenance/security road occupied a strip of land approximately 25 feet north of the fence line. To the west of Site 1, the roadway gradually climbed upward 6 to 8 feet. The East Tributary channel and Bullard Wash combine just north of the maintenance road. Low flows pass under the roadway through a steel pipe culvert (4 pipes). Higher flows pass over the roadway. The flowline of the wash just south of the culvert is approximately eight feet lower than the culvert. The steel pipe culvert appeared to be severely corroded with some of the pipes having crushed inlets and outlets. One of the pipes had a large hole punched in the crown of the pipe. It was apparent in the field that the maintenance/security road would need to be relocated to the north side of the east tributary channel. This will be necessary to avoid the high pressured gas line, and encroaching into the maintenance roadway with the top width of the channel excavation.

Site 2- Located just north of the proposed Bullard Wash railroad crossing. The fill area to the north was approximately eight feet deep composed of loosely compacted soil. Will need additional borings to classify the fill material.

Site 3- Located near the northeast corner of the aluminum recycling facility and culvert headwall to the low flow tailwater channel. The low flow culvert was approximately 24 to 30 inches in diameter. The existing Bullard Wash Channel section to the north had silted in considerably and was covered with vegetation. Mr. Coast said the channel maintenance was turned over to the RID a couple of years ago and has not been maintained since. The airport has maintained the channel in the past because of flooding complaints by local farmer. See attached letter.

Site 4- Located near old bend in the airport property line and location of the rolling gate. The gate is used to provide access to mow weeds on property recently acquired for a future runway.

Site 5- Located at the north end of the proposed Bullard Wash Channel. Immediately north of the proposed channel are retention basins possibly that are used to retain tail water for reuse. Retention basin berms are several feet above existing ground and will restrict collection of stormwater into the proposed channel. The use of training dikes along Lower Buckeye Road alignment to direct stormwater into channel appears feasible if right-of-way is available. Additional easement to the north will be needed to remove the retention basin berms.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Don Rerick - FCDMC
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: October 8, 1997

LOCATION City of Goodyear
AND DATE: October 2, 1997, 10:00 am

PARTICIPANTS: Doug Sanders, City of Goodyear
Larry Martinez, City of Goodyear
Joe Evans, Yost and Gardner Engineers
Don Rerick - Flood Control District of Maricopa County
Dan Stough, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Coordination Meeting - Channel Design

SUMMARY:

The above participants met to discuss issues pertaining to the Bullard Wash Channel improvements. Mr. Olbert presented information that affected the channel design. Those items are listed below.

The Buckeye Irrigation Canal, the 96-inch water line to the Palo Verde Nuclear Plant, and the 15-inch sewer line under Broadway Road act as constraints to the grade for the channel bottom. The bottom of the railroad bridge acts as a constraint for the channel water surface elevation. These constraints will keep the channel grade very flat regardless of what type of channel is selected. The net result means additional maintenance to remove sediment buildups.

From the MC 85 bridge north to the grade control structures, there is a great deal of turbulence caused by the drop structures, the discharge from the East Tributary side channel, and the bridge piers. For this reason, this area will require concrete or shotcrete to ensure stability of the channel in this area. The use of concrete for the channel would not preclude the use of ramps in the channel area.

North of the drop structure, the channel needs to discharge tailwater flows into a side ditch at the top of the drop structure and be able to intercept overbank flows into the channel at the inlet. Horizontally the channel needs to be located outside the safety zone and not interfere with monitor wells tied into the TCE cleanup system at the airport.

The channel section used will need to have an armored sideslope to prevent horizontal migration of the channel alignment. The soils in the area are mainly fine sands with silt and little or no gravel.

During high flow periods, channel migration can easily occur with soils that are not cohesive and lack adequate vegetative cover. The types of bank armor reviewed in the Skunk Creek Master Plan included soil cement, concrete, shotcrete, earth channel, slope mattress gabions, stair stepped gabions, and grouted riprap. Of these systems, only the earthen channel, slope mattress and colored shotcrete have some aesthetic appeal. In Glendale, the City requested that the gabions be covered with 6-inches of soil. With a soil covering, the gabions were limited to a maximum channel sideslope of 3:1.

In all of the channel sections using a soil bottom or soil covering, vegetative management was a major concern. The design roughness factor for the channel needs to be maintained. Short grasses and plants that will flatten during a major storm event are acceptable to maintain the flood limits within the channel.

Maintenance will also include checking for corrosion with the gabion system. Sacrificial anodes can be used to control the corrosion, however, periodic checks are mandatory. Mr. Evans said that the area is very corrosive.

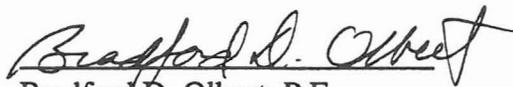
Maintenance roads can double up as pedestrian trails, bicycle and equestrian routes. The type of surface needs to be reviewed. FCDMC provides a 4-inch ABC surface. Other surfaces include asphalt or crushed granite. Access under the railroad structure may be a problem. In a previous meeting, UPRR indicated very strongly that they will fight against recreational use of the channel under their bridge. Also the FCDMC does not have a separate bridge structure for pedestrians/bicycles/equestrians over the BID canal.

At our next meeting, we need to discuss access to the channel for maintenance purposes. The ramps can also function as ramps for equestrian use of the channel bottom and pedestrian crossings. Sverdrup will develop some ramp locations for the next meeting. Aerials should be available by next week.

The FCDMC only provides minimal landscaping, such as seeding of the sideslopes. A landscaping committee may be desired to anticipate future needs of the channel. It can be used to identify a theme desired by the City to be used along the channel and possibly constructed as part of package provided by developers adjacent to the channel.

Mr. Rerick said that the FCDMC usually fences new R/W. However, the City may choose to do away with the fence and assume the liability of the channel. The access roads near the main roads will require locked gates.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Don Rerick - FCDMC
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: October 8, 1997

LOCATION City of Goodyear
AND DATE: October 2, 1997; 9:00 am

PARTICIPANTS: Doug Sanders, City of Goodyear
Larry Martinez, City of Goodyear
Joe Evans, Yost and Gardner Engineers
Bruce Ward, MCDOT
Laura Fritschi, MCDOT
Don Rerick - Flood Control District of Maricopa County
Dan Stough, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Coordination Meeting - Roadway Design

SUMMARY:

The above participants met to discuss issues pertaining to the Estrella Parkway roadway improvements. Mr. Martinez opened the meeting by describing the meeting's purpose to continue communications with MCDOT on the Estrella Parkway project design.

Mr. Ward said that MCDOT was wanting to further the IGA process and also receive a better understanding of where the City was with agreements with the property owners and the utilities. MCDOT has authorized their consultant to prepare the right-of-way and geotechnical work for the entire project and for the design work from the BID canal to 1,500 feet past Lower Buckeye Road. MCDOT would like additional commitments from the City. Mr. Sanders said that formal commitments have not come because the City lacks information on the project's cost to take to the city council for approval. Mr. Sanders said that the City has agreements with about 75 percent of the property owners at this time and that the City is continuing discussions with three utilities.

Mr. Ward said that MCDOT has a general agreement for \$4.8 million from the City for the project, however, they need to have that amount broken down into components for utilities, roadway, and right-of-way. Mr. Rerick said the \$4.8 million only covers the roadway and does not include the channel project. Russ Miracle with the FCDMC will contact the City shortly and discuss cost sharing for the channel.

Mr. Sanders said that the City would like copies of the title reports with legal descriptions for their discussions with the property owners. Mr. Olbert said that Sverdrup can supply that information to the City. Ms. Fritschi said that Sverdrup will be producing right-of-way strip maps for the project.

Mr. Ward said MCDOT would like a letter of agreement from the City of Goodyear to cover the consultant design and R/W costs prior to the formal IGA. Also, please copy MCDOT on any letters between the City and the utilities and property owners concerning R/W agreements.

Mr. Ward asked that the City give direction as to where they would like to have median crossings provided on Estrella Parkway between Yuma Road and MC 85. Currently, crossings will be provided at Broadway, the access point to the aluminum recycling facility located east of Estrella, and Elwood. South of Broadway they plan to use a painted median where the roadway width varies. Typically, MCDOT provides crossings at the ½-mile, and ¼-mile points. However, with farm road locations offset from the ½-and ¼-mile locations, MCDOT would like the City's input. Also, the aluminum recycling facility located east of Estrella has an access point located off of the railroads R/W. This access point will need to be relocated because the roadway construction will likely block access. Mr. Martinez said the City will check the roadway and get back to MCDOT on this.

Mr. Olbert said that the typical section Sverdrup was planning to use for Yuma Road included a 16-foot wide raised median. Approximately ½ mile west of Estrella Parkway on Yuma Road, there is an unfinished median in front of a subdivision. Mr. Martinez will check the typical section, and determine if the City will want Sverdrup to utilize a raised median.

Mr. Martinez said the design IGA will go to the council by the end of October. The City of Goodyear has not received an MOU (memorandum of understanding) from MCDOT. Mr. Ward said he will check on its status.

Mr. Olbert handed out copies of location maps for the three well sites. Each well site is located near the proposed edge of pavement. Sverdrup needs to know the future status of these well sites. What agreements have been made concerning the three wells. Mr. Martinez said the City will get back to Sverdrup concerning the wells.

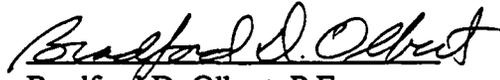
Mr. Olbert requested the following information from the City of Goodyear.

- Sewer encasement requirements for the 15-inch sewer line located on Broadway Road.
- As-built information from the City on a 16-inch water line and a reclaimed water line both of which are located along Estrella Parkway.
- The City's stormwater retention policy for new developments.
- A copy of the City's access control policy (driveway standards).

Mr. Evans will gather the information for Sverdrup. Mr. Martinez said that he would like to have the 15-inch sewer line replaced with ductile iron pipe and encased in concrete. Mr. Evans said that the soil near the City wastewater treatment plant has very corrosive soil. A ductile iron pipe buried near

the facility had extensive corrosion to the exterior of the pipe after ten years.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Don Rerick - FCDMC
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: October 31, 1997

LOCATION Flood Control District of Maricopa County
AND DATE: October 28, 1997, 8:00 am

PARTICIPANTS: Don Rerick - Flood Control District of Maricopa County
Doug McLaughlin, FCDMC R/W
Bruce Ward, MCDOT
Todd Belzner, MCDOT R/W
John Christensen, SunChase
Barbara Rust, Coe & Van Loo Consultants, Inc.
Ron Rayner, A-Tumbling-T Ranches
Larry Martinez, City of Goodyear
Joe Evans, Yost and Gardner Engineers
Roger Miles, Sverdrup Civil, Inc.
Dan Stough, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Property Owner Meeting - SunChase (A-Tumbling-T Ranches)

SUMMARY:

The above attendees met to discuss the short and long term effects of the proposed channel upon the SunChase property. Mr. Rerick opened the meeting with each individual introducing themselves.

Mr. Rerick identified several delivery ditches and tailwater ditches that will be cut by the channel construction. Mr. Rayner was asked about the significance of each ditch to his farm operation. Mr. Rayner identified two primary sources of water for his farm; i.e., the tailwater and stormwater from the East Tributary Wash, and the tailwater from the Bullard Wash. Water from the East Tributary flows into a storage pond located south of MC 85 and is then pumped to the northeast end of the farm where the water can flow to any of their fields located east of Estrella Parkway. Overflow from the pond, along with water from Bullard Wash, flows west to irrigate the fields (as well as another farmer's fields) located west of Estrella Parkway. Tailwater from the fields ultimately flows into the Buckeye Irrigation District's canal.

Mr. Rayner identified four fields that will be affected by the channel alignment. The north and south fields have been leveled and thus have no tailwater ditch. The two middle fields are graded with a slope from north to south. The north field receives its water from a delivery ditch located on the east side of the field. The second field to the south receives its water from a delivery ditch located on the north side

of the field. A tailwater ditch for this second field is located on the south side of the field. Tailwater from this field flows into a delivery ditch located on the north side of the third field to the south, which is similar to the second field. The fourth field receives its water from a delivery ditch located on the north side of the field.

Mr. Rayner said that the first and fourth fields will have small areas to the west of the proposed channels that will become uneconomical to farm. The fields have been reseeded with alfalfa, which has a three-year production cycle. After the cycle, another type of crop will be planted. There can be no interruption of water flow during or after construction.

A discussion of how to handle the tailwater from the East Tributary and Bullard Wash ensued. Sverdrup will evaluate three scenarios to handle the water.

1) The tailwater from the East Tributary will be discharged into existing Bullard Wash and enter the existing holding pond as it currently does. Storm flows in the East Tributary will flow westward and discharge into the proposed Bullard Wash Channel for discharge into the Gila River. A siphon will be designed to carry excess flow from the holding pond under the Bullard Wash Channel for use on the farms to the west of Estrella Parkway. Mr. Rayner suggested a minimum 24-inch pipe for the siphon. Tailwater from Bullard Wash will be conveyed under the railroad in a new culvert located within the drainage easement immediately west of the proposed Bullard Wash Channel. The flows will discharge into the existing channel that conveys flows to a pipe crossing under Estrella Parkway. The pipe flows will ultimately reach the agricultural fields located west of Estrella Parkway.

2) The tailwater from the East Tributary will be discharged into an existing culvert crossing located just east of the proposed Bullard Wash Channel. (The existing culvert originally conveyed tailwater flows from Bullard Wash but will be isolated by the proposed Bullard Wash Channel.) The existing holding pond will be expanded on the west end to allow tailwater flow to enter from the west. Storm flows in the East Tributary will continue westward in a new channel, discharge into the proposed Bullard Wash Channel, and ultimately discharge into the Gila River. A siphon will be designed to carry excess water from the holding pond under the Bullard Wash Channel for use on the farms to the west of Estrella Parkway. Tailwater from Bullard Wash will be conveyed under the railroad in a new culvert located within the drainage easement immediately west of the proposed Bullard Wash Channel. The flows will discharge into the existing channel that conveys flows to a pipe crossing under Estrella Parkway. The pipe flows will ultimately reach the agricultural fields located west of Estrella Parkway.

3) Mr. Rayner proposed a third alternative. Tailwater from the East Tributary and Bullard Wash will flow into the proposed Bullard Wash Channel. A new pond will be constructed north of the Broadway Road alignment within the proposed Bullard Wash Channel. The existing pump (from the holding pond) or a new pump will be relocated adjacent to the new holding pond to deliver water to the existing A-Tumbling-T irrigation piping system. The channel will need to be widened to provide adequate water and sediment storage capacity.

Mr. Rerick made it clear that the pumps and/or siphons will be operated and maintained by the local farmer, regardless of whichever system is chosen.

Mr. Martinez will check if a holding pond within the proposed Bullard Wash Channel is acceptable to the City of Goodyear relative to the proposed recreational use of the channel and if the City is willing

to accept the liability of the pond. Mr. Stough asked if it was necessary to separate storm water from tailwater for irrigation purposes? Mr. Rayner said that it was not necessary.

Mr. Rayner questioned the FCDMC if the channel will provide an adequate barrier against gophers. The sideslope treatment will need to act as a barrier against gophers. If berms are constructed above the existing ground, then the gophers will tunnel into the sideslopes. Concrete gopher barriers can be constructed within the berm that are 4-inches wide and 4-feet deep. This will contain the gophers activity.

Mr. McLaughlin said that Mr. Rayner should receive a notice from the Flood Control District in November asking him to suspend any further farming in the areas being purchased by the District. Mr. Rayner asked who would control the weeds in these areas and why farming couldn't continue until construction takes place. Mr. Rerick suggested that if construction is not started until the fall of 1998 that a 30-60 day notice could be issued to the farmer to allow time for the fields to dry up in time for construction.

A discussion of how to handle the delivery/tailwater for the fields adjacent to the proposed channel ensued. The basic concepts developed are:

- A siphon is required for the holding pond overflow. The overflow from the holding pond provides water to several farmers west of Estrella Parkway and cannot be shut off.
- A siphon is required at the Broadway Road alignment to deliver water to the fields between the channel and Estrella Parkway.
- Additional siphons may be needed depending upon the channel grade, north/south delivery ditch on the west side of channel, and channel dip crossing locations.

Access to the farm facilities and fields was discussed. Mr. Rayner said that the Broadway Road alignment carries semi truck traffic in both directions. The trucks are mainly hauling fresh cut alfalfa from the fields. The farm road to the south of Broadway Road carries semi truck traffic in an easterly direction and farm equipment. The next farm road to the south handles only farm equipment. Mr. Rayner said he will either need dip crossings at all farm roads, or a crossing at Broadway with a road that parallels the channel on the west side in order to get to his fields. Mr. Rerick said that the farm road parallel to the channel will need to be located west of the channel maintenance road. This will require a temporary construction easement (TCE). Additional delivery ditches and tailwater ditches will also need to be constructed within the TCEs.

Mr. Rerick asked if Mr. Rayner used the BID canal maintenance roadway. Mr. Rayner said not for any of his farming activities.

Mr. Olbert said that in a recent city council meeting, the council said that they would not participate in funding a concrete-lined channel, the channel must be aesthetically pleasing, they preferred an earth-lined channel. Mr. Olbert said that for an earth-lined channel the existing R/W width is inadequate. A minimum width of 200 feet is needed to accommodate the channel. Additional width may be needed for berming and dip crossings depending upon the depth of the channel. Because of the extremely flat slopes for the channel just north of the BID canal, a bottom width of 120 feet will be

needed to maintain a water depth of 5 feet. This is the minimum depth available according to the Feasibility Report. Sverdrup will not be able to determine the exact R/W needs until the mapping becomes available later this week.

Mr. Christensen said that SunChase will not be willing to give up additional land without compensation from the City of Goodyear.

Mr. Christensen said that SunChase anticipates that the property will be developed within a 10-year time frame. However, there is no firm time because no one can anticipate the market cycles.

Mr. Olbert briefly reviewed the MC 85 profile. Discussions with MCDOT have refined the bridge selection to either a three span continuous slab bridge or a box culvert. A single-span AASHTO girder bridge is too expensive and would raise the road profile too much. Neither the continuous slab bridge or the box culvert will raise the profile at the channel crossing. Both structures will be evaluated in the bridge selection report. It is anticipated that the edge of the roadway to the east of the bridge will be raised approximately 2 to 3 feet through the horizontal curve because of a 5.5 percent superelevation cross slope. Because the widening is on the south side of the roadway, more R/W will be required on the south side to provide enough R/W for the ultimate 6-lane facility fill slope, i.e., that 100 feet south of the proposed roadway centerline will be needed.

Signed:



Bradford D. Olbert, P.E.

Distribution:

013884-2B
Laura Fritschi, MCDOT
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: November 4, 1997

LOCATION Flood Control District of Maricopa County
AND DATE: October 28, 1997, 10:00 am

PARTICIPANTS: Don Rerick - Flood Control District of Maricopa County
Doug McLaughlin, FCDMC R/W
Clarence Wood, Wood Family Enterprises
Ronald Wood, Wood Family Enterprises
Margaret Carl, Wood Family Enterprises
Tim Smith, Wood Family Enterprises
Larry Martinez, City of Goodyear
Joe Evans, Yost and Gardner Engineers
Roger Miles, Sverdrup Civil, Inc.
Dan Stough, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Property Owner Meeting - Wood Family Enterprises

SUMMARY:

The above attendees met to discuss the short and long term effects of the proposed channel upon the Wood Family property. Mr. Rerick opened the meeting with each individual introducing themselves.

Mr. Rerick wanted to discuss the need to capture storm flows north of Lower Buckeye Road using berms to direct flows into the proposed Bullard Wash channel. Mr. Rerick asked if removing a portion of the old sump ponds located north of Lower Buckeye Road would cause any problems. Clarence Wood said that the sump ponds are no longer being used and that they are owned by SunChase now. Mr. Rerick said that one possibility in constructing berms to direct the flood water into Bullard Wash is to raise Lower Buckeye Road, and construct a berm with the roadway on top. Tim Smith said that they use the Lower Buckeye Road as a farm road. The existing roadway is nearly at the same elevation as the field to the north. If the roadway is raised to incorporate the berm, he will need a maintenance road on the north side of Lower Buckeye Road. Presently, he uses the roadway to turn his equipment. The width needed for a maintenance road and a tailwater ditch is approximately 20 feet. The tailwater from the field to the north currently discharges into Bullard Wash at the southeast corner of the field. Ms. Carl asked if raising the road will raise the height of the flood water on their property. Mr. Olbert said that extending the channel section north of the Lower Buckeye Road alignment approximately 100 to 200 feet will cause the flood water to begin

to draw down prior to reaching the berm. The berm will be used to stop the spread of the flood water to the south and direct the water into the channel. A computer model will be developed of the improvements to verify that the channel and berm design will not raise the flood waters.

Mr. Olbert asked Mr. Wood if he knew what the area was like prior to the construction of the airfield. Ronald Wood said that Lower Buckeye Road originally extended east through the present airport. When the airfield was constructed, the roadway alignment was severed. In addition, the original alignment of Bullard Wash was filled in with the airfield construction, and the wash was relocated to its present location. At that time, Mr. Wood said the federal government said the wash would not flood his property, however, the property has flooded on numerous occasions.

Mr. Smith said that they were planning to plant a double crop beginning with barley in November and cotton later. The irrigation would stop in August, and cotton harvesting would be done in November. If construction is delayed until after September, there will be no tailwater/delivery water for construction to deal with. If construction begins after November, then he could harvest the cotton and be out the fields. Mr. Rerick advised Mr. Smith to contact the District before planting crops in areas needed for the channel after August 1998. Mr. Smith said that if the area needed by the District can be staked, then he can plant outside that area.

Mr. Olbert said the Goodyear City Council recently said they would not participate in funding a concrete-lined channel, that the channel must be aesthetically pleasing, and that the council preferred an earth-lined channel that could be used for recreational purposes. Mr. Olbert said the existing R/W width is inadequate for an earth-lined channel. A minimum width of 200 feet is needed to accommodate the channel. Additional width may be needed for berming depending upon the depth of the channel. Because of the extremely flat slopes for the channel north of the drop structures, a bottom width of 120 feet may be needed to maintain a water depth of 5 feet, and that would require more right-of-way than was requested earlier. Mr. Wood said that recreational use of the channel will cause them grief from kids getting into their fields. Mr. Rerick said that the channel right-of-way will be gated and fenced with 3- to 4-strand barbed wire to help control access to the fields from the channel.

The tailwater from the east side of the Wood's farm currently discharges into Bullard Wash at several locations and flows southerly into a low flow channel for use by farms south of MC 85. An alternative location for the tailwater ditch was reviewed but discarded since tailwater from farms other than the Wood's farm enters Bullard Wash upstream of the Wood farm. The alternative tailwater ditch would not be able to control that water. It was determined that the best solution will be to continue to discharge tailwater into the channel near the current locations.

At the south end of the farm, the existing delivery ditch that will be cut by the new channel will need to be relocated to the west side of the channel. A new farm road will be needed on the west side of the channel. The farm road needs to be 12' - 14' wide plus a tailwater ditch where appropriate. A TCE will be needed for construction purposes.

Mr. Olbert asked what sources of water are used by the farm. Mr. Smith said that water for the farm comes from two wells owned by the Wood family and also from the Roosevelt Irrigation District (RID). At present, they try to use as much RID water as possible because it is less expensive and a

better quality water than what is delivered by the wells. RID ditches along Yuma Road and Estrella Parkway deliver water to the northern most well site for distribution to the farm. The two existing wells owned by the Wood family are located a ¼-mile south of Yuma Road on the east side of Estrella Parkway and at the Southeast corner of the intersection of Lower Buckeye Road and Estrella Parkway.

Mr. Smith asked if replacement of the delivery ditches would occur prior to channel construction. For any of the future roadway work to be done on Estrella Parkway or channel work for Bullard Wash, all utilities along the projects must be cleared prior to construction, including replacement of the irrigation delivery ditches. At the present time, the two wells on Estrella Parkway are missed by the roadway, but will need to be shielded by guardrail to protect drivers from running into the wells. Mr. Olbert asked if they knew if the well located south of Yuma Road approximately a ¼-mile west of Estrella Parkway was active or not. Mr. Smith said that the well is no longer in use.

Signed:



Bradford D. Olbert, P.E.

Distribution:

013884-2B
Laura Fritschi, MCDOT
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: November 25, 1997

LOCATION **City of Goodyear**
AND DATE: **November 10, 1997**

PARTICIPANTS: Steve Cleveland - City of Goodyear
 Larry Martinez - City of Goodyear
 Douglas Sanders - City of Goodyear
 Joe Evans - Yost and Gardener Engineers
 Don Rerick - FCDMC
 Laura Fritschi - MCDOT
 Brad Olbert - Sverdrup Civil Inc.
 Dan Stough - Sverdrup Civil Inc.

SUBJECT: **Contract FCD 95-39**
 Flood Control District of Maricopa County
 Bullard Wash Channel Improvements - Final Design
 Channel Aesthetics Coordination Meeting

SUMMARY:

Mr. Martinez opened the meeting with a general overview of the Bullard Wash project. The City of Goodyear will allow certain sections of the Bullard Wash channel to be lined with hard lining (concrete or shotcrete) if the following key features are incorporated into the channel segments:

- The City of Goodyear desires a bicycle / pedestrian path on top of the channel bank. The path would be set back approximately 2 feet from the top line of gabions or bank lining to avoid damage to the lining. Mr. Cleveland stated that the City desires a meandering path that allows the use of both the channel bottom and top of bank. Ramps would be required to join the levels.
- Discussion ensued regarding the City's desired locations for the ramps. It was agreed that the ramps should be placed where cyclists, equestrians, and pedestrians would all derive some benefit, and that the initial ramp locations will be shown on the 30% plan set (for review by City staff).
- Mr. Olbert suggested the design incorporate the ramp standard from the "Skunk Creek Master Drainage Plan"; a target maximum ramp slope of 8 percent (12:1) on the inclines with periodic level landings to provide rest areas (per ADA requirements). The overall slope would be approximately 5 percent (20:1).

Mr. Cleveland stated that wide spots should be provided periodically along the top of bank, to provide rest areas and shade trees. To achieve this effect, the path could meander away from the channel lining, or the lining could be steepened (narrower top width) in those locations. City of Goodyear will be responsible for the rest area development and all landscaping.

Mr. Olbert noted that a pedestrian rail should be used behind the bank lining when the bank protection is steeper than 2 to 1 or stepped gabions are used that are higher than 3 feet. The FCDMC standard handrail will be used which has a top and mid rail made of galvanized pipe stock.

The City planners have specified that the Bullard Wash corridor will be equestrian accessible. Mr. Cleveland stated that the City of Goodyear must strive to provide a continuous equestrian corridor within the Bullard Wash corridor. Although equestrians will be allowed access to the trail at the top of the bank, they will most likely choose to travel in the channel bottom, separated from pedestrian and bicycle traffic.

Mr. Olbert explained the following constraints to equestrian access along the channel corridor:

- the BID canal overchute has a significant grade control structure located south of the BID canal.
- the standard Union Pacific Railroad (UPRR) bridge has a low vertical clearance (approximately 7 feet) that will be passable only by pedestrians. Even dismounted horseback riders will have difficulty getting a horse to pass under the low chord of the bridge.
- UPRR does not allow equestrians within their right-of-way, nor will they allow a designated equestrian at-grade crossing of the tracks.
- three grade control structures located just north of the railroad bridge will be too steep and tall to be negotiated on horseback.

The following equestrian crossing alternatives were discussed by the group:

Design the grade control structure at the BID canal overchute to be usable by equestrians. The drop can possibly be reduced in height by steepening the slope of the overchute and then use a 12 to 1 ramp for the drop.

Mr. Olbert suggested that ramps leading out of the channel, on both sides of the channel, could direct equestrians onto the north bank of the BID canal. From there, they could be routed west to the Estrella Parkway crossing of the canal or to a separate bridge crossing of the BID canal. He also agreed that Sverdrup will check on what is needed to make the BID overchute safe for equestrian use.

To avoid the UPRR bridge, an equestrian path could be developed along the Elwood Street alignment to the west, that would turn south and follow Estrella Parkway. Equestrians would cross over the railroad tracks at the railroad at-grade crossing. Additional right-of-way could be obtained on the east side of Estrella Parkway to provide additional width (10 feet) for a path behind the sidewalk.

The at-grade crossing of the railroad was unacceptable to the City of Goodyear. Mr. Cleveland explained that the City must uphold an "equestrian friendly" requirement for this project. Failure to do so would give future land developers sufficient reason to evade the requirement, as well.

A concrete box culvert (10-foot height) could be constructed parallel to and separate from the Bullard Wash channel. A designated equestrian path would diverge from the Bullard Wash channel leading to the new CBC. A sump pump would keep the depressed CBC free of nuisance water. The CBC would also need lighting and phone equipment.

The City of Goodyear would have to negotiate the separate CBC crossing (at a later date) with UPRR and the affected utilities. The new crossing project would be built independent of the Bullard Wash Final Design project. The City of Goodyear would bear all costs, including construction, relocation of utilities (including UPRR shoo-fly), and O&M of the structure.

Mr. Cleveland suggested that the CBC design of the UPRR crossing (whatever form it may take) should occur during the design of the Bullard Wash channel, for the sake of design consistency. The intergovernmental agreement (IGA) would be renegotiated, such that the City of Goodyear would pay for additional CBC design costs.

Mr. Rerick reviewed the channel lining types that were visited by City of Goodyear officials the previous week. Mr. Rerick also noted that for the channel design to proceed, this meeting must reach a decision pertaining to which channel bank linings are acceptable to the City.

Mr. Cleveland stated that exposed stepped-gabions, soil-covered slope-blanket gabions, shotcrete banks with natural bottom, and full-concrete lining were each appropriate in certain locations. He elaborated that the channel lining types could be varied along the length of the channel. He also stated that mixed bank-lining treatments could be used, if needed. The City recognized the need to use concrete for sideslopes in the bridge and drop structures just north of the UPRR bridge.

Mr. Cleveland specified that the "form liner" style concrete (with a pattern) is desirable in locations where vertical concrete banks are used. He also requested that shotcrete lining be textured and colored to match the predominant soil type in the reach.

Mr. Rerick stated that the FCDMC have the personnel and equipment to hydroseed the banks on any soil-covered gabion segment(s) if they are desired.

Mr. Olbert explained that the channel profile grade line between the BID canal and the railroad is constrained by the APS pipeline crossing, the City of Goodyear sanitary sewer, and the proposed UPRR bridge. Between the BID canal and Broadway Road, the 100-year water surface is above the existing ground using a typical section with gabion bank protection that is covered with soil. The resulting channel banks must be 3 feet above the design 100-year water surface to meet FEMA requirements. The resulting channel/maintenance road footprint results in a 210-foot wide

(minimum) width right-of-way. He stated that the land owner (Sun Chase) was not agreeable with the possible FCDMC acquisition of sixty or more additional feet of property to meet this need. Mr. Olbert suggested a stepped-gabion lining with a 1:1 or 1.5 to 1 sideslope through this area. The slope of the sideslope can be selected based on the right-of-way. Gabion baskets can be used on the backslope of the dike to reduce right-of-way needs.

The meeting attendees reached an agreement on the bank linings to be used in the following locations:

PHASE I LININGS (Gila River to north of the UPRR Bridge)

- Exposed slope-blanket gabions (3:1 sideslope) with a natural stream bed will be allowed in the segment from the Gila River to the BID canal overchute.
- Full-section concrete lining from the BID maintenance road box culvert, through the grade control structure just downstream from the BID canal crossing, north to the APS (Arizona Public Service 96-inch reclaimed water) pipeline. The bank sideslopes will transition from vertical walls at the overchute to 1:1 or 1.5:1 sideslopes just north of the structure. The full-section lining with 1:1 or 1.5:1 sideslopes would continue north and match the top of the proposed APS pipeline encasement.
- Stepped, rock filled gabions (1:1 or 1.5:1 sideslopes) with natural stream bed from the 96-inch pipeline to just south of MC 85.
- Full-section concrete lined channel from just downstream of the MC 85, through the Union Pacific Railroad (UPRR) bridge and grade control structures north of UPRR. The channel sideslopes will transition to vertical walls through the MC 85 bridge, and transition to 1:1 sideslopes between the MC 85 bridge and the UPRR bridge. The channel sideslopes will transition back to vertical walls through the UPRR bridge and then transition to 1:1 sideslopes through the drop structures.

PHASE II LININGS (North of the Drop Structures to Lower Buckeye Road)

- Slope-blanket gabions from the drop structures to the north end of the channel at Lower Buckeye Road. The bank protection on the east side of the channel will be sloped at a 1.5:1 rate and vary between 2:1 and 3:1 on the west side.
- Slope-blanket or stepped gabions will be used in the 200-foot long inlet area to the north of Lower Buckeye Road. Work in this area will be considered temporary until the future channel section is designed and constructed (by others).

BROADWAY ROAD CROSSING

Mr. Olbert stated that farm access will initially be recommended at Broadway Road in the form of an interim "dip" crossing. A hardened ford will be used to prevent undermining of the roadway. The

crossing roadway will have an approach grade of 10:1.

Discussion ensued about locations for access points for channel maintenance. Mr. Martinez agreed to discuss the matter with City of Goodyear Operations and Maintenance personnel. The FCDMC and Sverdrup have had discussions with the BID and local land owners to determine other locations. Current locations include north of the BID canal, north of Broadway Road, north of the UPRR bridge, north of the drop structures, and south of Lower Buckeye Road. The access ramps will double as ramps for equestrian access to the channel bottom. Sverdrup will then identify access locations in the 30-percent plans.

DISCUSSION OF FUTURE PUBLIC MEETING

The group reached a consensus on the date for the public information meeting: *December 4, 1997*. Mr. Rerick stated that FCDMC will mail meeting notices to land owners (within one half mile of Bullard Wash or Estrella Parkway). He suggested an "open house" format for the upcoming public information meeting. He added that the Estrella Parkway/MC 85 and the Bullard Wash Channel final designs will be on the meeting agenda. Mr. Cleveland and Mr. Martinez agreed to this style of meeting.

Mr. Olbert explained that Sverdrup, FCDMC, and MCDOT personnel will mingle with the public, explaining the key points of the design concept, listen to specific comments, and address questions that arise. Informational handouts will be produced and distributed by FCDMC that include a fact sheet with the key project features, an overall project map with improvements delineated, and a questionnaire.

Mr. Martinez suggested that additional notices be posted along Estrella Parkway and MC-85 and in the local Goodyear newspaper. He also suggested that SunCorp be included on the mailing list (because of their significant role in land development in the area).

Ms. Fritschi agreed to create a County location board for display at the entrance to the meeting. Mr. Martinez agreed to arrange for the City Hall or the Community Center to be used for the meeting place. Mr. Olbert agreed to create the following exhibits by December 1, for use at the public meeting:

- Bullet charts showing the key design features of the channel design (emphasis placed on aesthetics, multi-use access, equestrian access).
- Bullet charts showing the key design features of the roadway design.
- Roadway typical sections.
- Channel typical sections (stepped gabions, slope-blanket gabions, shotcrete, concrete lined).
- Mounted 8" x 10" photos of recommended linings.

- 12-foot long aerial photo with proposed channel right-of-way limits (Gila River to Lower Buckeye Road).
- A 1"=100' scale strip drawing showing the edge of pavement, existing and new rights-of-way, property lines and owner names. The drawings will be displayed flat, rolled out on 8-foot long tables. Use markers to write down public comments at the appropriate locations on the strip maps.
- 1" = 20' scale illustrations of intersections at MC 85, Elwood Street, Lower Buckeye Road, Lower Buckeye Parkway and Yuma Road.

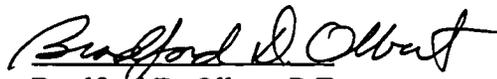
CITY OF GOODYEAR TOWN COUNCIL MEETINGS

Mr. Cleveland agreed to arrange a City of Goodyear Town Council work session (briefing) on *December 9, 1997*. Mr. Rerick stated that FCDMC will provide flyers for that meeting (and 25 will be given to the council).

A regular Town Council business meeting will follow on *December 16th*, at which time the council will vote on the recommended action items.

Please contact me at (602) 231-8999 if you have additions to or comments on these meeting minutes.

Signed:


Bradford D. Olbert, P.E.

Distribution:

Attendees
RWM
013884-2B

MEETING MINUTES

Sverdrup Civil, Inc.

Date: November 25, 1997

LOCATION AND DATE: Project Site
November 18, 1997; 8:00 am

PARTICIPANTS: Laura Fritschi, MCDOT
Brad Olbert, Sverdrup Civil, Inc.
Roger Miles, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Field Review Meeting - Roadway Design

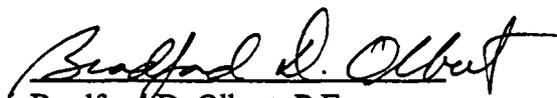
SUMMARY:

The above participants met to discuss issues pertaining to the Estrella Parkway roadway improvements. The following is a summary of the results of this meeting.

- MCDOT wants the Buckeye Canal as well as the bridge barrier protected on the north from errant vehicles. This would require about 300 feet of guardrail on the north approaches. This length of guardrail will block access to the canal for maintenance purposes. It was suggested by Mr. Miles that shop curved guardrail be used to arc the guardrail around the access road turnouts per an ADOT special detail. Sverdrup will submit details and literature on the shop curved guardrail application (see attached FHWA Technical Advisory).
- MCDOT does not want to maintain the access to the aluminum plant that is located in the railroad right-of-way. The roadway plans will show a paved turnout at the 30-foot gate north of the railroad right-of-way (R/W).
- The well located near the southeast corner of Estrella Parkway and Lower Buckeye Road is within the existing R/W and clear zone, and requires protection from errant vehicles. Guardrail length of need calculations indicate 300 feet of guardrail is required to protect the well site. This would result in blocking off two driveways south of the well. The well site fence closest to the roadway is about 49 feet from the construction centerline and the well itself is approximately 59 feet from the centerline. It was suggested by Mr. Miles that the ultimate roadway section (47-foot half width) be built from the driveway closest to the well site to Lower Buckeye Road and that guardrail be placed along the curb line. This would result in a significantly shorter guardrail length of need. Shop curved guardrail and relocating the driveway slightly to the south are also acceptable options.

- Lower Buckeye Road west of Estrella Parkway was recently overlaid with asphalt concrete. The 40 percent plans currently are designed to widen the roadway to include a left turn lane on the west approach. The proposed section will be centered on the section line while the existing roadway is offset to the south. The roadway tapers were designed for a 60 mph design speed and extend west past a block wall for a residential subdivision located on the north side of Lower Buckeye Road. With the proposed design, several existing irrigation headwalls are located within the clear zone. Field observations indicated that there is very little traffic on Lower Buckeye Road. City of Goodyear planning documents show no future plans for widening Lower Buckeye. MCDOT wants the roadway designed to include the left turn lane. Ms. Fritschi directed Sverdrup to reduce the design speed to 30 mph since the posted speed limit is 25 mph. This should limit improvements to avoid relocation of the block wall and the irrigation structures.
- The house located south of Lower Buckeye Parkway will be within the ultimate 75-foot right-of-way. MCDOT will investigate this situation and advise Sverdrup on how to proceed. The house, miscellaneous structures, and vegetation around the house will be surveyed by Brooks, Hersey & Associates. Field survey data should be available from Brooks, Hersey.
- MCDOT will provide Sverdrup with direction on how to divide the project between the two work order numbers. MCDOT will also provide Sverdrup a copy of the CIP showing the official titles of the two work order numbers.
- If the MCDOT/City of Goodyear IGA is approved by the City of Goodyear in December, Estrella Parkway Segment 2 (Lower Buckeye Road to Yuma Road) will need to be developed to the 40% Submittal level. Afterwards, the entire roadway package will be developed to the 70% Submittal level. The project schedule will need to be revised to accommodate this change.
- Sverdrup will include the quantity and cost of fence relocation in the 40% cost estimate. MCDOT will then determine if the work will be done by "In-house" forces or by the roadway construction contractor.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Don Rerick - FCDMC
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: December 4, 1997

LOCATION Flood Control District of Maricopa County
AND DATE: November 24, 1997; 10:00 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Doug McLaughlin, Flood Control District of Maricopa County
Jack Schelter, City of Phoenix - Aviation Department
Rosemary Ware, City of Phoenix - Aviation Department
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Phoenix - Goodyear Airport Meeting

SUMMARY:

The above participants met to discuss right-of-way issues for the referenced project. Mr. Rerick reviewed the progress to date on the overall project for both Mr. Schelter and Ms. Ware.

Mr. McLaughlin asked if the City of Phoenix had any use for the airport property located between the channel and the IMSALCO property. Mr. Schelter said the airport has no need for the severed property and would like to include the property in the land exchange plus other compensation. Improvements to the airport property should include items like removal and replacement of fencing, filling and compaction of existing ditches/channels, and removal of construction debris in the landfill area. He requested that the MAG standards for compaction requirements and fencing be used.

Mr. Rerick had previously requested the City's Aviation Department for a list of any security measures that the airport would want to have in place for the project. The FCDMC has not yet received a list from the Aviation Department. The security measures will be included in the special provisions for the project. The list from the Aviation Department will become a part of the project record.

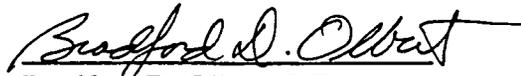
Access to the project was a concern to Mr. Schelter. The access road (security road) along the south fence line was designed for light vehicles. Heavy equipment and haul trucks should use an alternate access point. Mr. Rerick said that access from Lower Buckeye Road is a good possibility as well as a proposed at-grade crossing of the Union Pacific Railroad located just west of the proposed channel. If access to the work area by work crews is acceptable, the airport may want check-in and check-out requirements imposed at the entrance.

Mr. Schelter said that fencing of the project will be necessary to preclude access to the airport runway area by pedestrians. Temporary fencing materials will be adequate until permanent fencing is erected. Mr. Olbert asked if the airport will want their security road located adjacent to the new perimeter fence. Mr. Schelter said that he will have Dick Traill (Planning and Development, 271-3339) make that decision. If the soils are poor along the fence, they may choose to locate it further to the east around the landfill site. If a soils report along the channel is made available to them, they will be able to make the decision quickly. Mr. Olbert will make a copy of the report for Mr. Schelter when it is available.

Mr. Schelter said that the airport is a Superfund site, and suggested this condition should be mentioned in the construction documents. The Superfund site designation was caused by TCE dumped years ago at the north end of the airport. However, the entire airport is included in the designation. The airport has had some problems in the past with the IMSALCO property. The stockpiles of ground up aluminum have collapsed onto airport property after heavy rains. Mr. Olbert will check with Cynthia Parker (Environmental, 273-2730) about any environmental concerns. She is located in Terminal 3 at Sky Harbor. Mr. Rerick will check the FCDMC environmental reviews of the area adjacent to the IMSALCO property and Section 404 permit requirements for the East Tributary.

Ms. Ware requested a copy of the blueline aerials that show the airport property. It will be useful in future discussions concerning the channel. Mr. Olbert will contact Ms. Ware when the bluelines and soils report are available. She will send a runner to pick up the information.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: December 7, 1997

LOCATION AND DATE: MCDOT Office
December 5, 1997; 8:30 am

PARTICIPANTS: Bruce Ward, MCDOT Engineering
Laura Fritschi, MCDOT Engineering
Carlos Encinas, MCDOT Right-of-Way
Vath Heng, MCDOT Right-of-Way
Roger Miles, Sverdrup Civil, Inc.
Greg Froelich, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Estrella Parkway - Buckeye Canal to Yuma Road
W.O.s 68877 and 68947
Right-of-Way Documents

SUMMARY:

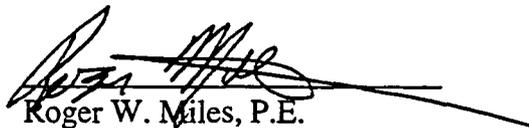
The above participants met to discuss requirements for right-of-way legal descriptions and individual parcel sheets pertaining to the Estrella Parkway roadway improvements. The requirements discussed are in addition to the instructions given in the Scope of Work and examples given to Sverdrup prior to this meeting. The following is a summary of the results of this meeting.

- The MCDOT and FCDFMC Right-of-Way divisions have recently combined into one unit. This is causing some right-of-way document format changes.
- MCDOT requested that the Warrantee Deed Number appear on the individual parcel sheets and in the legal descriptions for parcels that are irregular shaped and described in a non-fractional manner.
- MCDOT requested that the recorded bearing be placed on the individual parcel sheet instead of the surveyed bearing. The recorded bearing shall be followed by "(R)" to indicate that the bearing is a recorded bearing. The surveyed bearing is OK on the strip map.
- MCDOT requested that the description of irregular shaped and non-fractionally described parcels appear in the legal description for new right-of-way.
- MCDOT requested that legal descriptions be divided into numbered parcels when

descriptions include more than one part of a property.

- Exceptions to a description shall be indented from the description and can apply to all parcels of a property or just one.
- Section corners on the individual parcel sheets shall be labeled.
- Existing right-of-way on the individual parcel sheets shall be patterned similar to the strip maps.
- "AREA (TAKE)" shall be labeled "REQ'D R/W" on the individual parcel sheets.
- "D.E. AREA (TAKE)" shall be labeled "DRAINAGE AREA" on the individual parcel sheets..
- "T.C.E. AREA (TAKE)" shall be labeled "TEMPORARY CONSTRUCTION AREA" on the individual parcel sheets.
- Mr. Heng will call Mr. Ken Green to determine whether or not area quantities will appear on the legal description sheets.
- Parcel numbers will be circled on the individual parcel maps.
- The individual parcel sheets shall be labeled "N.T.S."
- Label existing right-of-way documentation on the individual parcel sheets.
- The dividing line between MCDOT W.O. Numbers 68877 and 68947 shall be the midsection line adjacent to Elwood Street.
- Change the name in the title block from "M.C.D.O.T. - RIGHT-OF-WAY DIVISION" to "M.C.D.O.T. - Public Works Land and Right-of-Way Division".
- The above changes will be incorporated by Sverdrup and the modified legals and individual parcel sheets will be submitted to MCDOT on Wednesday, December 10th.

Signed:


Roger W. Miles, P.E.

Distribution:

013884-2B
Don Rerick - FCDMC
Brad Olbert
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: January 6, 1998

LOCATION AND DATE: Maricopa County Department of Transportation
January 5, 1998; 10:00 am

PARTICIPANTS: Laura Fritschi, MCDOT Engineering
Ken Green, MCDOT
Todd Belzner, MCDOT Right-of-Way
Jim Neibergall, MCDOT Engineering
Phil Epstein, MCDOT Engineering
Tom Sonnemann, MCDOT Engineering
Roger Miles, Sverdrup Civil, Inc
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Estrella Parkway - Buckeye Canal to Yuma Road
W.O.s 68877 and 68947
40% Construction Plan Review Meeting

SUMMARY:

Following opening introductions the participants met to discuss the 40% Construction Plans, as summerized below.

Mr. Green asked if the plans reflected the right-of-way (R/W) changes to MC 85 requested back in December. Mr. Olbert stated the R/W changes had not been incorporated because the plans were distributed prior to the request. Mr. Green said his major concern involves the patterning of the lines and the line weights. Mr. Miles said the lines were not patterned for the 40% submittal due to the probability of changes occuring. All of the lines will be properly patterned for the 70% plan submittal. The line weights were fine on a test plot from Techniprint, however, when the plan sets were returned, the lines all had the same line weight. We are not sure what happened. Mr. Green requested adjustments to the R/W Strip Maps to facilitate MCDOT's review of the parcel sheets and the legal descriptions. Mr. Miles said that he should have the changes completed tomorrow.

Mr. Belzner had some questions about the areas on some of the parcels. Mr. Olbert said the information on the areas was relayed to Ms. Fritschi's voice mail back in December. We will check back on the areas which involved two parcels of the Union Pacific Railroad and one other parcel which we were unable to locate. Mr. Belzner said the appraisals have been received on the properties, so offers can be made now. One question he had concerned the drainage easements and whether the retention basins need TCE's around the easements to construct the basins. Mr. Miles

said that we will check with our drainage engineer on the issue.

Mr. Neibergall said he has listed his comments on the plan set. Most involve the patterning of the lines and the line weights. Mr. Miles asked if MCDOT has developed custom line styles to replace the need for patterning in Microstation. Mr. Sonnemann said that the custom line styles have not been developed yet.

Mr. Epstein noted that detour plans are missing from the plan set, and requested a detour around the bridge site to save money. This will require additional TCE's not presently shown on the plans and will delay the R/W process. Mr. Belzner said that since the appraisals are in, the R/W process shouldn't be delayed. The R/W process is well within the schedule. Mr. Epstein requested a meeting with Sverdrup's structural engineer to go over his comments to avoid any delays. Mr. Olbert said we will check and arrange a meeting tomorrow. Mr. Epstein had some concerns with the profile at the bridge.

Ms. Fritschi said her comments are not complete at this time, but will transmit them to Sverdrup shortly. The City of Goodyear will have their comments to us by Friday (1/9/98).

Mr. Miles presented a color coded copy of the Plan and Profile sheets to Mr. Belzner for his review as requested by the City of Goodyear. The plans indicate locations of private irrigation facilities requiring relocation. These highlighted plans will be used by the City of Goodyear to determine how the relocations will be accomplished. Mr. Belzner reviewed it and indicated several adjustments.

Mr. Miles also presented a copy of the detailed improvements at two well sites (one at the SW corner of Lower Buckeye Road and Estrella Parkway, and the second located to the east side of Estrella Parkway, 1/4 mile south of Yuma Road). Ms. Fritschi asked if the well at the second site was located 3 feet behind the guardrail. Mr. Miles said he didn't have a survey shot on the well head and would have to check it out further.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Don Rerick - FCDMC
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: January 6, 1998

LOCATION Maricopa County Department of Transportation
AND DATE: January 6, 1998; 9:30 am

PARTICIPANTS: Laura Fritschi, MCDOT Engineering
Bruce Ward, MCDOT Engineering
Phil Epstein, MCDOT Engineering
Tom Sonnemann, MCDOT Engineering
John Fischer, Sverdrup Civil, Inc.
Roger Miles, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Estrella Parkway - Buckeye Canal to Yuma Road
W.O.s 68877 and 68947
Structure Selection Report and 40% Construction Plan Comments

SUMMARY:

The above participants met to discuss the Structure Selection Report comments and the 40% Construction Plans comments pertaining to the bridge.

Mr. Epstein expressed concern about the length of the roadway tapering section east of the Bullard Wash Channel bridge. Mr. Miles explained that the new roadway shifts the centerline 18 feet to the south and has a design speed of 65 mph. The lengthy taper section shown on the plans is necessary to meet current design guidelines. Mr. Epstein agreed that the taper section east of the bridge is acceptable.

Mr. Epstein said he wanted a crest vertical curve over the bridge with 0.50% approach grades as a minimum for drainage purposes. Mr. Miles explained some of the difficulties of matching to the existing roadway grades. Mr. Epstein said the only time the above grades will not apply is for special situations where the grades cannot be attained. If a minimum 0.50% longitudinal grade is met then a vertical curve is not necessary.

Mr. Epstein also suggested that the bridge should be lengthened to place the abutment outside the channel trapezoid section and providing a 2-foot wide berm at the abutment.

Mr. Epstein said he wanted the bridge section to be revised to add a 6-foot walkway on the north side of the bridge. Mr. Fischer discussed the bridge sidewalk width with Mr. Sonnemann, and he mentioned that the county standard is either a 4-foot or 5-foot wide sidewalk. Mr. Epstein said that the minimum county standard is 5 feet, but, in this situation, a 6-foot wide sidewalk is desirable. Mr. Olbert asked if the ultimate typical section for the future roadway needed to be revised to add a sidewalk on the north

side of MC 85. Mr. Ward said the sidewalk should only be added to the bridge.

Mr. Epstein preferred drilled shafts to spread footings, and wanted a cost justification to use them. Mr. Fischer said that it was the geotechnical engineer that recommended the spread footing over the drilled shaft. The poor soil would require a large diameter bell at the bottom of the drilled shaft. The soil will cave in when trying to excavate for the bell, and result in a larger drilled shaft diameter than is necessary. Skin friction on the shaft wall was also poor. Mr. Epstein requested that the geotechnical engineer provide a drilled shaft design and for Sverdrup to do a cost comparison.

Mr. Epstein prefers columns in lieu of the pier walls. Mr. Fischer said the columns will need to be approximately 30 inches in diameter where the pier wall is 12 inches thick. The walls offer less resistance to the flow of water. Mr. Epstein preferred a more open area under the bridge where the pier walls will give a tunnel effect.

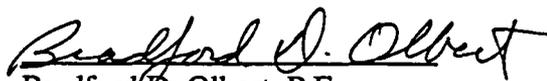
Mr. Epstein wants the wording in the report to be revised to allow utilities to use the bridge in the future. Conduit can be placed in the bridge to allow the utilities to cross in the future.

Mr. Epstein wanted a minimum length paved detour around the bridge. This would allow the bridge to be built in 3 months. Mr. Miles said that Sverdrup had reviewed three detour alternatives earlier. The first was a roadway closure. The second was to maintain traffic through the site and build one-half of the bridge at a time. The third was to provide a full detour around the site. MCDOT determined the best of the three alternatives was to maintain traffic through the site and build one-half of the bridge at a time. Since the new roadway shifts 18 feet to the south, the roadway can easily be constructed one-half at a time. The preliminary full detour alternative had a detour length of approximately 2,000 feet. Mr. Epstein said that the detour length should only be 800 feet long. Mr. Olbert said the detour will need to be located on the outside of the roadway horizontal curve because of the railroad and outside the proposed fill limits. This will lengthen the detour. Mr. Epstein said to keep the detour short, use a 4 degree curve if necessary to shorten the detour length.

Mr. Epstein said that MCDOT does not have bid items for structural excavation and backfill for bridges. It is considered incidental and included in the mobilization item. Mr. Fischer said that mobilization costs are a part of the general cost estimate and that structural excavation and backfill are legitimate costs associated with the bridge and were thus included in the bridge cost estimate. Structural excavation and backfill will not be items in the project bid tab. Mr. Epstein said that MCDOT uses 3000 and 4000 psi concrete strengths in accordance with MAG specs.

Sverdrup will contact ATL to obtain a preliminary recommendation on drilled shafts for the bridge and will check the grade line to obtain a minimum 0.50% grade over the bridge. Sverdrup will also check to see if circular columns will affect the water surface profile significantly compared with straight walls.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Don Rerick - FCDMC
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: January 13, 1998

LOCATION Bullard Wash Channel @ UPRR bridge site
AND DATE: January 13, 1998; 10:00 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Gary Voogd, UPRR
John Tripp, UPRR
Martin Eldridge, UPRR
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
UPRR Bridge Site Visit and Coordination Meeting

SUMMARY:

The above participants met to visit the site of the proposed Union Pacific Railroad (UPRR) bridge over the future Bullard Wash Channel and to coordinate aspects of the bridge design and construction.

Mr. Olbert presented an overview of the project to the UPRR representatives. The overview included giving to Mr. Voogd the following material: 1" = 100' blue-line aerials showing the railroad alignment from the Estrella Parkway RR crossing to approximately 2,400 feet east of the existing Bullard Wash bridge, a concept drawing showing the inlet structure for the East Local Tributary channel, a plan view showing earthwork limits of the East Local Tributary channel, and a sheet showing monument survey ties to the at-grade maintenance road crossing and the centerline of the new railroad bridge. Mr. Olbert said the two pipes that discharge tailwater just upstream of the RR bridge and convey flow under the railroad located just west of the proposed Bullard Wash Channel will be sized in a meeting scheduled for January 20th. The pipe size information will be forwarded to UPRR after the meeting.

Mr. Rerick said the current understanding is that UPRR will design and construct the bridge and at-grade crossings utilizing UPRR forces. The Flood Control District of Maricopa County (FCDMC) is negotiating with UPRR on the payment and schedule for the work. UPRR has a revised cost proposal in the mail to the FCDMC that will be discussed at a scheduled meeting with Bob Prince on January 30th.

Mr. Eldridge explained briefly the process to construct the bridge. The work can be scheduled around the train traffic. At this location on the track, there are several customers, but the main customer is the Palo Verde Nuclear Power Plant. Train traffic is about one train a day. The line is not used beyond the power plant, thus the line does not serve through traffic.

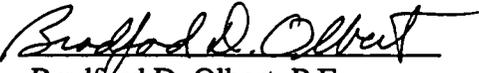
Mr. Voogd said a safety representative from UPRR will need to be present to oversee all the work in the railroad R/W. The county will need to cover the cost of the worker for approximately 30 days.

Federal regulations may require the contractor to have training in track safety. This item should be raised at the meeting on the 30th to determine who from the contractor will need to be certified if the training is required.

UPRR will need to provide some advanced notice to the Phoenix Goodyear Airport when large construction equipment is to be used at the bridge site. Contact Rosemary Ware in advance of the construction work. She is with the City of Phoenix Aviation Department and can be reached at (602) 273-8881. Mr. Eldridge said the tallest equipment used on the site is a pile driver that can be 40 to 50 feet high.

Mr. Voogd said that the UPRR would like to retire the two existing railroad bridges once the new bridge is in place. Mr. Voogd also requested that excess soil from the channel work be stock piled on the north side of the railroad tracks within the railroad R/W. UPRR would use the soil to fill under their bridges. This would save them time and money to bring in borrow material. Mr. Rerick suggested a trade of soil from the county for permits from the railroad. Mr. Olbert said the area for the stockpiled material needs to be identified for the TCE and to clear and grub the area prior to placing the soil. Mr. Eldridge asked if the tailwater was available to use on the backfill for the bridges. Mr. Rerick said the railroad will need to contact and make arrangements with the A-Tumbling-T Ranch manager, Ron Rayner at (602) 932-1834.

Mr. Voogd said he had enough information to begin work on a two sheet preliminary layout of the railroad bridge. He only needs a predesign work number from Bob Prince to start. Mr. Voogd requested that the 30% construction plans be sent to him directly for review and comments.

Signed: 
Bradford D. Olbert, P.E.

Distribution: 013884-2B
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: January 19, 1998

LOCATION MCDOT Office
AND DATE: January 15, 1998; 9:00 am

PARTICIPANTS: Bruce Ward, MCDOT Engineering
Ken Green, Maricopa County Public Works Land Division
Carlos Encinas, MCDOT Right-of-Way
Vath Heng, MCDOT Right-of-Way
Brad Olbert, Sverdrup Civil, Inc.
Roger Miles, Sverdrup Civil, Inc.
Greg Froelich, Sverdrup Civil, Inc.

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Estrella Parkway - Buckeye Canal to Yuma Road
W.O.s 68877 and 68947
Estrella Parkway Right-of-Way Documents

SUMMARY:

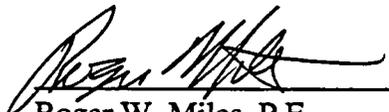
The above participants met to discuss additional requirements for right-of-way legal descriptions and individual parcel sheets pertaining to the Estrella Parkway roadway improvements. The requirements discussed are in addition to the instructions given in the Scope of Work and examples given to Sverdrup prior to this meeting. The following is a summary of the results of this meeting.

- Mr. Green expressed a concern regarding the accuracy of the area calculations for the right-of-way areas and TCEs. Sverdrup will use a coordinate geometry (COGO) procedure to calculate areas and submit a printout of the input and results for MCDOT review.
- MCDOT requested that the warrantee deed number appear on the individual parcel sheets and in the legal descriptions for all parcels. The legal descriptions will be revised as necessary to include the warrantee deed legal description for the parcel.
- The warrantee deeds were not included with most of the title reports. MCDOT has requested and received these from the title company. A copy of these were transmitted to Laura Fritchi. Sverdrup has not received these documents. Mr. Ward will track down these documents and forward them to Sverdrup.
- Do not abbreviate "Gila and Salt River Base and Meridian" in the legal descriptions.

Sverdrup will also double check that "Maricopa County, Arizona" appears in all the legals.

- Sverdrup will add dimension terminal symbols by placing a partial arc and arrowhead near the end of items to be dimensioned in the parcel sheets.
- The fractional lines and quarter corners will be labeled in the parcel maps.
- Place calculated right-of-way area, drainage area, and TCE area on legal descriptions.
- Right-of-way center lines shall be patterned on the parcel maps per MCDOT Right-of-way Division CADD standards.
- Sverdrup will modify the drainage areas so that there is at least 15 feet of buffer from the top of the retention basin slope to the area boundary. This will allow for future maintenance activities. The TCEs around the drainage areas will be deleted.
- Sverdrup will submit the revised right-of-way package with the revised 40% plan and profile sheets for the entire project from the Buckeye Canal to north of Yuma Road. The date to submit this package is dependent on when Sverdrup receives review comments from the City of Goodyear and the MCDOT Traffic Division and the warrantee deeds from MCDOT.

Signed:



Roger W. Miles, P.E.

Distribution:

013884-2B
Don Rerick - FCDMC
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: February 2, 1998

LOCATION Estrella Parkway just north of the Buckeye Irrigation Canal
AND DATE: January 30, 1998; 8:00 am

PARTICIPANTS: Olin Sutton, Flood Control District of Maricopa County (FCDMC)
Timothy Burkeen, FCDMC
Fred Fuller, FCDMC
Sarianne Rittenhouse, Arizona Public Service
Dan Bunney, Bunney's Inc.
Scott Young, Bunney's Inc.
Joel Perkins, Tiffany
Linda Harkness, Tiffany
Dan Stough, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: **Contract FCD 95-39**
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Preconstruction Coordination Mtg - Encasement of 96-inch Pipeline

SUMMARY:

The above participants met at the site of the proposed Bullard Wash Channel to provide coordination of the upcoming construction prior to the 30% construction plan submittal.

Ms. Rittenhouse requested identification of the channel centerline, edge of right-of-way, the 65-foot line left and right of centerline, and a temporary bench mark on the manhole cover. Mr. Olbert said that coordination of the survey is underway. Brooks, Hersey and Associates will be doing the survey work. Ms. Rittenhouse said that Brooks, Hersey's surveyor needs to coordinate their work with John Schwartz (APS surveyor), with the survey work to be done during the week of February 9-13. Mr. Schwartz wants to be present during the survey work. Mr. Fuller would like a copy of the survey notes to be able to reset any points that may be disturbed after the survey.

Ms. Rittenhouse asked when the channel construction plans will be available. Mr. Olbert said the 30% plans will be printed on February 6th with distribution the following week. Ms. Rittenhouse would like to see as much detail as possible at the location of the 96-inch pipe including how the channel will tie to the pipeline.

A conflict needs to be resolved with the color to be used on the top of the pipe. The specification calls for 2 pounds of number 64 color per 96 pound sack of concrete (Flagstone Brown). The concrete suppliers say that Flagstone Brown uses 3 pounds of number 641 color per sack and Yosemite Brown

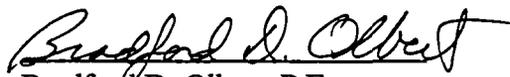
uses 2 pounds of number 641 color per sack. There is no number 64 color. Mr. Olbert will contact Mr. Rerick to clarify color to be used.

Ms. Rittenhouse stated that the construction crews will utilize the north BID maintenance roadway for access to the site. A 36-inch pipe will be placed in the tailwater ditch within the Bullard Wash Channel R/W for access to the channel corridor and the 96-inch pipeline. A trench will be excavated down 3 feet to determine where the ends of the spools are from the centerline of the channel. The exact encasement length will then be determined. Soil will be spoiled to the north and south of the pipeline trench within the channel R/W. The contractor must use caution concerning the overhead electric transmission lines. Staging area for the construction work will be located just west of Estrella Parkway and north of the BID. Construction on the encasement will begin March 2nd. Draining of the pipeline will begin midnight before the construction. It takes 9 hours to drain the pipeline. Their biggest concern at present is ground water. Mr. Olbert can check borings taken in the area last fall and Fax the information to Ms. Rittenhouse.

Ms. Rittenhouse said that a unit outage is planned at Palo Verde for the week following the encasement work. The construction must be completed the week of March 2nd.

Relocation of the overhead and underground electrical line to the APS manhole will be needed. Ms. Rittenhouse said it took a year to locate a spot for the power pole to provide the power to the manhole. The utility coordination meeting is scheduled for February 17th at 8:30 a.m. at FCDMC.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
D. Rerick - FCDMC
O. Sutton - FCDMC
F. Fuller - FCDMC
S. Rittenhouse - APS

MEETING MINUTES

Sverdrup Civil, Inc.

Date: March 11, 1998

LOCATION Flood Control District
AND DATE: February 17, 1998; 8:30 pm

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Olin Sutton, FCDMC
Scott Yogel, FCDMC
Jim Neibergall, MCDOT Utility Coordinator
Laura Fritschi, MCDOT
John McNeely, El Paso Natural Gas
Bill Ward, El Paso Natural Gas
Robert Sprague, Southwest Gas Corporation
Dan Tarango, Santa Fe Pacific Pipelines
Stan Ashby, Roosevelt Irrigation District
Tony Tapia, Roosevelt Irrigation District
Bob Friess, US West
Bob Bott, APS
Sarianne Rittenhouse, APS-PVNGS
Pat Kavanaugh, MCI
Larry Martinez, City of Goodyear
Dan Stough, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
30% Plans Review / Utility Coordination Meeting

SUMMARY:

Mr. Rerick opened the meeting with a brief overview of the project which included the project location and the proposed flood control facilities. Mr. Rerick stated emphatically that all utilities must be relocated **NO LATER THAN September 1, 1998**. All relocation plans, estimates, and prior rights information needs to be submitted to Mr. Sutton for review and approval. All utilities not in attendance will be notified by Mr. Sutton for a follow up meeting to identify their conflicts or to respond with a letter stating that they have no conflicts. Utilities should identify any additional R/W requirements needed for their relocation effort as soon as possible.

Roosevelt Irrigation District - They had no conflict with the plans as detailed so far. They plan to be in attendance at the March 17th meeting with UPRR.

Arizona Public Service (APS)- Two power poles need to be relocated near the BID canal. One power pole is located on the south side of the BID canal and the other pole, a service drop pole, is located on the north side of the BID canal. The overhead power line (12 kV) on the south side of the BID canal and the service line to the service drop pole will need to be raised to provide a minimum of 25 feet of overhead clearance for construction purposes. The underground service line from the service drop pole to the PVNGS manhole will need to be relocated. Two power poles located on the south side of Broadway Road will need to be relocated outside the channel limits and raised to provide a minimum of 25 feet of overhead clearance for construction purposes. Sverdrup will provide APS with updated plots to highlight the pole locations. Half size plans are adequate. Send information to Bob Bott.

Southwest Gas (SWG)- SWG has a 1¼ inch steel gas line located on the south side of the BID canal that will need to be lowered. Limits of the lowering will include the construction limits of the new BID south bank maintenance road. SWG will provide adequate cover to handle the construction loads. A steel line was uncovered last summer located under the north BID maintenance road. SWG had no record of an abandoned gas line located under the maintenance road.

Salt River Project (SRP) - Not in attendance. Mr. Sutton to contact and obtain written comments.

Tucson Electric Power Company (TEP) - Not in attendance. Mr. Sutton to contact and obtain written comments.

Western Area Power Administration (WAPA) - Not in attendance. Written comments have been received. They have no conflicts with the proposed channel construction.

US Sprint - Not in attendance. Mr. Sutton will contact Sprint to identify their relocation needs along Broadway Road. Mr. Stough said the US Sprint line is mislabeled as MCI in the profile, sheet 5.

US West (USW) - USW has two fiber optic lines in Broadway Road that need to be relocated. They currently plan to jog to the south of the sewer line with a new conduit encased in concrete with a minimum of 4 feet of cover. Three hundred feet of cable needs to be relocated, but 2000 feet of cable will need to be pulled and spliced at one or both ends. Mr. Rerick suggested combining relocation efforts with US Sprint at this location. Mr. Sutton (506-8437) will coordinate effort to use a joint trench.

Santa Fe Pacific Pipelines (SFPP) - SFPP has provided an estimate for their relocation work to the FCD (\$244,000 for both lines). They can relocate by Labor Day. Relocation work to be reviewed by Mr. Sutton, Mr. Rerick and Sverdrup. SFPP have their own easement with UPRR. **Mr. Rerick requested that all of the utilities be sure to get a no cost license to work in the R/W from the FCD. It takes one week to receive. Coordinate with Mr. Sutton to pick up the license.**

Qwest - Not in attendance. Mr. Sutton will contact Qwest to request as-builts for the new conduit placed last fall parallel with the railroad. The plans are needed ASAP to plot the conduit on the plan and profile sheets to identify any conflicts.

UPRR - Not in attendance. Field meeting has been set up for March 17th, to discuss their overhead signal lines located just south of the UPRR tracks. Two poles need to be relocated out of the channel. The overhead lines also need to be raised to provide 25 feet of clearance for construction purposes.

MCI - MCI has a 42 count fiber optic cable within the UPRR R/W that needs to be lowered. Their conduit is concrete encased at the Estrella Parkway crossing. They will need a minimum of 36 inches of cover over their line. Sverdrup to send an additional set of plans to Gary Nelson in Texas. Mr. Nelson will prepare the relocation plans for MCI.

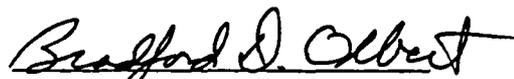
El Paso Natural Gas (EPNG) - EPNG will lower about 350 feet of their 8 inch line that crosses the Bullard Wash Channel alignment. They will need to lower the line in place without cutting or splicing. The line must remain in operation while the lowering work is being completed. EPNG will check their records on the location of the line. Mr. McNelly's recollection is that the line was placed back in the 1940s with little as-built information. EPNG and Sverdrup to coordinate the potholing of the line and to determine limits of conflicts with the East Local Tributary Channel.

MCDOT - Mr. Neibergall said that there will be a utility meeting in mid March concerning the Estrella Parkway 40% Construction Plan Set. Locations of possible conflicts should be identified as well as providing prior rights information. Mr. Olbert said that the utilities within Estrella Parkway will be potholed during the month of March. Several utilities reported they have not received plan sets from MCDOT yet. Mr. Neibergall stated that there are two 40% construction plan sets that will be discussed at the roadway utility coordination meeting. The first set was sent out last November, the second set went out just recently.

City of Goodyear - Provide encasement of sewer line at the Broadway Road crossing per MAG standards.

Please review these meeting minutes and call me or Dan Stough (231-8999) if you have comments or questions. Unless comments or questions are received on these minutes within 1 week of distribution, the statements above will be considered true for design purposes.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Meeting Attendees
Jackie Meck - BID
Bob Prince - UPRR
Phil Young - TEP
Robert Johnson - WAPA
Bill Phillips - SRP
Colin Sword - US Sprint
Gary Nelson - MCI
Jeff Davis - Qwest Comm. Corp.

MEETING MINUTES

Sverdrup Civil, Inc.

Date: March 16, 1998

LOCATION Flood Control District
AND DATE: February 26, 1998; 1:00 pm

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
John Christensen, SunChase
Todd Tupper, SunChase
Barbara Rust, Coe and Van Loo
Tim Smith, Wood Family Enterprises
Ron Rayner, A-Tumbling-T Ranches
Tom Koenekamp, Stantech, representing Buckeye Irrigation District (BID)
Larry Martinez, City of Goodyear (COG)
Joe Evans, City of Goodyear
Dan Stough, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
30% Plans Review Landowner Meeting

SUMMARY:

The above participants met to submit their comments regarding the 30% construction plan submittal for the Bullard Wash Channel Improvements. Mr. Rerick presented the agenda for the meeting and asked for comments from each of the landowners or representatives present at the meeting.

BUCKEYE IRRIGATION DISTRICT

Mr. Rerick briefly described the outfall grading, outlet channel and lining, concrete structures around the BID canal overchute site, BID access road bypass and box culvert, and the sedimentation basin located just north of the canal. Mr. Rerick stipulated that the overchute structure will close off the lower north channel bank from any maintenance traffic. He added that the maintenance road on the upper north bank of the canal will have access control gates to the Operation and Maintenance (O&M) roads that will parallel the Bullard Wash channel. Mr. Rerick suggested that the infield areas between the south bank bypass road, the canal, and the channel will be backfilled to improve safety, aesthetics, and local drainage.

BULLARD WASH CHANNEL - 30% PLAN LANDOWNER REVIEW MEETING

Mr. Koenekamp stated that he had not had much opportunity to review the 30% plans, however, Jackie Meck (BID) provided several comments or questions for the meeting:

- How much of the 96-inch APS water reuse pipeline was going to be encased. Mr. Rerick identified the limits of encasement as a minimum of 65 feet each side of the channel centerline. The encasement may extend a little further depending on where the 96-inch pipe joints are located.
- Is the channel downstream of the BID to be lined? Mr. Rerick explained that the channel would be unlined from station 18+00 to 25+00, and step-gabion bank lining with natural bottom from station 25+00 to 29+10.
- Where will the hydraulic jump occur? Mr. Olbert explained that at high flows the hydraulic jump will be "washed out" by the backwater formed upstream of the bypass road box culvert.
- Mr. Koenekamp stated they preferred that the bleed off pipes (out of the sediment basin) should be no larger than 24-inches in diameter, that multiple pipes can be used, and the outlet inverts of the pipes must be positioned at least 1 foot above the normal high water of the canal.
- Several items on the sediment basin were discussed. The proposed basin is not a detention basin (typically used for peak flow reduction). The basin is positioned to allow sediment to collect for easy removal and reduce the amount of sediment discharged into the canal. Operation and maintenance (O&M) of the basin will be the responsibility of the City of Goodyear as a part of the channel project. To reduce maintenance of the basin, the tailwater ditch will be lined as it enters the basin and continued within the basin to the basin tailwater outlet pipe. A suggestion was made to make the sediment basin longer and narrower to facilitate O&M. This caused concerns regarding modifications to the required Permanent Construction Easement (PCE) limits. The consensus was to leave the pond size as it is.

A-TUMBLING-T RANCHES

- Ms. Rust stated that the sediment basin PCE description (and the Broadway Road "bulge") be worded to allow the ownership and control of the property to revert back to Sun Chase (or future land owner) in the event that the basin is no longer needed with the approval of the City of Goodyear and the FCD.
- Mr. Rayner requested that the sediment basin pond depth be deeper than the tailwater ditch so that silting and water depths in the basin do not interfere with the operation of the tailwater ditch.
- MAG wooden barricades were suggested to be placed at the intersection of the canal banks and the channel berms in line with the north and south canal maintenance roads. This will help warn drivers along the roadways at night of the changed conditions.
- Mr. Rayner requested that 50-foot radius curves be placed at the intersections of the new farm roads (parallel to the Bullard Wash channel) and the existing farm roads. The TCEs will need to be expanded to accommodate the request. Sverdrup to provide new TCE limits to FCD as soon as possible.

BULLARD WASH CHANNEL - 30% PLAN LANDOWNER REVIEW MEETING

- Mr. Rayner agreed that a width of 14-foot for the new farm roads is adequate. He requested that the profiles of the roads be set approximately 1-foot above the adjacent fields.
- Mr. Rayner noted that the irrigation siphons will have to be placed outside of the inside radius of the new farm road returns. He stated that the peak irrigation flows are 3,500 gallons per minute (7.8 cfs). He requested 30" diameter pipes for two siphons (Station 36+65 and 49+90).
- Mr. Rayner stated that the irrigation tailwater culvert at Broadway Road immediately east of the channel is not required. He also noted that he would prefer that tailwater not be mixed with delivery ditch water at the two siphon locations described above. He requested that the tailwater be diverted southward in an unlined V-ditch that would ultimately be discharge into the Sediment Basin. Sverdrup will review the existing ditch and siphon profiles and attempt to accommodate the request.
- Mr. Rayner stated that following the channel construction, the property north of Broadway Road and west of the Bullard Wash channel will not be utilized unless the land is excavated to an elevation below Broadway Road.
- Mr. Koenekamp noted that Salt River Project uses a standardized rectangular irrigation structure that is readily adaptable to a siphon application. He recommended calling SRP to obtain the standard details for incorporation into the 60% plans submittal. The siphon details for the four siphon crossings will be provided to Ms. Rust and Mr. Rayner for their review and comment prior to final design. This includes the use of a second clean out port in the channel bottom.
- The connection of the new north/south farm roads to the existing Broadway Road farm road alignment needs to be revised to incorporate the 50-ft turning radius. The relationship between the farm road and the channel O&M road needs to be revisited to determine how best to connect with existing Broadway Road. **This will require further reviews by Ms. Rust and Mr. Rayner.**

BROADWAY ROAD DIP CROSSING and SEWER ENCASEMENT

- Mr. Evans and Mr. Martinez asked if the ABC covered roadway will survive the design channel flows? Mr. Olbert said the AB surface will provide adequate resistance against the 100-year flow. The 100-year flow velocity in the main channel is approximately 5 to 6 fps at this location. The concrete "ford" cutoff walls were designed to approximately the 10-year water surface elevation. The low portion of the dip crossing will have a concrete surface. The remaining roadway surface beyond the concrete surface will be 6-inches of AB. The ABC surface is located outside of the main current where the velocities will be much lower. The city requested that the concrete roadway section be 8-inches thick and reinforced with steel.
- Mr. Olbert stated that the Gabion bank protection from the channel section will wrap around the returns at the dip crossing but not much further. Areas that are not protected with the bank protection will be covered with a gravel mulch.

BULLARD WASH CHANNEL - 30% PLAN LANDOWNER REVIEW MEETING

- COG requested that 16-inch diam. ductile iron pipe (DIP) be substituted for the 14-inch diam. DIP. The DIP should be placed the entire distance between manholes.
- The COG requested encasement of the new sewer pipe under the concrete roadway surface be designed per MAG Standard details. Where the two concrete sections intersect (roadway surface and encasement), they should be poured as a monolithic section.
- The City requested that the existing 15-inch sewer pipe will be removed and replaced with the DIP pipe to retain the existing alignment. The contractor will need to determine the best way to manage the sewerage flows. The COG will provide Sverdrup with sewer flow data including peak flows, peak flow times, and a contact name and number for the contractor to coordinate the shutting down the old line and replacing it. The information will be incorporated into the special provisions (SP's) and supplemental general conditions (SGC's) to require the Contractor to contact the City of Goodyear prior to replacement of the pipe. The Contractor will be allowed to choose the method to bypass flows, pending City of Goodyear approval.
- Mr. Rayner expressed concern that the crest curves might be too sharp for his "belly-dump" type truck-trailer rigs to pass over. The dip crossing profile will meet AASHTO criteria for a 20 mph design speed. The design speed criteria will be shown on the 60% submittal using notes on the dip crossing sheet.
- It was suggested that the dip crossing be signed and posted for warnings of no crossing while flooded, and a speed caution for the restricted sight distance. The existing farm road does not have any roadway rights of way for public usage. The COG and the FCD risk management to provide input on signage needs.
- Mr. Rayner asked if the abandoned portion of the low flow channel located south of MC 85 and east of the new channel could be backfilled as part of the construction. The work can be done by directing the contractor in the Special Provisions to contact Mr. Rayner for disposal of waste soil. A TCE may be required.

SUNCHASE PROPERTY (North of Lower Buckeye Road)

- The area north of Lower Buckeye Road was discussed with Mr. Tupper and Mr. Smith. Both were in agreement with the general concept of the future location of the channel and the proposed removal of the existing pond dikes above the elevation of the adjacent ground. The soil can be disposed of at a nearby location. Mr. Tupper said they were interested in the soil from the pond dike removal. **Mr. Tupper said he would have Ms. Rust look to identify a spoil site in the area between the airport and the ponds.**
- It was concluded that as many names and numbers as possible will be provided in the SP's Section 215 for property owners interested in the excess soil from the channel. This will include Mr. Smith, Mr. Rayner, SunChase, and the airport.

BULLARD WASH CHANNEL - 30% PLAN LANDOWNER REVIEW MEETING

WOOD FAMILY (Represented by Tim Smith)

- Mr. Smith asked if the contractor can rebuild portions of the old concrete lined ditch (CLD) beyond the limits of the proposed work area. The contractor can do the additional work, but the work would need to be arraigned between the contractor and Mr. Smith. The contractor's name and number can be provided to Mr. Smith and it will be up to the two parties to work out the specific arrangements.
- It was agreed to leave the new farm road and irrigation ditch along Lower Buckeye Road within the existing 66 ft R/W and allow the City of Goodyear to deal with the encroachment in the future.
- Mr. Smith requested that he rebuild the tailwater ditches along Lower Buckeye Road and the west side of Bullard Wash. In addition, Mr. Smith would like a tailwater discharge culvert near station 108+00. Coordination between the contractor and the farmer will be needed in the SP's for the tailwater ditches.
- Mr. Smith suggested 12-inch diameter irrigation tailwater culverts under the new farm roads (1 foot of minimum cover).
- Mr. Rerick suggested that grouted riprap or shotcrete lined ditches be added (station 103+50, and 108+00) to convey irrigation tailwater flows from each 12-inch irrigation cross culverts to the low-flow channel.
- Mr. Smith requested that the farm road be at the same elevation as the top of the concrete lined ditch from station 93+00 to 98+00.
- Mr. Smith requested a standard irrigation (box-type) headwall at each tailwater culvert inlet, to facilitate diversion of flows.

CITY OF GOODYEAR, NORTH OF UPRR

Mr. Rerick suggested the following adjustments for Sheet 7 of the Bullard Wash plan/profile sheets:

- The irrigation low-flow pipe from the Bullard Wash channel to the existing dirt irrigation ditch be angled at 45 degrees to lessen the bend angles at the inlet and outlet.
- Fill in the existing low-flow ditch north of the new low-flow pipe outlet to the new channel alignment.
- Construct a 3-foot high, 10-foot top width berm parallel to and immediately east of the IMSAMET fence. This berm will assist the City with the future construction of a landscaped berm to be shaped by the City.

Mr. Rerick made note of several items that require an immediate COG written response. These items have been requested several times by Sverdrup and the FCDMC. Mr. Evans said he will follow-up on this request to make sure a letter is written to outline the City's preference.

- The need for handrail at 1:1 and 2:1 slopes along the top of channel sideslopes.
- Use of a 15 ft wide roadway for O&M purposes.
- Use of a 3-strand plain wire access control fence along the Wood Family R/W, around the upstream drop structure north of Lower Buckeye, chain link along the airport

BULLARD WASH CHANNEL - 30% PLAN LANDOWNER REVIEW MEETING

property, and no R/W fence south of MC 85. Additional fencing will be needed at the BID Canal and MC 85 to preclude access by the public at these locations.

- Use of a 12-inch soil covering over channel locations with a 3:1 gabion mat bank protection. The positives include protection for the gabion baskets, more aesthetic treatment of channel including vegetation, and it reduces tripping hazard of wire. The negatives include additional O&M, soil needs to be replaced after major storm events, more difficult to check gabion baskets for corrosion, vegetation on soil requires additional maintenance to maintain channel roughness factor, and variation in channel treatment will always raise a question as to why the difference.
- Is the bench path located near the midpoint of the sideslope to be included in the channel design.
- Use of cathodic protection or special coatings to control corrosion. Current state of the art uses special coatings (PVC and al-zinc alloy) to retard corrosion of the steel wire. Mr. Olbert recommended the use of the coatings with yearly spot checks of the gabions (exposed and buried) to ensure the condition of the channel and long life of the product.
- The roughness coefficient (n-value) to use for the channel design. The "n" value used for the initial 30% design was 0.032. This is a conservative value allowing for some moderate vegetation growth along the bottom of the channel between maintenance cycles. A newly constructed channel will have an approximate "n" value of 0.025. A poorly maintained channel will have an "n" value 0.035 to 0.040. A poorly maintained channel will provide little or no freeboard during the 100-year flood and may overtop the channel banks. **Sverdrup will follow-up with a letter outlining limitations in the roughness factor and the need for channel maintenance.**
- Use of AC on the maintenance ramps versus use of a crushed granite. The difference being less maintenance required on the ramps for the near future. The AC will gradually crumble with little or no usage. The COG can place AC on the ramps and in the channel at a later date when recreation use of the channel will be encouraged and the AC will experience some traffic. Public use of channel at this time should be discouraged until the Broadway Road crossing is constructed and residential / commercial properties are developed along the channel. The channel would have signs posted stating "NO TRESPASSING" and fence at MC 85 and the BID maintenance roads.
- Approval of the use of the riprap channel concept south of the BID Canal and north of the UPRR bridge. The riprap channel north of the UPRR bridge can be upgraded by setting 48-inch diameter pipes as tree wells within the channel lining and constructing a concrete maintenance roadway through the area.
- The City Council will be encouraged to select a color for the concrete channel lining. Mr. Rerick will provide paint charts for the COG Council members to select a concrete paint color. Mr. Olbert will get ADOT paint specifications and typical costs (per sq yd). Mr. Rerick will also locate a concrete add-mixture color chart for the grouted riprap.

BULLARD WASH CHANNEL - 30% PLAN LANDOWNER REVIEW MEETING

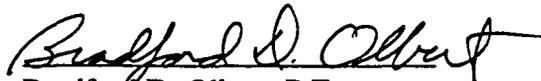
- The COG was given a choice on the location of the maintenance road adjacent to the channel through cut sections (i.e. north of MC 85). The maintenance road can be located at the lining hinge point with the exposed cut section outside the roadway, or the exposed cut can be located above the lining with the roadway placed near the ground elevation. Mr. Evans said the City will study the request and comment later.
- Mr. Rerick said that gravel mulch will be placed on all graded side slopes that are not protected by channel lining. The gravel mulch will be used to control rilling of the surface. The material was shown to the City's staff on a field visit to other FCD projects.

Mr. Martinez said that he would get responses on these matters from the City Council at the next meeting.

The FCD and City of Goodyear will meet on 3-17-98 with UPRR to discuss the UPRR bridge crossing, R/W access control, restrictions during construction, and other matters.

Please review these meeting minutes and call me or Dan Stough (231-8999) if you have comments. Unless comments are received on these minutes within 1 week of distribution, the statements above will be considered true for design purposes.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Meeting Attendees
Jackie Meck - BID

MEETING MINUTES

Sverdrup Civil, Inc.

Date: March 4, 1998

LOCATION AND DATE: Maricopa County Department of Transportation
February 26, 1998; 10:00 am

PARTICIPANTS: Bruce Ward, MCDOT Engineering
Laura Fritschi, MCDOT Engineering
Ken Green, MCDOT Right-of-Way
Todd Belzner, MCDOT Right-of-Way
Wayne Butch, MCDOT Utilities
Jim Neibergall, MCDOT Utilities
Brad Olbert, Sverdrup Civil, Inc
Roger Miles, Sverdrup Civil, Inc

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Estrella Parkway - Buckeye Canal to Yuma Road
W.O. No. 68947
40% Construction Plan Review Meeting

SUMMARY:

Jim Neibergall summarized the utility review comments as follows:

- Delete pothole # 10-1. This pothole location is a duplicate of pothole # 9-1.
- Lower Buckeye Road plan sheets were missing from the plan set. These sheets were included in the 68947 work order.
- Tree removal will be done by the contractor as part of this project.
- Move the proposed drainage culvert on the west side of Estrella Parkway at Lower Buckeye Parkway further west to avoid potential conflicts with a buried cable TV line and the 16" water line.
- The electric easement on the east side of the road near Station 142+00 does not show a electric line. There is probably a overhead electric line in this easement. Sverdrup will investigate.
- Add match lines on side streets.
- Make sure utilities on side streets are labeled on all sheets.
- Water line callouts on the plans should include the pipe type such as DIP.
- Delete the TCE on Sheet 23 on the east side of the roadway
- The fiber optics line on the south side of Yuma Road on Sheet 33 is mis-labeled as a regular buried telephone line.
- A telephone pedestal symbol is missing on Sheet 34.
- Add the second telephone line to pothole numbers 23-5 and 22-1.
- The driveway at Sation 29+08.73 Lt on Yuma Road needs to be modified on Sheet 34

- The cable TV lines on Sheet 35 need to be labeled better.
- Reduce the length of the concrete lined ditch relocation and the TCE on Sheet 37.
- Mr. Neibergall questioned why the 24" water line was not included in the pothole list. Mr. Miles explained that there are as-builts that show this line is deep enough to not be a concern.
- There are more pothole requirements than anticipated. Mr. Butch said the County's on-call pothole contractor could take care of the excess.
- A utility coordination meeting has been scheduled for March 12th at 9:00 a.m.

Todd Belzner summarized the right-of-way review comments as follows:

- Delete extraneous flow arrow on sheet 9.
- Fix TCE lines on Sheet 11.
- Label the TCE on Sheet 15 and 16.
- A TCE from the railroad may be necessary for the structure on the west side of the road. The location of the RID easement from the railroad needs to be determined.
- Show the Bullard Wash R/W on Sheet 28 of the roadway plans.
- Add the TCE symbol on the east side of Estrella Parkway on Sheet 32.

Laura Fritschi's written comments were given to Sverdrup. They were not reviewed in this meeting.

Sverdrup submitted an update for the pavement design prepared by ATL for MCDOT review and comment.

Mr. Ward said that he is working on the proposal to combine the RID ditch and the drainage ditch south of Elwood Street.

Mr. Ward asked Sverdrup to place the curb returns at the ultimate locations for the intersections of MC 85, Lower Buckeye Parkway, and Yuma Road. Each curb return will also include a sidewalk ramp.

Sverdrup submitted the CADD files for MCDOT's use in preparing striping, signing, and signal sheets for the plan set. These files were returned to Sverdrup so that the modifications to the intersections mentioned above can be incorporated into these files.

Ms. Fritschi summarized a meeting she had with Jack Loss, the manager of IMSALCO. The project will include relocating IMSALCO facilities such as 19 paved parking stalls, block wall, storage bins, trees, and drip irrigation. The south driveway will be deleted from sheet 12 of the plans. Sverdrup is still waiting on survey results from Brooks/Hersey.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Don Rerick - FCDMC
Participants

MINUTES OF MEETING

March 2, 1998
WP #96464

PROJECT: Bullard Wash Outfall Channel Improvements

SUBJECT: Interior Drainage Hydrology Parameters

DATE: February 28, 1998 at 3:00 p.m.

ATTENDEES: Kofi Awumah PhD, P.E. (FCDMC)
Bing Zhao, PhD, P.E. (FCDMC)
Jack Moody, P.E. (Wood, Patel & Associates, Inc.)
Shimin Zou, PhD (Wood, Patel & Associates, Inc.)

Discussion:

Wood/Patel is preparing a hydrologic analysis of the side drainage that impacts the proposed Bullard Wash Outfall Channel in the vicinity of the Buckeye Irrigation District (BID) Canal. In cooperation with the BID, runoff from north of the Canal and east of the proposed channel flow into a small sedimentation basin and ultimately outlets into the Canal. The purpose of this meeting is to determine the hydraulic parameters to be used for the calculations. Kofi suggested that Bing be brought into the discussion.

The White Tanks/Agua Fria ADMS hydrology model by WLB was used as a base model. This model used the Green and Ampt infiltration parameters per the *Drainage Design Manual for Maricopa County, Volume I, Hydrology*. The main parameter in question is the selection of DTHETA for the farmland areas. The ADMS used a DTHETA based on a saturated condition for irrigated agricultural land which is consistent with the Drainage Design Manual. However, the farming practices and irrigation limitations indicate that it is unlikely all of the fields would be saturated at once. This suggests that a "normal" condition may be more appropriate.

Bing pointed out that FEMA may question why the parameters would change from the ADMS hydrology when there has been no change in land use. We may be required to prove why we deviated from FCDMC standards and the ADMS.

The 100-year flow at the point in question is approximately 350 cfs using a DTHETA for saturated conditions. The Q_{100} would be approximately 250 cfs using DTHETA for normal conditions.

Based on these considerations, it was concluded that a DTHETA for saturated conditions should be used for design purposes.

cc: Brad Olbert (Sverdrup)

MEETING MINUTES

Sverdrup Civil, Inc.

Date: March 18, 1998

LOCATION Flood Control District
AND DATE: March 17, 1998; 8:00 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Ed Raleigh, FCDMC
Kofi Awumah, FCDMC
Ash Patel, Wood, Patel & Associates
Jack Moody, Wood, Patel & Associates
Dan Stough, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Hydraulic Review Meeting

SUMMARY:

The above participants met to discuss comments received from Mr. Awumah, dated 3/10, regarding the Draft Bullard Wash Selected Alternative Report for the above stated project.

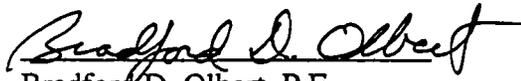
Mr. Rerick took the lead presenting a brief overview of the project and reviewing the eight comments. Several of the comments (1, 2, 3, 5, 6, and 7) were due primarily to the early nature of the submittal and the changes to the initial project concept brought about by requirements to meet the needs of the City of Goodyear. The additional technical information will be presented with the 60% design submittal. Comments 4 and 8 deal with the technical merits of the proposed grouted riprap channel sections located at the two drop structure locations. Additional information was presented at the meeting to bring up the recreational and aesthetic needs of the City of Goodyear that must be considered along with project costs, and technical requirements of the project. The City of Goodyear wanted as a 50% cost participant in the project, continuous recreational access from the Gila River along the bottom of the channel through the entire length of the project. The bottom of the channel must provide access for equestrians, pedestrians, bicycles, maintenance vehicles, and wheelchairs. The top of bank recreational usage is similar but does not have to be continuous. For this reason, several drop structures were examined. The one concept that was particularly user friendly and met all the requirements of the city utilized a grouted riprap channel section with a 15-ft wide concrete maintenance path. The path would meander through the grouted riprap section and provide the access along the bottom of the channel for all the users (equestrians, pedestrians, bicycles, maintenance vehicles, and wheelchairs). The grouted riprap section would also incorporate tree wells using concrete pipe sections.

Mr. Patel briefly covered the technical aspects of three other drop structures and the riprap channel section. The other drop structures were sloping drops each having three drops. The structures utilized a basic sloping drop incorporating stilling basins, and stepped spillways. The riprap channel section behaves as a steep channel section with reasonable hydraulic characteristics (i.e. channel velocities 14 to 17 fps and Froude #s 1.6 to 1.9). The velocities are further reduced by downstream backwater conditions.

Mr. Patel said that there are several very steep grouted riprap structures that have been in place for 20 years and have survived 100-year storm events. Mr. Raleigh said that one grouted riprap structure (at Crossroad Park in Gilbert) had a partial failure after a severe storm. The structure was just completed when the storm occurred. Failure was due to poor construction technique. Technical literature identified the lack of cutoff walls and poor construction technique as being the primary reasons for failure.

Mr. Olbert said that cutoff walls will be incorporated within the grouted riprap sections. Mr. Rerick said that we can discuss the construction technique issue with Fred Fuller and incorporate direction to the contractor in the specifications. Mr. Patel and Mr. Rerick agreed to meet further with Mr. Awumah to discuss the specific conditions and technical aspects of each drop location.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Don Rerick, FCDMC
Ash Patel, Wood, Patel & Associates

MEETING MINUTES

Sverdrup Civil, Inc.

Date: March 30, 1998

LOCATION AND DATE: Sky Harbor International Airport, Aviation Department
March 25, 1998; 8:30 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Doug McLaughlin, FCDMC
Jack Shelter, City of Phoenix Aviation Department
Cynthia Parker, City of Phoenix Aviation Department
Shawn Arena, City of Phoenix Aviation Department
Rosemary Ware, City of Phoenix Aviation Department
Bill Siggins, City of Phoenix Real Estate Department
Don Williams, City of Phoenix Law Department
Larry Martinez, City of Goodyear (COG)
Dan Stough, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
30% Plans Review Meeting

SUMMARY:

The above participants met to discuss coordination issues related to the Phoenix Goodyear Airport (PGA) and any comments from PGA regarding the 30% construction plan submittal for the Bullard Wash Channel Improvement project.

Mr. Rerick presented a quick review of the Bullard Wash project.

Mr. Shelter said that Mr. Arena is the new PGA manager. Mr. Arena will be the point man for construction issues concerning the project from now on. Mr. Shelter will deal with issues related to the transfer of property and funds for this project. Mr. Shelter requested that the contractor include the Phoenix Goodyear Airport as an additional insured for the project.

Mr. Shelter said that the City is concerned about the access to the project. The perimeter road is not designed to handle heavy trucks, only pickup truck type loads. Mr. Rerick said that the principal access points near the airport are from Lower Buckeye Parkway and just west of the Bullard Wash Channel at a new at-grade crossing of the railroad. New fencing will be provided to separate the final Bullard Wash Channel from the airport property. The fence will be a standard MAG fence with three-strand barbed wire at the top tilted away from the airport. Along the East Local Tributary the contractor will protect the fence in place. If the contractor needs to remove the fence for construction purposes, he will need to replace it.

Mr. Arena will develop a bullet list of security, access, contacts, service road use, equipment restrictions, placement of spoil material, and other items the contractor will need to adhere to.

Mr. Shelter was concerned that there will be enough time to receive the required City Council approvals on the property transactions. The City Council will be out July and August. The Council sessions on the first week of July and the last week of August are difficult at best to get on the agenda. Mr. Shelter said that the City should not have to follow a parallel appraisal process on the parcels involved. If the FCD has not selected an appraiser for the land the City of Phoenix and the FCD should compare appraiser lists and select a common appraiser for the project. The airport will need FAA approval for the land swap, but that can come at a later date. The focus will be to receive City Council approval of the land swap arrangements and issuance of a right-of-entry based on settlement of value based on "fair market value". Determination of fair market value and follow up monetary exchanges can take place at a later date. The FCD must provide all required parcel takes and TCE's to the City of Phoenix Real Estate Department by mid April to get Council approval in June.

Ms. Parker would like to add words in the document that addresses the landfill and the possibility of hazardous materials. We would like the FCD to accept full responsibility for the material in the landfill. Mr. Rerick said that the FCD will accept responsibility for the trash and asbestos, but if there are buried drums of chemicals, the FCD will not accept responsibility for the pre-existing condition. The FCD will provide environmental personnel at the site to observe the trash removal process and respond appropriately if a hazmat condition is encountered. Ms. Parker said that we should identify our responsibilities in the right-of-entry document. Also, full disclosure of existing documents is in order. The District has already provided such documents to Ms. Parker, which consists of the Geotechnical Reports on the landfill. Ms. Parker will provide a bibliography and copies of the actual documents that she has on this subject to the District for District use. Ms. Parker said that she will bring in a geotechnical firm to provide additional borings to identify the limits of the landfill area.

Mr. Shelter said that since the FCD will pay for the trash removal then the property appraisal person should ignore potential hazmat conditions in his appraisal. The appraiser will be notified of the existence of the landfill, but it is not certain whether this will have an affect on the appraised value determined by the appraiser. The FCD will need to supply to the City of Phoenix, legal descriptions of all R/W takes and TCE 's.

Mr. Rerick said that as a part of the project, the FCD will fill the ditches that are vacated by the project. The ditches will be cleared, grubbed, and fill material will be compacted to 95% maximum density. A large envelope TCE will be delineated to encompass the ditches that will need to be backfilled.

Mr. Shelter asked about the possibility of having the FCD remove all of the landfill material as a part of the payment for the parcels. Mr. Rerick said the FCD would prefer to swap land and pay fair market value for the difference in the land cost. This provides the cleanest approach while the landfill option has to many variables to try to set a value on. An exchange for waste soil is a possibility if a prior agreement can be made on the cost of the soil. A better situation for the contractor is to allow the contractor to make arrangements with the adjacent property owners to dispose of the soil. This gives the contractor the greatest flexibility to reduce his costs. If he can find a buyer for the soil before the bid then that can help him to possibly win the project with a lower bid. In this arrangement the FCD will provide names and telephone numbers of the property owners desiring soil, including the airport (Mr. Arena). Also any

conditions of the soil disposal can be spelled out in the specifications.

Mr. Shelter said the City of Phoenix will put together a bullet list of conditions for the contractor to follow in order to dispose of soil on the airport property. Ms. Parker said she will send over the environmental language concerning the landfill for the FCD to review.

Mr. Olbert asked if there are any requirements or restrictions on the height of construction equipment that the contractor may want to use on the project. Mr. Shelter said that since the equipment will be less than 40 feet in height, there are a few restrictions; such as tall equipment needs to be flagged and all cranes/booms must be down at night. Mr. Rerick asked that the City develop bullet items for these requirements as well.

Mr. Shelter said that the perimeter fencing can be down during the daytime hours, but the fencing must be up with no breaks at night. Temporary fencing will be adequate during the construction period.

Mr. Shelter said that superfund I.D. information for the airport is available from Ms. Parker. The information will be forwarded to FCD.

Mr. Rerick reviewed the adjustment in the East Local Tributary alignment with the City. The main reason for the adjustment is to avoid relocation of the El Paso Natural Gas Line at the proposed box culvert. The gas line relocation cost was \$150,000. Shifting the alignment to the south also provided better interception of the sheet flooding adjacent to the railroad. Several new concrete pipes will be placed under the perimeter roadway to collect the flows on the north side of the perimeter road as well as tailwater flows. A concrete beam will be used to support the security fence where the concrete channel passes under the fence. Breakaway fence sections will be used in the channel. Mr. Rerick stated that the breakaway fence concept has been successfully used at other locations. This concept may not be necessary with further discussions with the City, because of the new fence criteria along the north side of the channel.

Mr. Shelter agreed with the East Local Tributary alignment adjustment and to providing access gates to the facility for routine maintenance. But there must be a security fence on the north side of the channel to separate the channel from the airport. Mr. Rerick agreed to add the fence and to place it at the edge of the R/W. The City of Phoenix and the City of Goodyear will meet and work out access agreements at a later date.

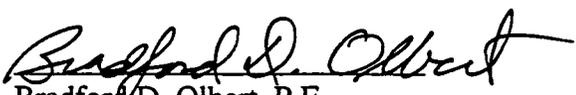
Mr. Shelter was concerned about air quality during construction. Mr. Rerick said this is an item that the FCD is very aware of and one that they are very strict with the contractors.

Mr. Shelter was also concerned about the interface between the landfill and the maintenance road cut slope in the landfill area. Of special concern was erosion control. Mr. Rerick said that the FCD will not have a maintenance road on the airport side of Bullard Wash. The proposed roadway was for the airport perimeter road if required by the airport. Mr. Shelter said they didn't know where they want to locate the perimeter road at this point. Sverdrup will provide a 2 ft bench behind the fence with a 3:1 cut slope where needed. If necessary, a gravel mulch may be used to control the erosion on the backslope. Mr. Shelter said that would be adequate to address their erosion concerns.

Mr. Olbert requested information on airport drainage patterns. Mr. Shelter said that the information is available from Dibble and Associates. Call Kent Dibble to request the CADD file information.

Please review these meeting minutes and call me (231-8999) if you have comments.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Meeting Attendees

FCD of MC

BULLARD WASH MTG

3-25-98

8:30 AM

<u>NAME</u>	<u>COMPANY</u>	<u>PHONE</u>
Rosemary Ware	COP. AVIATION	273-8881
LARRY MARTINEZ	CTLO F GOODYEAR	932-1637 ^{off} 303-9799 (3/20)
Brad Oberst	Sverdrup Civil	231-8999 ^{now}
DAN STOUGH	SVERDRUP CIVIL	303-9799 231-8999 ^{NOW}
JACK SHULTER	COP AVIATION	273-8880
Cynthia Parker	Cop Aviation	273-2730
SHAWN ARENA	C.O.P. AVIATION	932-1200
BILL SIGGINS	C.O.P. REAL ESTATE	495-6954
Don Williams	C.O.P. Law Dept.	273-3412
Douglas W. McLaughlin	F.C.D. Real Estate	506-4648
DON REASON	FED	506-4878

MEETING MINUTES

Sverdrup Civil, Inc.

Date: May 22, 1998

LOCATION AND DATE: Maricopa County Department of Transportation, Maricopa Room
May 14, 1998; 8:00 am

PARTICIPANTS: Laura Fritschi, MCDOT Engineering
Don Rerick, FCDMC
Larry Martinez, City of Goodyear
Jim Neibergall, MCDOT Utilities
George Rodek, MCDOT Utilities
Olin Sutton, FCDMC Utilities
Brad Olbert, Sverdrup Civil, Inc
Roger Miles, Sverdrup Civil, Inc
Dan Stough, Sverdrup Civil, Inc
John Rael, APS
Wade Patrick, SW Gas
Dennis Chapman, US West
Stan Ashby, Roosevelt Irrigation District
Tony Tapia, Roosevelt Irrigation District
Ed Visser, MCI
Daniel Taranago, Santa Fe Pacific Pipelines

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Estrella Parkway - Buckeye Canal to North of Yuma Road
W.O. No.s 68877 & 68947
Utility Coordination Meeting

SUMMARY:

The County needs to have all conflicting utilities relocated by September 1st 1998. The following are the results of the discussions with each utility company.

Roosevelt Irrigation District (RID)

- Relocation of the conflicting RID facilities is included in the project construction plans. RID has reviewed the RID relocation design and it is acceptable.
- RID irrigation operations are essentially complete in October. There should be no problem relocating RID facilities after that. The contractor will coordinate relocation with RID.
- The proposal to combine drainage water with the RID tailwater ditch on the west side of Estrella Parkway from MC 85 to Elwood Street was discussed. Mr. Ashby said he was not aware of this proposal and will look into it. The County needs a letter from RID that states that it approves the transfer of tailwater conveyance and maintenance responsibilities to the

City of Goodyear from Elwood Street to the railroad tracks.

- RID will provide documentation on their easement from the railroad for their tailwater ditch in the railroad right-of-way. This easement will be transferred to the City of Goodyear. Todd Belzner of MCDOT will work with Doug Sanders of the City of Goodyear to accomplish this transfer.

Buckeye Irrigation District (BID)

- No representatives from BID were in attendance.
- There are right-of-way issues that require research and resolution. No existing right-of-way is shown on the strip maps or plans even though there is an existing bridge over the BID canal. Work is shown on the plans that is located within the BID right-of-way. Todd Belzner will order title reports and determine what needs to be done about the right-of-way. The FCDMC has a title report for the east side of Estrella Parkway for the Bullard Wash project.

Southwest Gas Co. (SW Gas)

- There are conflicts with SW Gas near the intersection of Estrella Parkway and Yuma Road.
- Mr. Patrick has reviewed the pothole data. The data only gives locations in coordinates. SW Gas would like station and offsets to the pothole locations for SW Gas facilities. Sverdrup will provide these to Jim Neibergall for SW Gas.
- SW Gas has an above ground regulator facility on the southwest corner of Estrella Parkway and Yuma Road that is in conflict with the roadway improvements. They would like to relocate this facility to a location near the new right-of-way line. This work will take 3 to 4 weeks after the right-of-way has been acquired. The right-of-way will need to be acquired by August 1st in order to meet the September 1st deadline. This may be possible since Sunchase owns the adjacent parcel.
- Mr. Patrick noticed invert discrepancies for proposed culverts on the plans located at Station 168+48 and Yuma Road Station 14+11. Sverdrup will provide clarification to SW Gas.

City of Goodyear (COG)

- There are several conflicts with an 8" abandoned COG water line pipe (Station 88+70, 76+18, 68+36). Mr. Martinez will verify that this line is truly abandoned and whether the contractor can remove portions of this pipe as needed to construct the new culverts.
- There are a couple of conflicts with a 16" DIP COG water line. No pothole data was found on the plans. Sverdrup will determine if pothole data exists on this waterline and if not, Sverdrup will request potholing.
- There are approximately 10-15 fire hydrants along Estrella Parkway and Yuma Road that need to be relocated. The plans currently identify these hydrants to be relocated by COG. Mr. Martinez will verify whether the City can relocate these fire hydrants prior to September 1st with City forces or whether these relocations should be done by the contractor as part of the project.
- The COG has plans to place an 18" water line along Yuma Road east of Estrella Parkway. This line is planned to be constructed prior to this project. Mr. Martinez will send a copy of these plans to Sverdrup so that the location can be placed on the construction plans.
- The COG has recently connected the Wood family homes on the southeast corner of Estrella

Parkway and Lower Buckeye Road with City water. Mr. Martinez will provide as-built plans for these facilities so that the location can be placed on the plans.

US West Communications (US West)

- There are many conflicts with US West facilities on the project. Mr. Chapman said that the relocations can be accomplished by September 1st.
- Mr. Miles indicated that there are several locations within the project that the pothole data was not consistent with the telephone line locations shown on the plans. Sverdrup will provide a list of these locations to Mr. Neibergall so that a meeting can be set up to resolve these discrepancies.

Arizona Public Service Company (APS)

- APS has overhead power along Estrella Parkway that extends from Broadway Road to Yuma Road that will need to be relocated. No power lines will be buried for this project. Developers may be required to place overhead power underground as part of future development. The relocated power poles will remain on the same side of the road as the existing poles. New poles are planned to be steel.
- John Rael has replaced Steve Goodman for this project as APS's representative. Sverdrup will update the special provisions to reflect this change.
- The power poles can not be relocated until all the right-of-way necessary is acquired. A permit from the railroad is also required. APS will start the process to acquire this permit.
- APS will design the streetlights for Estrella Parkway that will be placed in the medians. The street light installation is not part of this construction project. The conduit for the future streetlights in the median will be placed by the contractor as part of this project. A separate bid item will be defined so that the cost of the conduit work can be determined. APS and the City of Goodyear will negotiate the funding for this item. APS will review the conduit locations in the construction plans and recommend modifications as needed. The conduit placement will include tracer tape to help future location of the conduits. APS will begin design of the street light installation in about 3 weeks.
- Sverdrup will provide APS with electronic CADD files to assist in the relocation design. APS will provide a CADD file to Sverdrup when new pole locations are determined so that they can be placed for informational purposes in the roadway construction plans.

Cox Cable TV

- No representatives from Cox were in attendance.
- There are conflicts with culverts near Yuma Road.
- Mr. Neibergall will schedule a meeting with Cox to discuss these conflicts.

US Sprint

- No representatives from US Sprint were in attendance.
- There are conflicts with culverts near Yuma Road.
- Mr. Neibergall will schedule a meeting with US Sprint to discuss these conflicts.

Santa Fe Pacific Pipelines (SFPP)

- The only conflicts are a couple vent pipes and signs near the railroad crossing and MC 85.
- The relocations should be complete by September 1st.

El Paso Natural Gas Company (EPNG)

- No representatives from EPNG were in attendance.
- There are no apparent conflicts.
- Mr. Neibergall will request a clearance letter from EPNG.

MCI

- There are no conflicts.
- Mr. Neibergall will request a clearance letter from MCI.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Participants

MEETING MINUTES

Sverdrup Civil, Inc.

Date: May 28, 1998

LOCATION AND DATE: Maricopa County Department of Transportation, Maricopa Room
May 18, 1998; 8:00 am

PARTICIPANTS: Laura Fritschi, MCDOT Engineering
Bruce Ward, MCDOT Engineering
Don Rerick, FCDMC
Larry Martinez, City of Goodyear
Joe Evans, City of Goodyear
Jim Neibergall, MCDOT Utilities
Brad Olbert, Sverdrup Civil, Inc
Roger Miles, Sverdrup Civil, Inc
John Fischer, Sverdrup Civil, Inc
Bill Birdwell, MCDOT Traffic
Nicolaas Swart, MCDOT Traffic
Ron Nell, MCDOT Traffic
Andrzej Wojakiewicz, MCDOT Bridge Section
Tom Sonnemann, MCDOT Bridge Section
John Rose, MCDOT Operations
Herb Miller, MCDOT Construction
Ken Green, MCDOT Right-of-Way
Todd Belzner, MCDOT Right-of-Way

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Estrella Parkway - Buckeye Canal to North of Yuma Road
W.O. No.s 68877 & 68947
70% Comment Review Meeting

SUMMARY:

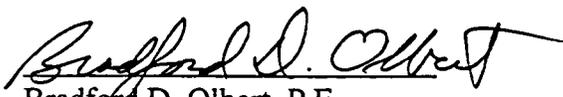
Red lined plan sets from MCDOT Traffic Division, Laura Fritschi, MCDOT Bridge Section, and MCDOT Operations Division were given to Sverdrup. Written comments were received from Todd Belzner, Bill Birdwell/Yogeshi Mantri, Jim Neibergall, Laura Fritschi, Ron Nell, Bob Erdman, Andrzej Wojauiewicz, Tom Sonnemann, Don Rerick, and Herb Miller. Written comments from the City of Goodyear have not been received. The following are the results of the discussion of the comments in this meeting.

- Refer to the 1998 MAG Standard Specifications. Sverdrup will get a copy from MAG.
- Watering is a non-pay item.
- Mailbox relocation is a non-pay item. Ms. Fritschi will locate a standard detail for mailbox relocations.
- Fill construction is a non-pay item. MCDOT only pays for excavation or borrow excavation.

- Fence removal will be by MCDOT
- Signal poles and equipment are to be salvaged by the contractor and delivered to the MCDOT Traffic Operations Yard located at 2909 West Durango Street in Phoenix.
- Tree removal will be done by the contractor.
- Commercial signs will be relocated by the property owner.
- Special provisions section 107.15 is a pay item.
- Add a measurement and pay item to the Roadway Excavation Section 205 in the special provisions.
- Curing seal for the lime slurry treatment should be a non-pay item.
- The contractor will provide brass caps for survey monuments.
- Irrigation junction boxes should not be in Section 623 for headwalls. MCDOT will provide direction for determining an item number for junction boxes.
- MCDOT is staking the right-of-way lines this week for the property owners. Mr. Rose will look into establishing temporary bench marks for the project.
- The box culverts on MC 85 will be replaced instead of just extended.
- Show Bullard Wash channel bottom in profile on Sheet 79, and show the new Bullard Wash location in the plan view on Sheet 79.
- Add a note to Sheet 79 to fill and compact the existing tailwater ditch located east of the new Bullard Wash.
- Use MCDOT barrier transition detail instead of ADOT's detail for the Bullard Wash bridge. The barrier transition will not be attached to the approach slab and the approach slab will be located inside the barriers only.
- Add "F" to bridge elevation view to indicate fixed supports.
- Reinforcement clearance at the bottom of drilled shaft can be a maximum of 36".
- Bottom and side clearances for reinforcement seem to be excessive in several places.
- Recess slab haunches at piers for better aesthetics.
- The weld symbol needs to be added at the bottom of the handrail post.
- Sverdrup will verify reinforcement in the bottom of the slab.
- Sverdrup will verify that the support fixities/releases are correct in the STAAD-III computer model.
- Sverdrup will verify live loading in the STAAD-III computer model.
- MCDOT Traffic Division has prepared a traffic signal special provision section. This section will be e-mailed to Mr. Olbert.
- The City of Goodyear will be responsible for providing a template for the signal pole anchor bolts for the modified Q foundation. This template will be available for contractor pickup at the City of Goodyear Yard located at 200 S. Calle Del Pueblo in Goodyear. Coordinate pick up with Mr. Larry Martinez at 932- 1637.
- Underground conduit and pullboxes are planned for future signalization of the intersections of Broadway Road, Elwood Street, Lower Buckeye Road, Lower Buckeye Parkway, and Yuma Road. Conduit and pullboxes also need to be added for the future loop road intersections located ¼-mile south of Yuma Road, ¼ -mile north of Yuma Road, ¼-mile east and west of Yuma Road. Sverdrup will show stations for the future intersections on the plan sheets and provide these stations to Mr. Nell for his use in developing signal conduit plans .
- The cross slope from the control line to the median curb needs to be labeled on the typical sections.
- The limits of widths that vary will be labeled in the typical sections.
- MCDOT has experienced some difficulty with drilled shaft quantities. Sverdrup will review

- the measurement and payment sections of the drilled shaft section of the special provisions.
- Curb and gutter will be added adjacent to the guardrail north of the BID Canal Bridge.
 - MCDOT questioned the taper rates on Sheet 17 of the plans. Normally the taper rates are design speed to 1 foot of offset. Sverdrup will look into the taper rate design and provide documentation to MCDOT.
 - The left-turn median transition curves will both have a radius of 300 feet instead a radius of 150 feet on the second curve.
 - Traffic during construction will always be on a paved all weather surface. This will necessitate construction of a temporary paved surface adjacent to existing pavement along one side of Estrella Parkway while constructing the new roadway, including half the median, on the opposite side of the roadway. The temporary surface will consist of 2-inches of asphalt concrete over 6-inches of ABC. Payment for the temporary surface shall be made at the contract unit price per ton and included in the AC and ABC items for the permanent pavement.
 - MCDOT has been experiencing shortages in AC quantities in other construction projects. Sverdrup will use a unit weight for AC of 155 LB per cubic foot.
 - The City of Goodyear wants some reflectors added approaching the guardrail north of the BID Bridge. The guardrail will include reflectors. MCDOT will modify the striping plans.
 - Valve adjustment shown on the plans will need extensions if the difference in the existing valve elevation and the new adjusted elevation is more than 5 feet. The MAG extension detail will be called out.
 - MCDOT will include median lighting conduit on their signal plans after APS specifies the desired locations.
 - There is an above ground diesel tank located on the southwest corner of Lower Buckeye Road and Estrella Parkway. Sverdrup will do a field review to determine if the tank is within the proposed right-of-way. If it is, the cleanup of this area will need to be addressed.
 - The sidewalk ramp details will be changed from MAG Standard Detail 231, Type A to a MCDOT detail that meets ADA requirements.
 - Driveway profiles will be added to the plan set.
 - The driveway radii and widths will be placed on the plan sheets in addition to the driveway notes on the plans.
 - Broadway Road will be added to the Key Map on the title sheet of the plans.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Participants

**BULLARD WASH PROJECT – 60% COMMENT REVIEW MEETING SUMMARY
MAY 29, 1998**

The following is a summary of the meeting from my not totally complete notes. This information should be used by Sverdrup to compile the "official" meeting minutes for distribution as soon as possible to all attendees.

Rayner/CVL/Sunchase comments –

1. Now Rayner wants 20' wide farm roads, rather than the 14' roads discussed at the 30% review meeting. And, the farm road should extend south to the BID Canal.
1. The Bullard Wash Channel design accounts for all existing drainage along the channel alignment south of MC85. However, the concept study assumed an incised channel, now we have a perched channel, which means the "interior drainage" south of Broadway Road cannot physically get into the channel.
1. The conclusions of Rayner and CVL were that the detention basin and the four outlet pipes are over-designed, especially since the fields to the south are flat and don't drain.

FCDMC and consultant to attempt to reduce the size of the basin and pipes.

The east side farm road, now being extended south to the canal, must go around the north and east sides of the basin, and must include two piped crossings of the new CLD's into the basin.

It was concluded that only the north most siphon structure just south of MC85 requires a clean out. Will provide a flanged manhole access for this purpose.

Sunchase, via CVL, would like some sleeves installed under the channel for future utilities. We can include such sleeves in the project as a project cost if CVL provides direction as soon as possible on horizontal and vertical location, and sleeve size and material. The sleeves will be installed from TCE limit to TCE limit, and will be identified with tracer tape and rebar.

1. Sunchase may still request the construction of a RCBC at Broadway Road in lieu of the at-grade crossing, with the incremental costs being funded by Sunchase via the R/W acquisition process. They were told that they must address project schedule and funding in order to make this happen.

Various R/W impacts were discussed and are reflected in my message to John Palmieri and Jean Rice and copied to Brad Olbert, dated May 29.

Because of the farm road changes, and the suggested changes in the channel top of bank profile, the TCE and possibly PCE limits at Broadway Road may change.

1. Sverdrup to layout the road changes at Broadway and get input from Rayner on irrigation, turning radiuses, crop impacts, CLD delivery to furrows, etc., before making final changes to the R/W needs.
1. Sunchase wants any dirt from the farm pond berm removals deposited on their land west of the airport and north of Yuma. After some discussion, and given the small quantity of dirt (estimated at 5,000 cy), the specs will reflect this requirement.
1. There now is no need for the triangular TCE for this dirt east of the channel and north of Lower Buckeye Road.

PG Airport –

1. No need to reconstruct the disturbed areas of airport perimeter road at three locations.
1. Include in the SGC's the "bullets" form Arena, and including direction to have pre-construction meeting with Bartholomew on locating the injection wells.

Arena will be the name and number contact in the SGC's.

All gates shall be chain link with barbed wire per MAG.

BID (represented by Stantech) –

1. BID agrees with the idea of the basin and pipes being oversized. See Stantech written comments in letterform distributed at the meeting. Need trash racks and outlet protection of the canal banks for the pipes. Want the O&M road and RCBC delineated with reflectors per standards.

COGoodyear -

1. There was agreement that bollards, both fixed and removable should be installed across the channel on both sides of the Broadway Road crossing. Use MAG for the fixed, and FCD detail for the removable.

Pipe gates should be used at all O&M road access points from public access roads. Use an offset pedestrian bollard off the gate hinge post as required, making a shorter gate span.

Gave COG copies of color integrated and concrete stain charts for them to select the type of color product (integrated or stain) and the color name (red, green blue, etc.) to be used on the various concrete structures and linings.

Other comments -

1. Sverdrup will provide cross section of the channel at 100' stations; including existing and feature conditions. These will be made part of the advertise ready set of plans.

Sverdrup to contact Tim Smith to see if he had any comments, and to pass on to him points of interest from the meeting; i.e., the combined O&M and farm road on the west side of the inlet north of Lower Buckeye Road.

The "equestrian underpass" will be renamed "O&M underpass" to mitigate concerns from the UPRR. Then in the future the COG and the UPRR can discuss the merits of "trash aprons" along the sides of the UPRR bridge.

The limits of the landfill removal should be shown in the plan/profile sheet(s). Rename the area as a "construction debris fill area".

Include a bid item in cubic yards for the removal of the fill; provide a quantity estimate for bidding purposes based on the best available borings data from Geotrack and Cynthia Parker. A minimum number of 100 CY should be used.

The engineer's estimate of the unit cost for this should include the dump fees to the nearest approved landfill that might be used by the contractor.

Submittal items -

1. Sverdrup to prepare the "official" meeting minutes and distribute to all attendees as soon as possible. Include note to respond with concerns within 10 working days, or zip the lip on any more changes.

A number of calcs, plan and detail sheets will be first time submittals for the 90%. These must be submitted in advance of the 90% target date of July 7 to speed the review process along.

1. The end.

BULLARD WASH PROJECT
60% FIELD TRIP AND "CONSTRUCTABILITY ANALYSIS"
JUNE 3, 1998

The following is a summary of the points made and actions to be implemented from the field trip. Those in attendance included: Rerick, Rosebraugh, Shapiro, Fuller, Burkeen, Olbert, Stough, Martinez, Evans.

1. Placement of fill in the existing Bullard Wash between the airport and the UPRR for the E.T.C. construction will be identified as "incidental" to E.T.C. construction.
2. The E.T.C. lining details should provide concrete and rebar options similar to those provided by ADOT for the SEVRDS Phase 2 project. FCD will provide copies of details and SP text describing these options. Only one bid item for channel lining placement will be used, but the Contractor will select the concrete/rebar option.
3. Sverdrup to contact Cynthia Parker to find out the results of the additional "landfill" testing done by the City.
4. Because of the extent and size of the irrigation ditches to be abandoned and backfilled, a separate bid item in Section 211 should be provided for such backfill work, with fill quantities as required.
5. The upstream end of the low flow channel transition to the gabion mats at the inlet sump must be redesigned to improve assurances that the irrigation flows will get into the LFC. Because of the 18" of mats and the baskets on the side slope, the irrigation water could migrate through the rock and never get to the LFC. Some kind of concrete wingwall, cutoff wall, or extended lining must be provide to ensure the capturing of these flows to the LFC.
6. The triangular parcel originally planned for use to dispose of the material from the farm pond berms will no longer be used. Instead, the material will be taken to the Sunchase property at Yuma and the west side of the airport. This will be a stand along Section 215 bid item with quantities.
7. A Section 206 clear and grub bid item in acres will be used for the area south of the BID Canal, for the E.T.C. inlet area and for the farm pond sumps.
8. A Section 350 bid item for removal of trees greater than 12" in diameter should be provided. Rather than attempting a field count of every tree in the river and sump areas, swag a reasonable guess of the number of trees, say 25(?).
9. The Section 350 bid item for construction debris removal and disposal should also include a reference to the trash and debris in the farm pond sumps, such as washing machines, car parts, etc.
10. The SGC's and SP's must include some specific language regarding the need to manage surface irrigation water during construction. This should include a separate lump sum bid item in Section 107.10, similar to what was done for the Old Cross Cut Canal Projects.
11. The existing ground water elevations (at time of the preparation of these P&S) should be plotted wherever possible to clearly identify for the contractor this condition. As a minimum, the GW should be plotted in the plan/profile sheets at the MC85 bridge and at the overchute structure, on the drilled shaft elevation details, and mentioned in the SGC's and again in the SP's.
12. FCD (Olin) to inquire about the apparently abandoned 4" steel line along the north bank of the BID Canal. What is it, who owns it?

13. The need for and the sizing of the detention basin at the BID Canal must be discussed again with the Regulatory Branch, and with Pedro and Scott to determine if it is required or not. Then approach the BID and Stantech on what we can and cannot do.

.....

The following is a summary of the points made and actions to be implemented from the "Constructability Analysis". Those in attendance included: Rerick, Rosebraugh, Shapiro, Fuller, Burkeen, Olbert, Stough, Martinez, Evans, and Miracle as the facilitator.

Reinforced concrete and riprap drop structures:

1. The structure is actually functioning more as a sloping channel and grade control structure. The slope is rather flat, 4.3%, and the roughness is a concern.
2. The stair step concept was found not to function adequately, and the flat slope is not compatible with the use of baffle blocks.
3. It was agreed that as presently designed the structure is not easily constructed and would probably be very costly.
4. There was also concern about the riprap staying in place as a veneer over the reinforced concrete slab.
5. Everyone recognizes the need to provide a design that is acceptable to the FEMA review process for the CLOMR and LOMR.
6. Ash Patel believes that a thickened riprap grouted structure will function adequately, can be designed, and presented numerous examples of such existing structures for the SCS, the COE, and municipalities back east.
7. Construction Branch was concerned that the grouted riprap have a large gradation to maximize the voids for better placement of the grout, and to ensure full depth penetration of the grout. The SP's should be very clear on the gradation, the grout penetration, the rock projection requirements, and the quality control concerns (adequate pencil vibrator use) and expectations for the placement of the grouted riprap.
8. It was suggested and agreed that calculations could be prepared and presented to FCD Engineering to support a grouted riprap structure using a gradation of probably $D_{min} = 9"$, and a riprap thickness of about 18", with about 4" of rock projection.
9. The present cutoff walls will be maintained, and will consist of reinforced concrete, about 12" thick, with the vertical reinforcement projecting up into the riprap and grout.
10. Because of the challenge of grouting on a 1:1 slope, it was suggested that the side slopes be placed at 1.5:1, if right-of-way constraints can be met.
11. Thickened end sections of the riprap shall be used at the upstream end as a cutoff wall and as an interface against which will be placed the gabion mats.
12. The 14' wide by 8" thick concrete multi-use path will be maintained through the riprap structure. It was suggested that the 6"x6" curbs extend about 2" above the prevailing top of riprap elevation, and that a 6" turndown on each side and on the bottom of the path be used to confine the subgrade.

Related side issues:

13. The COGoodyear must provide direction on the concrete and grout color, use of admixture or stain the concrete, and a concrete finish requirement for the concrete lining downstream of the drop structure.

Overchute drilled shafts:

1. No particular constructability concern was raised other than ground water infiltration into the drilled shaft excavations.
2. It was suggested and agreed that the plans should show the ground water line on the drilled shaft elevation and the SGC's and SP's should identify its existence and the need for the Contractor to manage this condition. No separate bid item will be provided for such costs associated with special handling of the ground water.

Gabion basket to concrete lining "eye-bolt" connections:

1. It was suggested and agreed that at the gabion basket transition at the upstream end of the concrete lining at the PVNGS encasement, that the eye-bolt connection system was not required.
2. However, it was also determined that a sufficient thickened concrete lining end section of "lateral turndown" should be provided against which to abut the baskets.
3. At the gabion mat interface at the upstream end of the grouted riprap drop structure, it was suggested and agreed that the use of a gabion mat "counterfort" should be used in lieu of the eye-bolt connection system.
4. It was also agreed that a similar thickened section or "lateral turndown" section of grouted riprap or concrete should be placed at the upstream end against which would be placed the counterfort.
5. Therefore, the eye-bolt connection and details will be deleted.

BID Canal O&M Road RCBC and riprap:

1. It again was agreed that placement of the riprap in the invert of the RCBC was not practical.
2. It was suggested and agreed that the channel and RCBC hydraulics should be re-evaluated to determine the need for the riprap roughness in the RCBC.
3. Because of the need to mitigate the hydraulic jump just downstream of the RCBC, it would be better to address the hydraulic concerns with the jump and eliminate the riprap in the RCBC.
4. Conclusion, no riprap in the RCBC, and address when fixing the jump scour hole concerns.

Management of surface irrigation water:

1. Because of the extensive irrigation facilities to be managed during construction, a separate bid item will be provided to track these costs. The bid item will be in Section 107.10.
2. The Contractor will be required to submit his "water control plans" to the Engineer for review, and not for approval.
3. It was agreed that some kind of "strong" and clear language should be provided in the SGC's regarding the Contractor's liability for any lost irrigation water and resulting impacts including lost crops. That any such damage and liability will be his responsibility to correct and solely at his cost.
4. Contact names and numbers should be provided in the SGC's for coordination with the water users; as a minimum, Ron Rayner, Tim Smith, Stan Ashby at the RID at 386-2046.

Other related issues discussed:

1. The COGoodyear offered to provide construction water from City hydrants at no cost to the Contractor, other than the cost of getting the meter set. This should be spelled out in the SGC's.
2. The SGC's under Section 104.1 and 107.10 should include direction to the Contractor to notify the COGoodyear "Public Safety" Department prior to working in the vicinity of the ELPNGCo and the SFPPL gas and fuel lines. This is for the purpose of establishing an emergency response plan.

Sverdrup will take this direction as provided in the field trip and the Constructability Analysis and incorporate these items as required into the 90% submittal. Where appropriate, and to save time in the review process, submittal should be made early to expedite review comments and input.

MEETING MINUTES

Sverdrup Civil, Inc.

Date: July 28, 1998

LOCATION AND DATE: Maricopa County Department of Transportation, Yavapai Room
July 22, 1998; 8:00 am

PARTICIPANTS: Laura Fritschi, MCDOT Engineering
Jim Neibergall, MCDOT Utilities
Roger Miles, Sverdrup Civil, Inc
Nicolaas Swart, MCDOT Traffic
Yogesh Mantri, MCDOT Traffic

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Estrella Parkway - Buckeye Canal to North of Yuma Road
W.O. No.s 68877 & 68947
90% Comment Review Meeting

SUMMARY:

Red lined plan sets from the MCDOT Bridge Section and MCDOT Utilities Section were given to Sverdrup. Written comments were received from Bill Birdwell/Nicolaas Swart, Jim Neibergall, Andrzej Wojauiewicz, and Tom Sonnemann. Marked up Sheets 85-87 by SW Gas were also given to Sverdrup. MCDOT Traffic Division gave Sverdrup a printed copy and electronic file of the Special Provisions Sections 451, 453, 455, 460, 461, and 466, as well as a marked up Section 401. MCDOT Bridge Section returned a marked up set of structural calculations. Written comments from the City of Goodyear have not been received. Ms. Fritschi's comments will be given to Sverdrup in a few days. The following are the results of the discussion of the comments in this meeting.

- The US West easement on the south side of Yuma Road as shown on Sheet 46 is not consistent with the location of the buried telephone conduit and manhole. Sverdrup will evaluate this situation and make necessary modifications.
- To avoid a possible conflict with a US West conduit located within a US West easement on the south side of Yuma Road, east of Estrella Parkway, Sverdrup will evaluate the possibility of moving the dirt drainage ditch located on the south side of Yuma Road east of Estrella Parkway. Mr. Neibergall said that US West may want to relocate their line since they have prior rights.
- Change Note 1 on Sheet 45 from "New Linear Ret Basin" to "New Drainage Ditch".
- Label the dirt drainage ditch detail on Sheet 99 "Detail F" and create Detail F-1 for the linear retention basin detail.
- Mr. Swart and Mr. Mantri expressed some concerns about the guardrail design on the north approach at the BID Canal Bridge. Sverdrup will resubmit the ADOT documentation on the guardrail design. MCDOT will review the documentation provided by Sverdrup and make recommendations for the guardrail at this location.

- A scupper will be added at Station 52+00 to ensure that the low stop in the east shoulder area created by the roadway vertical profile will drain.
- Sverdrup will analyze the area on Sheet 33, on the north side of MC 85 at Station 642+30 to ensure that roadway runoff will not create erosion problems at the end of the curb and gutter. This curb and gutter will be extended in the MC 85 project from Cotton Lane to Estrella Parkway.
- Mr. Mantri will look into the requirement in Section 451 of the Special Provisions that requires 12 to 24 hours for the AC to cool down prior to striping, and notify Sverdrup of any changes.
- Temporary striping for traffic control will be included in the lump sum amount for Item 401. Mr. Swart will modify Section 401 of the Special Provisions and forward the changes to Sverdrup.
- MCDOT Traffic Division will provide traffic striping quantities to Sverdrup as soon as possible. These quantities will be included in the quantity summary sheets for the plan set. The quantities will be listed in the "Total" column and not be listed by sheet number.
- Traffic signal quantities will also be provided by the MCDOT Traffic Division. These quantities will be included in the quantity summary sheets for the plan set. The quantities will be listed in the "Total" column and not be listed by sheet number.
- The bridge quantities will also be summarized in the quantity summary sheets in the "Total" column.
- Sverdrup will modify the quantity summary sheets so that the item numbers and descriptions match the item numbers and descriptions in the special provisions, and the sheet quantities match the quantities listed on each plan sheet.
- Mr. Swart and Mr. Mantri expressed concerns about the 30:1 taper on Sheets 16 and 17 of the plans. It was explained that the 30:1 taper rate was relative to the ultimate centerline and not the centerline of the improvements for this project. The improvement centerline is shifting at 60:1, which makes the 30:1 edge of pavement taper 60:1 relative to the centerline shifting taper. This is satisfactory to MCDOT.
- The current striping plans do not match the 90% submittal roadway geometry in some locations. Ms. Fritschi will provide the Traffic Division the new CADD files submitted by Sverdrup so that MCDOT can modify their striping plans.

Signed:


 Roger W. Miles, P.E.

Distribution:

013884-2B
 Participants
 B. Olbert, Sverdrup
 D. Rerick, FCDMC

MEETING MINUTES

Sverdrup Civil, Inc.

LOCATION Flood Control District of Maricopa County
AND DATE: August 11, 1998; 8:30 am

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Fred Fuller, FCDMC
Warren Rosebraugh, FCDMC
Bruce Ward, Maricopa County Department of Transportation (MCDOT)
Laura Fritschi, MCDOT
Todd Tupper, SunChase
Bruce Roberts, Coe & Van Loo
Larry Martinez, City of Goodyear
Joe Evans, Yost and Gardner Engineers
Dan Stough, Sverdrup Civil, Inc.
Roger Miles, Sverdrup Civil, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Project 90% Review Meeting

SUMMARY:

The above participants met to discuss the 90% Construction Documents for Bullard Wash.

Mr. Rerick opened the meeting by reviewing the changes that affect SunChase. The major changes included:

- Expanding the R/W to accommodate a 2:1 slope using Gabion mattresses on the inside of the channel and a 3:1 slope on the outside of the channel. This was acceptable to SunChase.
- Providing a single 18-inch diameter steel sleeve at two locations under the channel (stations 37+00 and 50+25). This was acceptable to SunChase.
- Stockpiling excavated soil from the ponds located north of Lower Buckeye Road to a designated location near Yuma Road. This was acceptable to SunChase. SunChase will provide an exhibit showing the location of the stockpile. The exhibit will be included as Exhibit B in the Supplemental General Conditions (SGCs) and will indicate any access restrictions.

Coe & Van Loo will be provided with an electronic file showing the section lines, R/W and TCEs at the end of the project. Coe & Van Loo agreed to sign a disclaimer for the use of the information.

An option to use shotcrete in lieu of concrete for the East Tributary Channel and the low flow channel was discussed. Mr. Martinez said he would like to discuss the issue with his staff before accepting the

option. The City of Goodyear (COG) will provide an answer by this Friday (8/14).

Sverdrup will need to review the water surface profile from station 58+00 to 63+00 to check for adequate freeboard. Mr. Olbert said this will be done after Wood Patel prepares the final HEC-RAZ.

The issue of providing a cross slope in the main channel was discussed. Cross slopes will not be provided in the upstream channel segment (Station 81+00 to 119+43), this segment has an adequate low flow channel and shallow concrete lined ditches that will convey the nuisance flows downstream. The channel segment downstream of MC 85 has two grade control structures that will limit the usefulness of the cross slopes to between Station 33+30 and 63+00. It was decided to forego the addition of cross slopes in this section as well because of the limited use.

A form liner detail will be added to the BID Overchute structure as requested. A meeting has been set for 8/12/98 at 2 pm to discuss the n-value and formliner style to use.

The south approach slab to the BID Overchute structure was discussed. The wingwalls are designed as a cantilever with the floor slab. The backfill requirements will be checked on the drawings.

The airport perimeter road was discussed. Portions of the roadway will be obliterated by the channel work. The airport manager, Mr. Arena, has agreed with the use of 4 inches of Aggregate Base Course as a surface treatment.

The hydraulics of the East Tributary Channel inlet was discussed. Mr. Olbert stated that the four 60-inch concrete pipes will convey approximately 450 cfs into the channel before the spillway is needed. During the 100-year storm event, the flow depth in the channel will cause the pipes to operate less efficiently. The flow through the pipe will reduce to approximately 350 cfs, with 500 cfs conveyed over the spillway. The proposed four 60-inch diameter pipes match the existing pipe sizes. The COG wanted ADOT access barriers placed over the pipe outlets to prevent unauthorized access to the airport by individuals. The cost of the barriers to be incidental to the cost of the pipe.

The hydraulic capacity of the low flow channel was discussed. Mr. Olbert said that the Roosevelt Irrigation District stated that the Bullard Wash tailwater flow was 7 cfs. The low flow channel capacity is 15 cfs. This will provide some excess capacity for nuisance flows above the tailwater flow rate. This was acceptable to those in attendance.

The concept of providing a 2:1 backslope on the west side of the Bullard Wash Channel at the PVNGS pipeline was discussed. The steeper backslope was needed to keep the levee backfill over the concrete encased section of pipe. This will require a short 50-foot stretch of handrail at that location. The concept was acceptable to Mr. Martinez.

Mr. Rerick requested a copy of the 90% engineers construction cost estimate for Estrella Parkway.

Sverdrup needs to obtain signatures from the City of Goodyear and the Buckeye Irrigation District for the Bullard Wash plan set. For the Estrella Parkway plan set signatures from the City of Goodyear and the Roosevelt Irrigation District is needed. Mr. Martinez stated that Andrew Cooper will sign the plans for the City of Goodyear in place of Tim Edwards.

Mr. Rerick stated that there are a couple of structural issues on the BID Overchute that Mr. Fischer

needs to discuss with Kumar Hanumaiah (FCDMC). Mr. Fischer will call and discuss the issues with Mr. Hanumaiah this week.

Mr. Rerick asked about the amount of soil cover over the El Paso Natural Gas line. Sverdrup adjusted the O & M roadway profile over the El Paso Natural Gas line to provide 4 feet of cover over the pipe. Mr. Rerick stated that if additional cover is needed, the earthen fill slope between the roadway and channel can be steepened by using aggregate mulch for slopes 2:1 to 1 ½:1 and shotcrete for slopes from 1 ½:1 to 1:1.

Concerning the specifications, Mr. Ward stated that the MCDOT Construction Branch will not review the construction plans and specifications until both sets of plans are packaged together in final form. Mr. Rerick disagreed and stated that this was not acceptable. Mr. Rerick said that any final package review comments will have to go out to the contractors bidding on the project as an addendum.

Mr. Ward said they have received the at-grade agreements from the Union Pacific Railroad. No construction cost estimates were provided. MCDOT plans to proceed with the agreements and pay whatever the UPRR costs are.

Ms. Fritschi said that no new right-of-way will be acquired for the additional improvements requested by the COG along Yuma Road. The west double left-turn lanes will need to be maintained as a single left-turn lane. Some of the desired improvements may still be possible. Details will be worked out later.

MCDOT will need a statement in the special provisions that a final connection to the railroad signal control from the intersection signal control box will be needed after the UPRR constructs their control box. The UPRR has not identified a location for their control box.

Concerning compaction requirements over the 96-inch PVNGS pipeline, Sverdrup will contact Sarrienne Rittenhouse to review the ditch and roadway improvements over the pipeline. Compaction requirements (possible use of non-vibratory equipment) over the pipeline will be discussed.

Mr. Rerick asked if the City of Goodyear will provide free construction water. Mr. Martinez said yes but the contractor will need to use reclaimed water from a purple hydrant located at the intersection of Estrella Parkway and Yuma Road. It was decided that the construction water will be a non-pay item. The contractor must research where it will obtain water for the project. It could be either from the RID, BID or the COG. Let the contractor decide which is best for him.

A joint detail is needed between the upstream approach end of the BID Overchute and the concrete channel lining. No contraction joints are required for the project. The special provisions will be modified accordingly.

Use stain on all concrete surfaces requiring color treatment. This will include the west 300 feet of the East Tributary Channel, headwalls in the channel, the BID Overchute, the box culvert, the UPRR Bridge, and the MC 85 Bridge. No stain will be used for structures such as the low flow channel, shallow channel, cutoff wall at the channel entrance, or the irrigation ditches. Exposed surfaces visible from the channel will be stained as directed by the engineer.

Provide only 85% compaction over gabion mattress aprons. Use non-vibratory type equipment such as pneumatic-tired rollers.

Provide a detail for the ramps that use 4 inches of AB over the gabion mattresses. The detail will show a wrap of filter fabric on the channel side of the ramp mattresses to confine the AB material. AB to be compacted with pneumatic tired equipment.

Mr. Rerick requested that an 8-inch concrete lining be shown on the bottom of the channel for maintenance vehicle loads. This exceeds the 6-inch requirement. There will be no change in the channel quantity since the units are in square yards.

Add height of half barriers to sheet 31. Call out the delineators on both sides of the BID South Bypass Maintenance Road.

Add rebar to concrete spillway shown on sheet 39.

Add a deflection to the pipe on sheet 40. Use a concrete collar at deflection point. This will allow the MAG headwall to be used.

The side post will be removed from the gate detail (sheet 54).

Mr. Martinez said the size of the 2-inch PVC sleeve for the tree wells (shown on sheet 63) was adequate for their use.

For the grouted riprap, the grout color will be Spanish Gold.

Mr. Fuller recommended that weep holes be provided on the concrete channel lining. They offer cheap insurance against potential unexpected floating of the channel. Provide weep holes at 50-foot intervals. Also provide at each weep hole, 1 cubic foot of aggregate in a sack at the underside of the lining.

Mr. Rerick requested that no AB or gravel mulch be used to cover the rest area nodes or on the back slopes along the O & M Roads.

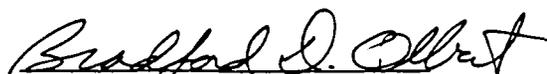
The cost estimate format will include both channel items and roadway items. The SGC items and channel items will be grouped together with a subtotal followed by the roadway items with a subtotal followed by the grand total. The bidding schedule will also use this format.

Mr. Rerick requested a 99% submittal on the 25th of August that would include the channel revisions covered by the change order. New details completed before that date will be submitted for review as they come available.

The tentative project schedule is as follows: Advertise Sept. 28, Pre-bid Mtg. Oct. 8, All addendum's complete Oct. 23, Bid opening Oct. 26, and Notice to Proceed Dec. 1.

Please review these meeting minutes and call me (303-9799) if you have comments.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Meeting Attendees

MEETING MINUTES

Sverdrup Civil, Inc.

Date: August 14, 1998

LOCATION AND DATE: Maricopa County Department of Transportation, Maricopa Room
August 12, 1998; 10:30 am

PARTICIPANTS: Laura Fritschi, MCDOT Engineering
Bruce Ward, MCDOT Engineering
Herb Miller, MCDOT Construction
John Rose, MCDOT Construction
Jim Neibergall, MCDOT Utilities
Todd Belzner, MCDOT Right-of-Way
Nicolaas Swart, MCDOT Traffic
Ron Nell, MCDOT Traffic
Mike Seargent, MCDOT Engineering
Larry Martinez, City of Goodyear
Joe Evans, City of Goodyear
Brad Olbert, Sverdrup Civil, Inc
Roger Miles, Sverdrup Civil, Inc

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Estrella Parkway - Buckeye Canal to North of Yuma Road
W.O. No.s 68877 & 68947
Issue Resolution Meeting

SUMMARY:

This meeting was held in response to a memo from Sverdrup listing unresolved issues requiring attention prior to completing the Estrella Parkway plans. The following are the results of the discussion of the issues in this meeting.

1. Sverdrup has no information for Estrella Parkway right-of-way south of the north property line of the existing Buckeye Irrigation District (BID) property. The assessor's map shows the 80 feet of right-of-way north of the BID property, but nothing within the BID property. Mr. Belzner said he will request the title reports for both parcels of BID property (east and west of the Estrella Parkway centerline). Mr. Olbert said that Flood Control District (FCDMC) already has a title report on the east BID property for the Bullard Wash Channel construction. Mr. Martinez said he thought Doug Sanders of the City of Goodyear had discussions with Jackie Meck of the BID and will request roadway easement information from the District if it hasn't been already received. A copy of Sheet 15 of the plans was given to Mr. Belzner to illustrate the area of concern. Mr. Belzner will pursue a right-of-entry as soon as possible
2. Mr. Martinez will contact the Union Pacific Railroad (UPRR) to obtain an easement for the combined tailwater and drainage ditch on the west side of Estrella Parkway, north of the railroad

tracks. The easement is not necessary for construction of this project but is required so that the City of Goodyear can take over maintenance for the existing RID ditch from Elwood Street to the UPRR tracks. This will allow drainage flows to combine with tailwater flows in a single system.

Mr. Martinez will write a letter to RID for their signature that will transfer responsibility for the ditch south of Elwood from RID to the City of Goodyear. Mr. Martinez will also ask RID to provide documentation on the existing RID easement within the railroad property so that the format and description of the easement will match the existing easement. Mr. Belzner provided Mr. Martinez a name and number for UPRR to contact.

3. Mr. Martinez will obtain a letter of agreement from the property owner south of MC 85 stating that that the combined tailwater and drainage flows can continue to flow into the private dirt ditch south of MC 85.
4. MCDOT Traffic Division reviewed the guardrail design and documentation provided by Sverdrup for the guardrail north of the BID Canal Bridge, and accepted the design provided that the notes are consistent with the notes in the documentation.
5. MCDOT Traffic Division indicated that they would like a 12-hour waiting period from the placement of AC pavement to beginning pavement striping. Sverdrup will modify Section 451 of the special provisions accordingly.
6. Sverdrup will modify Section 401 to include installation and removal of temporary striping as suggested by MCDOT Traffic Division.
7. Mr. Martinez provided a written description of the new 1" copper water service lines installed for the Wood family houses. He will also fax a sketch showing the 1" water lines and a sewer line to be installed in two weeks, so that these lines can be shown on the plans.
8. MCDOT Traffic Division will deliver the traffic striping quantities, item numbers, and item descriptions by Thursday August 13th.
9. Mr. Belzner will provide a list of right-of-way agreements with property owners such as driveway locations to Sverdrup so that these agreed upon improvements can be included in the plans.
10. The City of Goodyear will remove soil contaminated by diesel fuel spillage on the southwest corner of Lower Buckeye Road and Estrella Parkway.
11. MCDOT Traffic Division provided Sverdrup with traffic signal quantities, item numbers, and item descriptions.
12. MCDOT Traffic Division will provide Sverdrup with stamped mylars for the signal plans with correct sheet numbering as written in on the 90% plans.
13. MCDOT Traffic Division will provide Sverdrup with stamped mylars for the striping plans with correct sheet numbering as written in on the 90% plans.
14. Guardrail markers shall conform to ADOT details and specifications as requested by MCDOT Traffic Division. Sverdrup will modify Section 415 of the special provisions and modify the plans as appropriate.
15. The well number for the well on the south side of Yuma Road, west of Estrella Parkway is 803642. Sverdrup will modify Section 609 of the special provisions and modify the plans as appropriate.
16. The City of Goodyear provided drawings showing the locations of the median irrigation sleeves. Sverdrup will modify the plans accordingly.
17. APS provided CADD files showing the locations of electrical conduit, and details and specifications. Sverdrup will email these files to Ms. Fritschi and modify the plans as needed.
18. The City of Goodyear will remove or relocate all trees within the City's right-of-way as shown on the plans. MCDOT will remove trees along MC 85 that require removal.
19. MCDOT will relocate existing fences as shown on the plans including the well fencing.
20. City of Goodyear will relocate palm trees north of Yuma Road as shown on the plans.

21. Mr. Martinez will coordinate with ADEQ regarding the City's monitoring well located on the westside of Estrella Parkway north of Yuma Road. Sverdrup will modify the retention basin side slopes so that no adjustments to the monitoring well will be necessary.
22. The Wood property access along Lower Buckeye Road east of Estrella Parkway will consist of an alley entrance, AC pavement that extends 30 feet east of the alley entrance, and 45 feet of graded roadway to match the existing dirt roadway. The City of Goodyear will do additional paving for access to the Wood family houses on the southeast corner of Estrella Parkway and Lower Buckeye Road.
23. The City requested blue reflective pavement markers be added to the striping plans at fire hydrant locations. MCDOT Traffic Division agreed to do this. Sverdrup will provide the stations for the fire hydrant locations.
24. The P cabinet for the traffic signal at MC 85 and Estrella Parkway will be compatible with the City's other cabinets located throughout the city. There is no conduit run on Elwood Street and Lower Buckeye Road east of Estrella Parkway since there are no plans to extend these roads to the east in the foreseeable future. The crosswalks will be 10 feet wide per MCDOT standards.
25. Dust will be controlled during construction by providing paved surfaces for traffic at all times and by watering.
26. Mr. Martinez will provide existing median landscaping plans for Lower Buckeye Parkway west of Estrella Parkway by Friday August 14th.
27. The existing right-of-way will remain on the final plans and not removed as stated in the scope of work.
28. MCDOT provided updated uniformed officer verbiage that is based on an allowance. Mr. Ward will provide a cost for the estimate for this item.
29. MCDOT provided instructions for installing brass cap survey monuments. Monuments shall not be stamped with an elevation. MCDOT requested that additional survey monuments be added to the MC 85 Bridge and on headwalls along MC 85 and Estrella Parkway spaced approximately 1/4 mile apart. These additional monuments will have elevations stamped on the brass caps.

Mr. Miles mentioned that there is an unknown 1.5" wrapped steel pipe on the north side of Yuma Road that was potholed in two locations but no utility company has claimed. Mr. Neibergall said SW Gas investigated it and determined that it is not there's. The unknown pipe is in conflict at two pipe crossings. It will have to be removed by the contractor at these crossing locations.

Mr. Miller said he received requirements for construction over the 96" APS waterline. He will fax them to Sverdrup.

Mr. Martinez mentioned that the City will begin the fire hydrant relocation in a week.

Signed:



Roger W. Miles, P.E.

Distribution:

013884-2B
Participants
D. Rerick, FCDMC

MEETING MINUTES

Sverdrup Civil, Inc.

LOCATION Flood Control District of Maricopa County
AND DATE: August 12, 1998; 2:00 pm

PARTICIPANTS: Don Rerick, Flood Control District of Maricopa County (FCDMC)
Scott Ogden, FCDMC
Jack Moody, Wood, Patel & Associates, Inc. (W/P)
David Phelps, Wood, Patel & Associates, Inc.
Brad Olbert, Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
90% Hydraulic Review Meeting

SUMMARY:

The above participants met to discuss the 90% Hydraulic Design for Bullard Wash.

Mr. Rerick opened the meeting by reviewing the memo from Scott Ogden. Items 2 through 5 of the memo are to be addressed at this meeting. Also, a discussion of what n value will be used for the overchute structure. The overchute structure will incorporate a decorative pattern on the walls to help make it more graffiti resistant.

Item 2 – Mr. Moody stated that additional sections from the WLB model have already been added to the Bullard Wash model.

Item 3 & 5 – W/P will use the O & M Road for the weir profile as requested. W/P will add two more sections between Lower Buckeye Road and the north end of the drop inlet. A 1:1 contraction rate will be started from Lower Buckeye Road to identify the ineffective flow areas. At each cross section, the inlet will capture a percentage of the flow depending upon the depth and spread of the storm flow. Thus the flow rate will be varied for each section through the drop structure. The weir depth will then be calculated for each section.

Item 4 – The sections used in the W/P model upstream of Lower Buckeye Road need to better represent the actual cross section. Sverdrup will provide inroads cross sections to W/P.

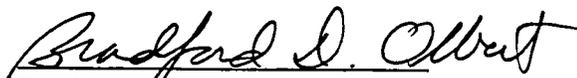
W/P will provide a new water surface for the 99% submittal 8/25/98.

Mr. Ogden requested that Sverdrup provide dimensioning for the MC 85 bridge pier widths. FEMA will be looking for the information, why not add the information to the plan sheet.

It was decided that an n value of 0.024 will be used for the walls of the BID Overchute structure. Most likely the n value will be lower, but this is a value that will be easy to defend. It is similar to corrugated metal pipe. The symmetrical pattern proposed should promote a quasi-smooth flow. However, the n value is difficult to determine. The pattern selected has a trapezoid shape with a 3/4" relief (form liner no. 304).

Please review these meeting minutes and call me (303-9799) if you have comments.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B
Meeting Attendees

MEETING MINUTES

Sverdrup Civil, Inc.

Date: August 14, 1998

LOCATION AND DATE: Project Site
August 13, 1998; 8:00 am

PARTICIPANTS: Laura Fritschi, MCDOT Engineering
Larry Martinez, City of Goodyear
Stan Ashby, Roosevelt Irrigation District
Ken Craig, Roosevelt Irrigation District
Michael Brooks, Brooks Farms
Roger Miles, Sverdrup Civil, Inc

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Estrella Parkway - Buckeye Canal to North of Yuma Road
W.O. No.s 68877 & 68947
RID Meeting

SUMMARY:

This meeting was held to clear up design issues for RID facilities. The following are the results of the discussion of the issues in this meeting.

1. Mr. Ashby stated that this years dry-up is scheduled for November 9th-23rd. He asked if the RID relocations could be scheduled for this time period. The current scenario has the construction beginning December 1st. Mr. Ashby responded that he could allow 24-hour dry-ups in December and January, but could not live with any dry ups past February 1st. These requirements will be added to the special provisions. Temporary by-pass ditches also need to be added to the special provisions.
2. Mr. Brooks farms the Sunchase property on the southwest corner of Yuma Road and Estrella Parkway. Mr. Todd Topper of Sunchase indicated previously to MCDOT and COG that the private irrigation ditches on the south side of Yuma Road are no longer necessary and did not need to be replaced as part of this project. Mr. Brooks was not aware of this. Mr. Brooks will call Mr. Topper to clarify the situation and call Ms. Fritschi if the private ditches need to be replaced. If the property owner does not want the ditches replaced, it should be placed in writing and signed by Sunchase.
3. Mr. Craig gave Sverdrup details of junction structures to replace the MAG junction boxes in the plans. The junction structures will be located at the RID crossing of Yuma Road 600 feet west of Estrella Parkway and east of Estrella Parkway just north of the well. Sverdrup will modify the plans accordingly.
4. Mr. Martinez gave Mr. Ashby a copy of a letter explaining the City's desire to assume responsibility for the existing RID ditch west of Estrella Parkway, south of Elwood Street to the UPRR right-of-way. Mr. Ashby read the letter and expressed general agreement with its content.

He said he wanted to further consider it and have the RID attorney look at it also. The RID Board will have to approve the agreement at its next board meeting to be held on September 15th.

Signed:

Roger W. Miles, P.E.

Distribution:

013884-2B
Participants
D. Rerick, FCDMC
BDO



 AVERY



**Bullard Wash Channel Improvements
Memorandums**

<u>No.</u>	<u>Memorandum</u>	<u>Date</u>
1	Laura Fritschi (MCDOT) Project Status	Oct. 10, 1997
2	Theresa Hoff (FCDMC) Environmental Concerns	Dec. 5, 1997
3	Kofi Awumah (FCDMC) CLOMR Needs	Dec. 11, 1997
4	Rosemary Ware (City of Phoenix) Airport Concerns	Dec. 23, 1997
5	Don Rerick (FCDMC) UPRR Bridge at Bullard Wash	Jan. 12, 1998
6	Roy Watson (WAPA) No Conflict with Power Line	Feb. 12, 1998
7	Brad Olbert (Sverdrup) RID Tailwater Ditch	Feb. 17, 1998
8	Brad Olbert (Sverdrup) RID Tailwater Pipe @ Bullard	Mar. 18, 1998
9	Jack Moody (Wood/Patel) Lower Buckeye Rd Berm	May 22, 1998
10	Roger Miles (Sverdrup) Temp. Bench Marks	May 27, 1998
11	Laura Fritschi (MCDOT) Changes to Yuma Road	June 3, 1998
12	Brad Olbert (Sverdrup) Gabion Basket Longevity	July 14, 1998
13	Brad Olbert (Sverdrup) Channel Roughness Factors	Aug. 5, 1998
14	Brad Olbert (Sverdrup) Standard Mintenance Procdures	No Date
15	Roger Miles (Sverdrup) Unresolved Issues on Estr. Pkwy	Aug. 7, 1998

**MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT
ENGINEERING DIVISION**

MEMORANDUM

DATE: October 10, 1997

TO: Brad Olbert, SVERDRUP
Steve Cleveland, City of Goodyear
Don Rerick, Flood Control District
Wayne Butch, Utilities/MCDOT
Todd Belzner, R/W
John Rose, Survey
Olin Sutton, Utilities/FCD
Don Wiltshire, Traffic

FROM: Laura Fritschi
Engineering

SUBJECT: Meeting on October 9, 1997 Estrella Parkway/MC85

After our meeting on October 9, 1997 specific items were covered that need to be addressed. The list below indicates the section involved, the items that need to be taken care of and the time frame needed by.

Items that need to be addressed:

UTILITIES (Wayne Butch) (Olin Sutton)

Olin Sutton

1. Flood Control District needs to obtain utility as-builts regarding their Bullard Wash project.
2. Olin of FCD utility section needs to call Wayne regarding past correspondence with utilities and Railroad progress.
3. FCD utility section needs to send any correspondence/permitting and prior rights information obtained to Wayne Butch.
4. FCD utility section needs to meet with MCDOT utility section weekly to update status on project and keep up continuous communication.

Time frame = ASAP

Wayne Butch

1. Prior rights documentation needs to be obtained by MCDOT. ASAP
2. Railroad Right of Entry needs to be obtained. Follow up on calls for updating status.

CITY OF GOODYEAR (Steve Cleveland)

1. Any utility agreements in writing regarding relocations, prior rights, permitting.
2. Any agreements in writing regarding landowners, acquisition of R/W.
3. Letter from Goodyear authorizing NTP on Segment 2, for billing purposes.
4. Review MOU and IGA ASAP, comment and return for updating.
5. Provide any information available on the ownership, agreements regarding the wells on the project.

SURVEY (John Rose)

Provide survey data necessary for right-of-way strip map.

TRAFFIC (Don Wiltshire)

Need response from Traffic regarding lighting at the intersections related to the project.

Right-of-Way (Todd Belzner)

1. Obtain the monument information on MC 85 and provide to Consultant.
2. Obtain costs for acquisition of parcels, costs to be incorporated in IGA and MOU. ASAP
3. Ensure all parcels, title reports and legal descriptions requested by Consultant are delivered in a timely manner.
4. Ensure all transition taper widths at intersections are included in the R/W acquisition.

CONSULTANT SVERDRUP- (Brad Olbert)

1. Provide right-of-way strip map at a scale of 1 in. = 100 ft. by November 14, 1997.
2. Provide initial 40% design plans by November 6, 1997.
3. Arrange Public meeting for November 11, 1997, provide all display material and boards.

ENGINEERING (Laura Fritschi)

1. Obtain any information available to assist R/W on MC85 monumentation.
2. Check on guardrail length at BID Bridge.
3. Check on ability to utilize access road next to BID canal.
4. Meeting to occur October 28, 1997 at Flood Control, no time given by Don Rerick, invite utility and R/W branch reps.
5. Provided notice to proceed on geotechnical and R/W.
6. Establish costs associated with utility relocations that have prior rights. Add to IGA and MOU. Complete final MOU and IGA.

Memorandum

To: Don Rerick
CC: Bob Stevens
From: Theresa Hoff
Date: 12/05/97
Re: Bullard Wash Project

Don – Here is a summary of the potential Bullard Wash environmental concerns. Some of the information is similar to the memo sent to you previously, however, it contains additional information as well (e.g., a synopsis of the Phase II investigation).

Conclusions

Based on the Phase II investigation results and the verification that aluminum oxide is not a hazardous material, additional Phase II investigation is not necessary at this time to proceed with the Bullard Wash project.

Several injection wells, monitor wells, and injection pipelines are located on the PGA property, which is part of the groundwater and soil treatment system. Therefore, the channel should be routed to ensure the treatment system is avoided and not impacted.

Phase II Investigation Conducted for the Bullard Wash Project

Growth Environmental drilled twelve soil borings for the Phase II investigation. Eight of the soil borings were located south of highway 85 and the other four were located near the southwest corner and western border of PGA South. Three samples were collected from each soil boring at varying depths (i.e., 14-24", 5-7', and 10-12' bgs). The samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and the eight listed RCRA metals (Test numbers EPA 8260, 8270, & 6010). The sample results indicated no detectable concentrations of VOCs or SVOCs. Twenty-six of the 27 samples analyzed for the eight RCRA metals resulted in detectable concentrations for four of the eight metals, however, the concentrations were below the ADHS health based guidance levels (HBGLs). One of the 27 samples resulted in detectable concentrations of three of the RCRA metals, which were also below the HBGLs. Therefore, based on these results, no further soil sampling is recommended.

Aluminum Oxide

Aluminum oxide is not a listed RCRA hazardous waste. ADEQ does not have soil remediation clean-up levels for aluminum oxide. According to Mr. Tony Debenedetto from ADEQ hazardous waste compliance division, if there are no soil remediation clean-up levels for a substance, the substance is not listed as RCRA hazardous waste, and the substance does not exhibit any of the

RCRA hazardous waste characteristics (i.e., reactivity, ignitability, corrosivity, or toxicity), then the soil containing the substance is non-hazardous.

Aluminum Oxide Fines on PGA Property

According to a report by Scott Allard, & Bohannon, Inc., (SAB), the soil affected by the aluminum oxide fines on the Phoenix Goodyear Airport (PGA) was removed using hand tools and deposited back onto the IMALSCO property in April, 1993. It appears that the extent of the affected soil was determined by visual inspection. The remaining soil was not sampled to confirm that the aluminum oxide fines were completely removed. However, aluminum oxide is not a RCRA listed or characteristic hazardous waste and is sometimes used in the production of concrete. Furthermore, in May 1993, Ms. Cynthia Parker, Environmental Programs Coordinator, City of Phoenix Aviation Department, stated that the cleanup was acceptable to the City of Phoenix. Since aluminum oxide is not a hazardous material and the affected soil was removed, sampling is not recommended in this area of the PGA.

Aluminum Oxide Fines on the Railroad Property

Soil on the railroad property adjacent to PGA and IMSALCO's southern borders was also affected by the aluminum oxide fines. The SAB report did not explicitly state that the affected soil on the railroad property was cleaned up or removed, although, the site map depicting the corrective action area (assumed to be the area cleaned-up) did include the affected soil on the railroad property. Therefore, some of the soil on the railroad property may still contain aluminum oxide fines because it is not clear whether or not it was removed; however, as discussed previously, aluminum oxide is not a hazardous substance.

Additional items of potential concern of which you may already be aware:

- Groundwater in the area is reported to be approximately 40 feet bgs.
- Several wells and an injection pipeline are located in the in the area of the proposed Bullard Wash project.
- Two groundwater wells are located near the northwest corner of the IMALSCO facility. The construction plans should not compromise the integrity of the wellhead that could provide a means of access for contaminant migration into the low levels of the aquifer. If construction does impact the wells, the wells can be formally abandoned in accordance with ADWR requirements.



*Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009-6399
(602) 506-1501
FAX: (602) 506-4601
TT: (602) 506-5897*

December 11, 1997

MEMO TO: Don Rerick
FROM: Kofi Awumah
Via: Ed Raleigh, Engineering Division, FCD
SUBJECT: Bullard Wash CLOMR

The following are some issues that must be addressed in the design report to enable a CLOMR application package to be put together:

1. The contents of the following FEMA Forms should be addressed, where relevant
 - Form 1 - Revision Requestor and Community Official Form
Operation and Maintenance issues related to the flood control features must be discussed. A formal plan must be prepared for FEMA. The entity responsible for maintenance must be established.
 - Form 3 - Hydrologic Analysis Form
 - Form 4 - Riverine Hydraulic Analysis Form
Must Provide Pre-Project and Post-Project hydraulics, Effective FIS and Revised NCWSEL, FCWSEL and SURCHARGES
 - Form 5- Riverine and Coastal Mapping Form
Floodplain work maps must be prepared
The effective and revised floodplain and floodway boundaries must be shown.
Topographic mapping scale, contour intervals and flight date
ERM's
Special Flood Hazard Zone types involved must be noted
Explain any shifts in floodplain and floodway boundaries
Placement of FILL in floodplain must have adequate compaction and slope protection
 - Form 6- Channelization Form
Freeboard must be according to the standard of the District
Cross sections in the hydraulic model must match stations on plans if possible
The potential for the occurrence of hydraulic jumps at key locations must be discussed and addressed
Channel lining must be adequately designed and toe downs computed
If sedimentation is possible sediment transport modeling must be performed to estimate deposition and scour. Deposition must be added to the computed freeboard

Superelevation must be computed and added to the freeboard for curved alignments.

Form 7- Bridge and Culvert Form

The hydraulic model for the channel must model all bridges and culverts crossing the channel. Sediment and debris deposition at bridge and culvert entrance must be addressed and included in the hydraulic model
This form must be filled for all bridges and culverts crossing the channel

Form 8- Levee /Floodwall System Analyses form

Levee must meet FEMA freeboard requirement

Geotechnical data must be provided.

Foundation and embankment stability analyses must be provided

Other Issues:

1. Public information aspect of project
2. If a shift in floodway and floodplain boundaries occur, consent must be sought from affected property owners.

From: ROSEMARY WARE
To: AWS, ROCKWELL.CLP, ROCKWELL.SAA, ROCKWELL.DLH
Subject: Bullard Wash questions

At our recent meeting, some questions regarding this project were asked. I contacted Brad Olbert of Sverdrup (231-8999) and he gave me the following information:

Q What is the current construction timeframe?

A Late fall of 1998. Still unsure if project will be built in one or two phases. (Separate railroad bridge project may be earlier)

Q Will any cranes be used?

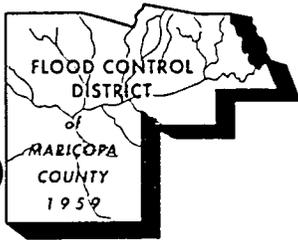
A Possibility of crane with railroad bridge. That project will be accomplished by the railroad, not Maricopa County or Sverdrup. Brad will forward our concerns with the height of equipment and the end of runway to Railroad. He will provide us with a contact name as that portion of construction draws closer. Bridge will be constructed prior to bullard wash project. The tallest vehicle anticipated for the County's project will be a cement truck with a boom to pour the concrete drop structures.

Q Will any large vehicles be used within close proximity to the runway? If so, they'll should be marked with checkered flags.

A All heavy construction vehicles should remain within the project boundaries and access the project via Estrella Parkway. Any vehicles driven on airport will be confined to existing perimeter road and will be smaller cars/trucks.

Q What provisions will be made for temporary flooding? Will canal accommodate current flows during construction?

A Project is being constructed beginning at the south end. The first step is to construct the outlet at the river, then bridges. Disruption or impairment of existing drainage is not anticipated during construction.



FLOOD CONTROL DISTRICT
of
Maricopa County

2801 West Durango Street • Phoenix, Arizona 85009-6399
Telephone (602) 506-1501
Fax (602) 506-4601
TT (602) 506-5897

BOARD OF DIRECTORS
Jan Brewer
Fulton Brock
Andrew Kunasek
Don Stapley
Mary Rose Garrido Wilcox

January 27, 1998

Mr. Bob N. Prince
Manager, Industry and Public Projects
Union Pacific Railroad Company
1200 Corporate Center Drive
Monterey Park, CA 91754

RECEIVED

JAN 29 1998

Overdrup
PHOENIX

Subject: Construction of New UPRR Bridge Structure at the City of Goodyear MP 887.30 for the Flood Control District Bullard Wash Project

Dear Mr. Prince:

As you know the District's Bullard Wash Project will require the construction of a new UPRR bridge structure. Your letter dated January 6, 1998 regarding the UPRR design and construction of the new bridge structure and at-grade crossing for the project included a revised cost estimate for the design and construction of the bridge by UPRR.

The cost estimate includes costs for the removal of two existing UPRR bridge structures and their replacement with fill and/or culvert pipe. The Bullard Wash Project will eliminate the irrigation and flood flows, which cross under the bridge structure at MP 887.39, and reroute the irrigation flows to the west of the new channel. The project will also reduce from about 800 cfs to about 20 cfs the irrigation and storm flows, which reach the bridge structure at MP 887.76. The removal of the bridges is not required for the project by the District. The elimination and reduction of these flows to the bridges caused by the project is however, a benefit to the UPRR, and therefore, we believe that the District should not be responsible for the bridge removal and replacement costs.

As we discussed with Gary Voogd of the UPRR on January 13, 1998, the District will include in the project construction documents that excess excavation material be placed in the UPRR right-of-way for use by the UPRR in filling in the bridge crossings at some future date. The total quantity to be placed will be provided by Gary Voogd. We will also encourage the contractor to coordinate and cooperate with UPRR forces should you decide to remove and replace the bridges during the Bullard Wash Project construction. The UPRR may, at its cost, wish to contract directly with our contractor to assist in your removal and replacement activities.

The total cost estimate including removal and replacement costs is \$456,435. Deletion of the removal and replacement costs of \$56,160 (job number 021 and 008 in the estimate breakdown) results in a total cost to the District of \$400,275 for the design and construction of a 102 foot long bridge structure at MP 887.30.

Prince, Bob N.
Manager, Industry and Public Projects
Union Pacific Railroad Company
Subject: Construction of New UPRR Bridge Structure
Page 2 of 3

By this letter the District requests that the UPRR proceed with the preparation of the necessary documents and agreements for the UPRR design and construction of the new bridge structure at MP 887.30 at an estimated cost to the District of \$400,275.

Your letter also included an application for the installation of a new at-grade crossing to be located immediately west of the new bridge. The completed application is enclosed for your use. The \$500 application fee request is being processed at this time and should be to you under separate cover within two weeks.

I have also enclosed with this letter a copy of the location map prepared by our consultant, Sverdrup, showing the proposed location of the new bridge and at-grade crossing with respect to the Estrella Parkway and UPRR intersection. This location map should be used as the basis of locating the bridge and crossing in the UPRR construction plans.

There are three other Bullard Wash Project items that I need to revisit with you. These include the work to be done at the East Tributary to Bullard Wash which will reduce flows that pass through the railroad bridge at MP 887.76, the need for permanent relocation and/or modification to the existing UPRR overhead signal lines along the south side of the tracks, and the installation of a replacement irrigation tailwater crossing of the railroad to the west of the at-grade crossing.

Regarding the East Tributary, the project will include construction of a new inlet and diversion structure immediately north of the UPRR right-of-way line along the south side of the Phoenix Goodyear Airport. This structure will reduce the irrigation and storm flows through the UPRR bridge from about 800 cfs to about 20 cfs. In order to perform this construction the District will need a Temporary Construction Easement (TCE) in UPRR right-of-way for construction of the structure and small diversion pipe which will continue to convey irrigation flows to the south. The TCE will also be used for the placement of the excess fill requested by the UPRR for their future use in removing and filling in the existing bridges.

The existing overhead signal lines may require the relocation of a pole(s) which may fall within the limits of the channel or the operation and maintenance (O&M) road along the west side of the channel. As a minimum, the lines will need to be raised to provide sufficient clearance for District and City of Goodyear vehicles to traverse the O&M road. How do we go about getting these poles and lines possibly relocated and/or raised?

Lastly, we must install a new small pipe under crossing of the railroad in order to maintain existing tailwater flows to the south. The pipe size will be on the order of 36" reinforced concrete pipe, and will probably be jack and bored under the railroad alignment. The installation of this pipe will require a TCE, and the use and O&M of the pipe will be the responsibility of the farmers who presently obtain such flows from the bridge crossing at MP 887.39. What approvals, design review and/or permits will be required for this work to be done by our contractor? Who do we work with to obtain these?

Of course the District will require from the UPRR the necessary approvals, permits and/or agreements, and permanent channel easements (PCE) which will allow us to construct the channel, the O&M road and related features within the UPRR 200-foot right-of-way. All O&M activities for the completed project will be the responsibility of the City of Goodyear.

Prince, Bob N.
Manager, Industry and Public Projects
Union Pacific Railroad Company
Subject: Construction of New UPRR Bridge Structure
Page 3 of 3

The limits of the various PCE's and TCE's will be provided in right-of-way documents to be prepared by the District and presented to Omaha. Your assistance in obtaining the necessary approvals for these easements will be appreciated. All permanent project right-of-way and easements acquired for the project will be transferred or deeded to the City of Goodyear before the completion of construction of the project.

Again, the District requests that you proceed with the necessary activities to accomplish the design and construction of the new bridge, as well as the other construction-related items presented above.

I would like to thank you for your assistance and guidance in our effort to work with the UPRR on this project. If you have any questions or require additional information, please call me at 602-506-4878. I look forward to hearing from you soon.

Sincerely,



Donald J. Rerick
Project Manager

Enclosure

Copies to: Gary Voogd, UPRR
Brad Olbert, Sverdrup
Larry Martinez, City of Goodyear



Department of Energy
Western Area Power Administration
Desert Southwest Customer Service Region
P.O. Box 6457
Phoenix, AZ 85005-6457
FEB 12 1998

RECEIVED

FEB 16 1998

Sverdrup
PHOENIX

Mr. Bradford D. Olbert
Project Manager
Sverdrup Civil, Inc.
432 North 44th Street, Suite 250
Phoenix, AZ 85008

Dear Mr. Olbert:

The Western Area Power Administration (Western) has reviewed the 30% plans for your Bullard Wash Channel Project. The project will effect Western's Liberty-Estrella and Liberty-Coolidge 230-kV Transmission Lines in Section 29, Township 1 North, Range 1 West, G&SRM, Maricopa County, Arizona.

It appears that the Bullard Wash Channel Improvements will not interfere with Western's facilities, however, we want to review final plans for the project and will require that the owners enter into Western's License Agreement.

Should you have any questions, please contact me at (602) 352-2554.

Sincerely,

A handwritten signature in cursive script that reads "Roy E. Watson".

Roy E. Watson
Realty Specialist

MEMORANDUM

Sverdrup Civil, Inc.

Date: February 17, 1998

**TO: Bruce Ward
Maricopa County Department of Transportation
2901 West Durango Street
Phoenix, Arizona 85009**

**FROM: Bradford D. Olbert, P.E.
Project Manager
Sverdrup Civil, Inc.**

**SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Roosevelt Irrigation District Tailwater Ditch from the Railroad Tracks to
Elwood Street**

On December 17th, Laura and Roger met with City of Goodyear staff and Roosevelt Irrigation District (RID) personnel. The RID personnel identified the concrete lined ditch west of Estrella Parkway from north of the railroad tracks to Elwood Street as being maintained and operated by RID. They also claimed responsibility for the dirt ditch from the railroad tracks crossing to the concrete lined ditch north of the Saguaro Metals recycling facility. RID has an easement from the railroad for this dirt ditch.

The existing RID ditch accepts tailwater from fields located northeast and northwest of the Elwood Street intersection. The tailwater from the northwest is conveyed under Elwood Street through an 18" concrete pipe (see attached Sheet 13). The tailwater from the northeast field is piped under a dirt farm road and then under Estrella Parkway through an 18" concrete pipe to the concrete lined RID ditch (see attached Sheet 13). Roadway drainage on the northwest corner is kept separate from the tailwater and crosses over Elwood Street in a valley gutter and flows south in a roadside ditch. The dirt irrigation tailwater ditch between the concrete pipes on the east side of Estrella Parkway intercepts roadway drainage from the east side of Estrella Parkway which is conveyed along with the tailwater flows in the 18" concrete pipe to the RID concrete lined ditch located on the west side of Estrella Parkway (see attached Sht 13).

The RID dirt ditch south of the concrete lined ditch accepts roadway storm water runoff along the Saguaro Metals frontage and in the railroad right-of-way (see attached Sheet 12). This combined tailwater and roadway drainage flow heads west in a dirt ditch in a RID easement within the railroad right-of-way. About 350 feet west of Estrella Parkway, the dirt ditch turns to the south and crosses under the railroad tracks through two 36" Corrugated Metal Pipes (see attached Sheet 26). The RID maintenance jurisdiction ends once the tailwater goes under the railroad tracks. They have no involvement in the box culvert under MC 85.

Proposed 40 % Plans

The drainage and irrigation relocations and improvements shown in the 40% plans are based on separating the irrigation tailwater flows and the drainage flows. This plan has the following advantages:

- It separates the drainage flows and irrigation tailwater flows. This is beneficial for two main reasons. The purpose of the tailwater ditch is conveyance of excess irrigation water while the purpose of the drainage linear retention basins/ditches retain storm runoff from the roadway. Combining these two functions complicates the design. The other main reason for the separation is the different agencies are involved. The tailwater function is maintained and operated by Roosevelt Irrigation District while the drainage responsibility and maintenance is the responsibility of the City of Goodyear and MCDOT. The RID facility will be within the roadway right-of-way by permit and the railroad right-of-way in their existing easement.
- Avoids legal problems for the RID with accepting roadside drainage that may be contaminated. RID personnel said that they can not accept new roadway drainage.

The 40% plan improvements have the following disadvantages.

- An additional 10 feet of right-of-way from Saguaro Metals to Elwood Street. This adds up to 11,111 SF or 0.255 acres, which at \$20,000 an acre is \$5,100.
- Two sets of pipes are required at the Elwood Street intersection. The additional tailwater culverts total to be approximately 400 feet of 24" DIP pipe or about \$34,000.
- A drainage pipe under the railroad tracks is necessary, which will have to be "jacked" or bored. 80 feet of Class IV reinforced concrete pipe will add about \$16,000 to the project.
- The linear retention basins cross over the irrigation culverts at two locations. This will require the irrigation pipes to be lower than otherwise possible and may result in an inverted siphon condition at Elwood Street.

Combining the Tailwater and Drainage

We recommend consideration of two alternatives to the 40% plans. Alternative 1 consists of combining the tailwater ditch and drainage linear retention basins into single earthen or lined ditch south of Elwood Street (see attached Sheets 12 & 13, alternative). This alternative will require approval from the RID, the City of Goodyear Maintenance, and MCDOT Maintenance. This alternative has the following advantages:

- A reduction of 10 feet of right-of-way from Saguaro Metals to Elwood Street. This adds up to 11,111 SF or 0.255 acres, which at \$20,000 an acre is \$5,100 savings.
- One set of pipes at the Elwood Street intersection. If the tailwater culverts are not needed,

this will save approximately 400 feet of 24" DIP pipe or about \$34,000.

- Eliminate the drainage pipe under the railroad tracks which would have to be "jacked" or bored. 80 feet of Class IV reinforced concrete pipe will result in about \$16,000 savings to the project.
- Eliminate 400 LF of 30" reinforced concrete pipe irrigation culvert along the frontage of Saguaro Metals which will save approximately \$21,600.

The disadvantages of this alternative are as follows:

- The City of Goodyear and MCDOT will assume maintenance of the combined tailwater and drainage ditch. There will be no control over the tailwater flow into the drainage system. Maintenance will be more difficult due to nearly continuous flow of tailwater. Legal written agreements will be necessary between the three agencies.
- The City of Goodyear and MCDOT will assume legal liability for the tailwater flows.
- Will require some type of low flow/high flow separator that will channel high flow volumes into the area retention basin.
- Loss of the retention capability of the linear retention basins in the 40% plans.
- The City of Goodyear or MCDOT will assume the easement for the dirt ditch in the railroad right-of-way.

Alternative 2 would be consistent with the 40% plans except that the end of the RID responsibility would be the north right-of-way line of the railroad property. Essentially the south end of the RID maintenance jurisdiction would move from the south side of the railroad tracks to the north right-of-way line of the railroad. MCDOT or the City of Goodyear would assume responsibility for the dirt ditch within the railroad right-of-way. The advantages of this alternative are as follows:

- Eliminate the drainage pipe under the railroad tracks which would have to be "jacked" or bored. 80 feet of Class IV reinforced concrete pipe will result in about \$16,000 savings to the project.
- It separates the drainage flows and tailwater flows north of the retention basin. This is beneficial for two main reasons. The purpose of the tailwater ditch is conveyance of excess irrigation water while the purpose of the drainage linear retention basins/ditches retain storm runoff from the roadway. Combining these two functions complicates the design. The other main reason for the separation is the different agencies are involved. The tailwater function is maintained and operated by Roosevelt Irrigation District while the drainage responsibility and maintenance is the responsibility of the City of Goodyear and MCDOT. The RID facility will be within the roadway right-of-way by permit and the railroad right-of-way in their existing easement.

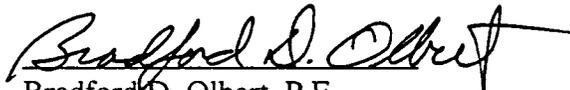
- Avoids legal problems for the RID with accepting roadside drainage that may be contaminated. RID personnel said that they can not accept new roadway drainage.

The disadvantages are as follows:

- The City of Goodyear or MCDOT will assume maintenance responsibilities through the railroad right-of-way.
- An additional 10 feet of right-of-way from Saguaro Metals to Elwood Street. This adds up to 11,111 SF or 0.255 acres which at \$20,000 an acre is \$5,100.
- Two sets of pipes at the Elwood Street intersection. The additional tailwater culverts total to be approximately 400 feet of 24" DIP pipe or about \$34,000.
- The linear retention basins cross over the irrigation culverts at two locations. This will require the irrigation pipes to be lower than otherwise possible and may result in an inverted siphon condition at Elwood Street.

Please review the above concepts and give Sverdrup direction for the right-of-way and 70% plan development.

Signed:



Bradford D. Olbert, P.E.

Attachments

Distribution: 013884-2B
Don Rerick - FCDMC
Laura Fritschi - MCDOT

MEMORANDUM

Sverdrup Civil, Inc.

Date: March 18, 1998

TO: Bruce Ward
Maricopa County Department of Transportation
2901 West Durango Street
Phoenix, Arizona 85009

FROM: Bradford D. Olbert, P.E.
Project Manager
Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Tailwater Pipe @ Existing Bullard Wash Bridge

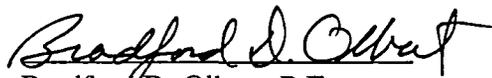
This memorandum was prepared in response to a request for information on the tailwater pipe proposed upstream of the existing Bullard Wash Bridge location.

Per discussions held with Ron Rayner, manager of the A-Tumbling-T Ranches, a 30-inch diameter RCP will be used to convey tailwater flows of 10 to 15 cfs south towards his fields. The tailwater flows will be discharged immediately upstream of the UPRR bridge. Storm flows which have in the past passed through the existing Bullard Wash Bridge will be conveyed within a new trapezoidal channel (15 ft bottom width) to the new Bullard Wash Channel (80 ft bottom width) located approximately 2,000 feet to the west (FCD Project Control Number: 470070).

The inlet structure to the new trapezoidal channel and 30-inch pipe location are currently under design with 60% construction plans due on April 24th to the Flood Control District. The 60% construction plans will be submitted to your office shortly after that date.

If you have any additional questions I can be reached at 231-8999.

Signed:


Bradford D. Olbert, P.E.

Distribution: 013884-2B
Don Rerick - FCDMC
Laura Fritschi - MCDOT

WOOD/PATEL

CIVIL ENGINEERS • HYDROLOGISTS • LAND SURVEYORS

Darrel E. Wood, P.E., R.L.S.
Ashok C. Patel, P.E., R.L.S.
James S. Campbell, P.E.
Gordon W. R. Wark, P.E.
Thomas R. Gerrings, R.L.S.
Bruce Friedhoff, P.E.
Scott A. Nelson, R.L.S.
Richard L. Hiner, P.E.
Fredrick K. Schneider, P.E.
Timothy A. Huval, P.E.
Michael J. Sexton, R.L.S.
Jack K. Moody, P.E.
Leslie J. Kland, P.E.
Carl Sitterley, R.L.S.
Curtis L. Brown, P.E.

May 22, 1998

Mr. Brad Olbert, P.E.
Sverdrup
637 South 48th Street
Suite 101
Tempe, Arizona 85281

Phone: 303-9799

Fax: 303-9899

Re: Bullard Wash
Documentation for Berming Along Lower Buckeye Road
WP #96464

Dear Mr. Olbert:

As discussed on the phone, we recommend that the berm height along Lower Buckeye Road be set to an elevation of 948.0 feet. This will force the shallow overbank flooding from the north to flow into the proposed Bullard Wash Channel.

The proposed top of berm elevation was calculated by using the higher to the following criteria:

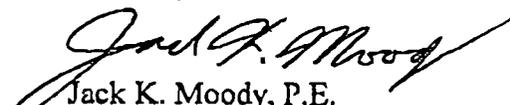
1. The 100-year energy grade line at the proposed Lower Buckeye Road Bridge plus four feet of freeboard. Station 11 + 963.09 EGL = 941.8 plus 4.0' = 945.8.
2. The 100-year energy grade line upstream of the proposed channels draw down influence (340 feet upstream of Lower Buckeye Road) plus one foot of freeboard. Station 12 + 246.2 EGL = 946.9 plus 1.0' = 947.9

The second criteria is controlling, therefore an elevation of 948.0 was selected for the minimum top of berm.

Please call if you should have any questions, or would to discuss this further.

Sincerely,

WOOD, PATEL & ASSOCIATES, INC.


Jack K. Moody, P.E.
Senior Project Manager

JKM\vm

GENCOR\96464berming-may20

MEMORANDUM

Sverdrup Civil, Inc.

Date: May 27, 1998

**TO: Laura Fritschi
Maricopa County Department of Transportation
2901 West Durango Street
Phoenix, Arizona 85009**

**FROM: Roger W. Miles, P.E.
Project Engineer
Sverdrup Civil, Inc.**

**SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Estrella Parkway – BID Canal to North of Yuma Road
Temporary Bench Marks**

As requested, attached is a table that lists suggested locations for temporary benchmarks (TBMs) on the project. These locations should remain undisturbed during construction. The location of the ditches near the proposed right-of-way line greatly limits the amount of area available for TBMs.

Please review these locations and coordinate the establishment of the TBMs with Mr. John Rose. If you have any questions about these locations, I can be reached at 303-9799.

Signed:


Roger W. Miles, P.E.

Distribution: 013884-2B
Don Rerick – FCDMC
Bruce Ward
BDO

**Estrella Parkway
 Buckeye Canal to Yuma Road
 (Work Order Numbers 68877 & 68947)
 Proposed Temporary Bench Marks**

Description	Station	Offset Lt.	Offset Rt.	Elevation	Northing	Easting
SE Corner of BID Concrete Bridge Deck	32+06.68		44.31	912.62	41597.77	44794.72
Establish 1/2" Rebar	45+00.00	70.00		-	-	-
Establish 1/2" Rebar	55+00.00	70.00		-	-	-
North Top of Lining CLD	62+55.56	114.49		915.15	44646.07	44625.32
Establish 1/2" Rebar	76+00.00	80.00		-	-	-
Establish 1/2" Rebar	88+50.00	115.00		-	-	-
North Top of Lining CLD	115+28.41		113.69	951.98	49920.84	44843.57
Establish 1/2" Rebar	123+50.00	70.00		-	-	-
Establish 1/2" Rebar	133+00.00	100.00		-	-	-
Establish 1/2" Rebar	167+75.00		100.00	-	-	-
Establish 1/2" Rebar	188+00.00		70.00	-	-	-
MC 85						
Establish 1/2" Rebar	625+00.00	65.00		-	-	-
Establish 1/2" Rebar	635+00.00	65.00		-	-	-
Establish 1/2" Rebar	642+00.00	65.00		-	-	-
Establish 1/2" Rebar	651+00.00	65.00		-	-	-
Establish 1/2" Rebar	659+00.00	65.00		-	-	-
Establish 1/2" Rebar	666+00.00	65.00		-	-	-
Establish 1/2" Rebar	675+00.00	65.00		-	-	-
Establish 1/2" Rebar	682+00.00	65.00		-	-	-
Lower Buckeye Road						
North Top of Lining CLD	25+00.00		35.80	952.13	49911.98	43628.94
Yuma Road						
Establish 1/2" Rebar	13+69.00	30.00		-	-	-
Establish 1/2" Rebar	23+00.00	70.00		-	-	-
Establish 1/2" Rebar	29+50.00	70.00		-	-	-
Establish 1/2" Rebar	34+00.00		100.00	-	-	-
Establish 1/2" Rebar	45+00.00		80.00	-	-	-
Top of Telephone Manhole	53+18.60		62.09	968.57	55186.49	46347.04

Thomas R. Buick, P.E.
Chief Public Works Officer,
Transportation Director & County Engineer



DEPARTMENT OF TRANSPORTATION

June 3, 1998

Steve Cleveland
City of Goodyear
119 North Litchfield Road
Goodyear, Arizona 85338

FILE COPY

Re: Estrella Parkway, BID Canal to Elwood Street, W.O. # 68877
Estrella Parkway, Elwood Street to N. of Yuma Road, W.O. # 68949

Dear Steve Cleveland,

This letter is in response to the 90% design plans submittal received from the City of Goodyear this week. According to the engineer representing the City, that redlined the plans, a request has been made for additional R/W, additional lanes, additional intersection turnouts, additional median cuts with left turn bays, right turn bays, bus bays and the associated design changes to accompany a complete new design. The timing for these requested changes, at 90% plans, is not feasible. The proposed additions to the project will have to be done by the City at another time. The future development of the Yuma Road and Estrella Parkway as shown by the City Representative can be accomplished through a City project at a later date. We can accommodate placement of conduit and pullboxes at the locations you have shown on the plans. The plans show that the locations for the intersections are not exact, that the locations shown for your proposed intersections are only approximate. Within the plans you state, "The City will provide those exact locations as soon as possible." We will require the exact location, stationing, roadway widths and offsets for the intersections within 5 working days from the date we bring the letter to your office, in order to accommodate this request. This is the only way our Signals Engineer can expedite the completion of the new conduit and pullbox design plans required for the additional changes you have requested, and remain within schedule. Thank you for submitting your new design drawings and your comments to the plans, although we cannot accommodate all your requests, we will make an effort to place your future conduit and pullboxes within the next submittal due in two weeks. Any additional charges for the conduit, pullboxes and design will be billed to your office. We have submitted a change order to the additional requests for a third eastbound lane on MC 85, to be incorporated with this design. The breakdown for the costs of design and construction items will be sent to your office as soon as the consultant provides the information. If you should have any questions, please call me at 506-4236.

Sincerely,

A handwritten signature in cursive script that reads "Laura Fritschi".

Laura Fritschi
Project Manager



cc. Larry Martinez
Public Works, City of Goodyear

Harvey Krauss, Director
Community Development Department

Larry Price, Director
Finance Department

Tim Edwards,
Public Works, City of Goodyear

Chris Stevens,
Yost and Gardner, Engineers

MEMORANDUM

Sverdrup Civil, Inc.

Date: July 14, 1998

**TO: Tim Edwards and Larry Martinez
City of Goodyear
119 North Litchfield Road
Goodyear, Arizona 85338**

**Don Rerick
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009**

**FROM: Bradford D. Olbert, P.E.
Project Manager
Sverdrup Civil, Inc.**

**SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Gabion Basket Longevity and Maintenance**

The proposed Bullard Wash Channel from the Lower Buckeye Road inlet area to the Gila River utilizes the gabion system (rock filled wire baskets) of lining material for approximately 87 percent of the channel length. Several linings were investigated to preclude meandering of the channel including concrete, soil cement, grouted riprap, riprap and gabions. The City of Goodyear chose the gabion system because it was more aesthetically pleasing than the concrete lining material that was recommended in an earlier study. Other benefits of the gabion system are it provides a bank lining that is flexible (less likely to have a total failure of the lining), it is durable, and it is easier for an individual to exit the drainage channel during a flood event (in comparison to concrete). Three drawbacks of the gabion system include a higher roughness coefficient (in comparison to concrete, 0.030 vs. 0.015), wire damage, and corrosion potential of the wire. The higher roughness coefficient results in a larger channel section, while damage and corrosion of the wire are related to how long the system will last and maintenance concerns. Below is a discussion of the wire damage and corrosion potential of the system and measures taken to reduce that potential.

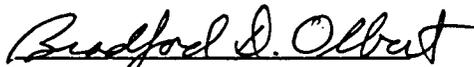
The gabion system of bank protection has been widely used for many years and many locations. The first gabion system has been in use since 1894 along the Reno River banks in Italy. The gabion system has been used in Arizona for flood protection. One installation located in the City of Glendale on Skunk Creek south of Union Hills Road has been in place since 1987. The Skunk Creek installation used the standard zinc-coated steel gabion mesh. Inspection of the gabion system showed no signs of corrosion or damage to the baskets over that time period. Additional flood protection along Skunk Creek using the gabion system is proposed for the near future. ADOT has used the gabion system principally for local scour conditions at its older bridge locations. ADOT's major concern has been the longevity of the wire mesh against impacts from other rocks being transported downstream during a storm event.

The Bullard Wash project is located in an area where soil corrosion has been identified as an issue. Corrosion of utilities have been reported by the City of Goodyear of its ductile iron pipes near the wastewater treatment facility, located west of Estrella Parkway and north of the Buckeye Irrigation Canal (BID). APS has performed corrosion repair work to its 96-inch reclaimed water line in several locations just north of the BID Canal. While damage to the gabion basket wires is always a concern, damage to basket wires below the channel bottom caused by large stones will not be an issue for this project because borings along the channel have indicated no large rocks and only traces of gravel. Wire damage should be limited to above ground by floating debris or vandals.

Manufacturers of gabion systems have provided improved corrosion protection coatings to minimize corrosion potential. The traditional zinc coating can be replaced with a zinc-aluminum alloy coating with a non-porous surface that reduces the rate of corrosion. Manufacturer corrosion tests indicated that the zinc-aluminum coating lasts 2-½ times longer than the traditional zinc coatings. In addition, PVC coatings help to further improve long lasting protection against corrosion. The coating completely protects the wire from corrosion. For the Bullard Wash Channel improvements, a higher level of corrosion protection is warranted based upon the corrosion history of the area. Claims of complete protection for the PVC coating may be true where the coating is fully intact for the life of the improvement. However, with time, damage will occur to the PVC coating from debris contact, vandalism, damage during construction, and from contact with maintenance vehicles. The complete protection is only as good as the PVC coverage. Nicks or scratches in the coating will provide locations where corrosion would take place. A combination of the two coatings would maximize the corrosion protection, and this combination will be used for this project.

While the coatings provide a passive protection system against corrosion, annual inspections of the channel lining to check for damage to the lining and corrosion is necessary. Spot inspections will be required on the below ground lining protection as well. Repairs to damaged wires discovered should be scheduled immediately after the inspections have been completed. This maintenance requirement will be addressed in the operation and maintenance manual being prepared for this project.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B

MEMORANDUM

Sverdrup Civil, Inc.

Date: August 5, 1998

**TO: Larry Martinez and Chris Stevens
City of Goodyear
119 North Litchfield Road
Goodyear, Arizona 85338**

**Don Rerick
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009**

**FROM: Bradford D. Olbert, P.E.
Project Manager
Sverdrup Civil, Inc.**

**SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Channel Roughness Factors**

The proposed Bullard Wash Channel from the Lower Buckeye Road inlet area to the Gila River is composed of several different channel sections and types of lining materials. Below is a discussion of the roughness factors used to calculate the channel hydraulic capacity/water surface profiles, and the limitations of each channel section to keep the channel operating within the design parameters.

To simplify the discussion, Bullard Wash has been divided into segments correlating to the different types of channel section used. Starting from just north of Lower Buckeye Road and proceeding south to the Gila River, the channel segments are identified by the stationing used in the construction plan set.

Station 122+00 to 119+54 (Channel Inlet Area) – Drop inlet area is designed to collect upstream flows. The inlet area will be lined with rock-filled gabion baskets and mattresses to minimize erosion to the channel. The baskets will be stair stepped to provide a cascading effect to the captured overbank flows. The rock-filled baskets have a roughness factor (n) of 0.029 (per manufacturer). For the design, an n value of 0.030 was used. This channel section is temporary and will be removed when the channel is extended to the north.

Station 119+54 to 81+02 (Composite Channel Section) – Composite channel section is designed to convey flows around the west end of the Phoenix Goodyear Airport. The composite section is composed of 2:1 and 3:1 sideslopes lined with rock-filled mattresses (to minimize erosion to the channel banks) and an earthen bottom. In addition, a narrow concrete lined ditch is located within the channel section to convey irrigation tailwater flows. The tailwater exits at the end of this channel reach. The rock-filled mattresses have a roughness factor of 0.027 (per manufacturer). For the design,

an n value of 0.030 was used. The higher n value was chosen to allow for some vegetative growth (grasses and brush 1 to 2 ft high) along the sideslopes. For the channel bottom an n value of 0.032 was selected for the design. A clean soil bottom will have an n value of 0.025, however, with the City of Goodyear's desire to allow vegetative growth within the channel, for aesthetic reasons, the higher n value was used. The narrow concrete lined ditch will have an n value of 0.015 (heavy broom finish).

The vegetative growth on the channel bottom will need to be limited to grasses and short brush 1 to 3 ft in height. Some examples of brush types to use are common desert plants such as the brittle bush and desert marigold. The brittlebush is particularly good because of its brittle nature it will be easily striped away during a major storm event. One brush type to avoid is the desert broom, which has a deep taproot and can grow to 10+ ft in height. Tree plantings should be avoided within this section.

Station 81+02 to 77+00 (Grouted Riprap Channel Section) – The grouted riprap channel section is designed to provide a roughened (high n value) channel section in lieu of a drop structure at the southwest end of the Phoenix Goodyear Airport. The section is lined with grouted rock that is 22 inches thick. A narrow 15-ft wide concrete maintenance roadway is located within the channel section to provide continuous access along the channel bottom. The pathway surface will have a roughened surface (raked finish) to discourage the use of roller blades or skateboards. In addition, several tree wells using concrete pipe section have been added to enhance aesthetics. The grouted riprap has an n value of 0.042. The narrow 15-ft wide concrete maintenance roadway has an n value of 0.019. A composite n value of 0.038 was used for the design of the channel section.

Station 77+00 to 72+90 (Concrete Lined Channel Section) – The concrete lined channel section is designed to provide a hardened channel section at the end of the grouted riprap section and through the railroad and highway bridges. The section is lined with reinforced concrete that is 6 inches thick. The hardened surface is necessary to control the erosive action downstream of the grouted riprap section and eliminate local scour conditions at the bridges. The railroad bridge has a limited vertical clearance. A 15-ft wide maintenance path that is depressed one-foot under the railroad bridge will provide a 10-ft clearance for maintenance vehicles. The highway bridge provides 10+ ft of clearance. The bottom concrete surface will be roughened (raked finish) to discourage the use of roller blades or skateboards. The concrete bottom surface and the concrete sideslopes (heavy broom finish) have roughness factors of 0.019 and 0.015 respectively.

Station 72+90 to 33+30 (Composite Channel Section) – Composite channel section is designed to convey flows south of the highway to the BID canal. The composite section is composed of sideslopes lined with rock-filled mattresses (to minimize erosion to the channel banks) and an earthen bottom. The rock-filled mattresses have a roughness factor of 0.027 (per manufacturer). For the design, an n value of 0.030 was used. The higher n value was chosen to allow for some vegetative growth (grasses) along the sideslopes. For the channel bottom an n value of 0.032 was selected for the design. See earlier section concerning the City of Goodyear's desire to allow vegetative growth within the channel for aesthetic reasons.

Station 33+30 to 30+02 (Concrete Lined Channel Section) – The concrete lined channel section is designed to provide a hardened transition channel section from the PVNGS 96-inch concrete encasement to the BID overchute structure. The section is lined with reinforced concrete that is 6 inches thick. The hardened surface is necessary to transition from the 80-ft wide composite section to the 62-ft wide overchute structure. The bottom concrete surface will be roughened to discourage

the use of roller blades or skateboards. The concrete bottom surface (raked finish) and the concrete sideslopes (heavy broom finish) have roughness factors of 0.019 and 0.015 respectively.

Station 30+02 to 29+04 (Grouted Riprap Channel Section) – The grouted riprap channel section is designed to provide a roughened (high n value) channel section in lieu of a drop structure at the south end of the BID overchute structure. The section is lined with grouted rock that is 22 inches thick. A narrow 15-ft wide concrete maintenance roadway is located within the channel section to provide continuous access along the channel bottom. The roadway surface will have a roughened surface (raked finish) to discourage the use of roller blades or skateboards. The grouted riprap has a roughness factor of 0.042. A composite n value of 0.038 was used for the design of the channel section.

Station 29+04 to 28+60 (Box Culvert Section) – The box culvert is designed to convey flows under the BID South Maintenance Road. The box culvert has four barrels that are 10-ft high and 12-ft wide. The eastern most barrel will be used to provide continuous maintenance access from the Gila River to the upper sections of the channel. For the design, the bottom surface of the eastern most barrel will be roughened with a raked finish similar to the maintenance roadway (n value of 0.019). The other three barrels will have the bottom surface roughened with a heavy broom finish (n value of 0.015).

Station 28+60 to 25+00 (Composite Channel Section) – Composite channel section is designed to convey flows south of the BID canal maintenance road to the Gila River. The composite section is composed of sideslopes lined with rock-filled gabion baskets (to minimize erosion to the channel banks) and an earthen bottom. An n value of 0.030 was used for the rock-filled gabion baskets and 0.032 was selected for the channel bottom. See earlier composite channel section description concerning the City of Goodyear's desire to allow vegetative growth within the channel for aesthetic reasons. This section is located within the Gila River floodway and may experience damage when the river flows. The flexible gabion system has the highest potential of surviving a major flow on the Gila River in comparison to other lining materials.

Station 25+00 to 18+00 (Earthen Channel Section) – The earthen channel section is designed to convey low flows south of the composite channel section. The earthen channel section is located within the Gila River floodway and provides an excavated low flow pathway to the main Gila River channel. This section may be washed away when the river flows. A roughness factor of 0.032 was used for the channel sideslopes and bottom. See earlier section concerning the City of Goodyear's desire to allow vegetative growth within the channel for aesthetic reasons.

Signed:


Bradford D. Olbert, P.E.

Distribution:

013884-2B

Standard Maintenance Procedures Prepared for the Bullard Wash Channel Project

- SUBJECT:** Maintenance of Channels, Linings and Structures
- PURPOSE:** To insure the integrity of the project is preserved and will function as designed.
- OWNERSHIP:** The City of Goodyear, Arizona shall be responsible for the ownership, operation and maintenance of the completed project. The Interim Public Works Director, Andrew Cooper, will be the responsible person at the City.
- LOCATION:** Main Bullard Wash Channel, East Tributary Channel, Spillway at the BID Canal east of the Bullard Wash Channel, and the O&M Road and Berm at Lower Buckeye Road

PROCEDURE A: Channel and Inlet Pipes

1. **Vegetation** - Desert brush and grasses can be allowed to grow within the channel bottom. Desert brush must not exceed 2-3 feet in height and vegetation type must be able to break away during storm event (i.e. brittlebush) or be able to bend over and flatten (i.e. Desert Marigold). Vegetation types that must be removed include woody stemmed plants (i.e. Desert Broom, Salt Cedar, etc.). If grasses are established, maintain the height to a maximum of six inches.
2. **Sediment Deposits** – Remove deposits of loose material to obtain designed grades and cross sections. Loose deposited materials shall not be used within the channel unless tested to meet the earthfill criteria in the construction specifications. At a minimum, sediment deposits shall be removed annually, unless quarterly inspections identify a need for more frequent removal.
3. **Erosion** – Make repairs to eroded areas by replacing lost material with compacted earth, or other suitable erosion resistant material, in accordance with the original construction specifications.
4. **Debris/Trash** – During quarterly inspections and after storm events, all trash and organic debris is to be removed from the area as soon as possible. Inspect all drainage pipes that discharge into the channel. Remove all trash and organic debris from pipe inlets as soon as possible.
5. **Gabion Lining** – During quarterly inspections and after storm events, all gabion baskets or mattresses that have been damaged shall be repaired using the manufacturer procedures as soon as possible. The Polyvinyl Chloride (PVC)

coating on the gabion wire also requires inspection. Where the PVC coating has been damaged, the damaged coating shall be removed and the PVC coating reapplied per manufacturer's procedures. Yearly inspections will include excavation of buried gabions and a check of steel anchor stakes to inspect for corrosion. At a minimum, excavation locations will include one site south of the Buckeye Irrigation District (BID) South Maintenance Road, three sites between the BID Canal and the MC 85 Bridge, and three additional sites between the drop structure located north of the Union Pacific Railroad Bridge and Lower Buckeye Road. Each yearly inspection shall also stagger the excavation locations so that a comprehensive inspection is performed year-to-year.

6. **Grouted Riprap Lining** – During quarterly inspections and after storm events, riprap lining that has been damaged shall be repaired. Repairs shall include replacement of riprap material and grout, filter blankets, and the seepage/back drainage system. Inspections shall include a check of all weep holes and removal of any blockages.
7. **Concrete Lining** – During quarterly inspections and after storm events, the concrete lining shall be checked for damage and cracking. Hairline cracks are typically caused by shrinkage of the concrete, which is a normal condition. Cracks that are wide enough for a quarter to be inserted into the crack, should be repaired as soon as possible. Inspection shall include a check of the weep holes.
8. **BID Overchute / BID South Maintenance Road Box Culvert** – During quarterly inspections and after storm events, the concrete surfaces shall be checked for damage and cracking. Inspect the condition of all joints. Items requiring repair should be scheduled as soon as possible. Maintenance vehicle weights should be limited to that which is legal for operation on a highway. The box culvert has a height limitation of 10 feet.
9. **Levee** – Top of berm elevations along the earthen levee, located between the BID Canal and 450 feet south of Broadway Road, shall be surveyed annually for the first five (5) years of operation to check for settlement and/or subsidence, and then bi-annually in the following years. Areas requiring repair shall be scheduled as soon as possible.

PROCEDURE B: Rodent Control

1. Gophers can damage embankments, berms and levees by burrowing deep holes with more than one outlet. Fresh mounds of soil can identify new gopher outlets.
2. Ground squirrels can also damage structures even with insignificant numbers and must be treated.

3. A licensed pesticide applicator shall apply the appropriate pesticide and the Material Safety Data Sheets shall be with the licensed applicator.
4. After rodent activity has been controlled, holes are to be filled and compacted.

PROCEDURE C: General Vandalism and Graffiti

1. Graffiti needs to be removed as soon as possible to discourage repeated applications.
2. General vandalism to include cut or damaged fencing, damaged signs, illegal ingress, dumped trash, etc. are to be removed/repared as soon as noted for the safety of the general public and to control other forms of vandalism from occurring.
3. All vandalized signs are to be repaired or replaced to insure public safety and awareness.

INSPECTIONS:

1. Quarterly Operational Inspections:
 - a. List any discrepancies.
 - b. Review for action required.
 - c. Schedule necessary repairs.
2. Annual Maintenance Inspection:
 - a. List all needed maintenance and repairs.
 - b. Assign work orders for the noted repairs.
3. Formal Annual Inspection:
 - a. Inspect project to insure all maintenance and repairs are completed satisfactorily.
 - b. Complete annual inspection reports for file.
4. Major Storm Event:
 - a. Inspect project during or after every major storm event.
 - b. List any problems.
 - c. Record flow depths.
 - d. Schedule necessary repairs.
5. Citizen Complaints/Inquiries:
 - a. Investigate area of complaint.
 - b. Respond to citizen within 48 hours.
 - c. Take action if in-house/refer to proper agency, if not.

MEMORANDUM

Sverdrup Civil, Inc.

Date: August 7, 1998

TO: Laura Fritschi
Maricopa County Department of Transportation
2901 West Durango Street
Phoenix, Arizona 85009

FROM: Roger W. Miles, P.E.
Project Engineer
Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Estrella Parkway – BID Canal to North of Yuma Road
Unresolved Issues

The following is a list of unresolved issues and additional information needed to resolve comments on the 90% plans and for completion of the plans and specifications.

- MCDOT R/W is to provide right-of-way documentation for existing R/W at the BID Canal Bridge.
- MCDOT R/W is to initiate an easement to replace the existing RID easement in railroad right-of-way and a letter of agreement to have the City of Goodyear (COG) assume responsibility for the combined drainage and irrigation tailwater flows south of Elwood Street to the UPRR railroad tracks.
- COG is to obtain a letter of agreement from the property owner south of MC 85 and west of Estrella Parkway that states agreement with combining irrigation and drainage flows north of MC 85 that drain into a dirt ditch south of MC 85.
- MCDOT Traffic Division is to review guardrail documentation supplied by Sverdrup and make guardrail recommendations for BID Canal Bridge.
- MCDOT Traffic Division is to determine whether the 12 to 24-hour waiting period from AC pavement placement to pavement striping is necessary as stated in Section 451 of the Special Provisions.
- MCDOT Traffic Division modifications to Special Provision Section 401 to include temporary striping.
- COG will provide as-builts for water- service to the Wood Family houses on the SE corner of

Estrella Parkway and Lower Buckeye Road.

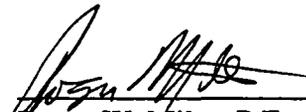
- MCDOT Traffic Division will supply pavement striping quantities, item numbers and descriptions.
- MCDOT R/W Division will provide a list of right-of-way agreements with property owners i.e. driveways etc.
- MCDOT will provide hazardous material removal specification (diesel fuel spill on the SW corner of Lower Buckeye Road and Estrella Parkway).
- MCDOT Traffic Division will provide traffic signal item numbers and descriptions.
- MCDOT Traffic Division will provide revised traffic signal plans.
- MCDOT Traffic Division will provide revised traffic striping plans.
- Traffic Division Comment # 13, "Payment item need to be added for Guardrail Markers". Are the guardrail markers to be shown on the striping sheet? Are they the reflector tabs shown in MCDOT Detail 2036? Please provide clarification and additional information.
- MCDOT will provide the Well Number for well south of Yuma Road, east of Estrella Parkway.
- COG will provide median landscaping irrigation sleeve locations.
- APS will supply median street light electrical conduit sleeve locations.
- COG comments raised the possibility of COG forces relocating existing trees and bushes (Sht. 23). Plans direct the contractor to do this work. Please resolve.
- COG comments mentioned relocation of any existing structure fronting the Woods property (Sht. 23). Plans direct the contractor to do this work. Please resolve.
- COG comments questioned the need to remove palm trees on Sht. 29. The palm trees identified on Sht. 29 to be removed are in conflict with the retention basin or the dirt irrigation ditch.
- The manhole called out to be adjusted on Sheet 29 is actually a COG monitoring well. COG will determine if the City would like to move this monitoring well, adjust it to grade in place, or grade the retention basin around the well in its existing location.
- COG questioned the location of the end of project on Lower Buckeye Road east of Estrella Parkway. Lower Buckeye Road does not extend east of Estrella Parkway except for a driveway and dirt farm road.
- COG suggested reflective pavement markers be added to Detail A on Sheet 97. Does the

City have a detail that shows where to place these pavement markers and what type markers to place? More information is required.

- COG had some comments on the traffic signal and striping plan sheets, which were hard to understand. Something about the P cabinet layout and conduit east of Estrella Parkway for Elwood Street and Lower Buckeye Road, and an 8' crosswalk. More information is needed.
- COG suggested that any unpaved shoulders be treated with dust suppressants. There are several options to consider. The options include 4" ABC, 4" of lime/fly ash stabilized native material, or apply a dust palliative as specified in MAG Standard Specification Section 792. The dust palliative material choices are asphalt base type (similar to a prime coat), petroleum resinous type, and lignin based types. More information is required.
- COG is to provide the median irrigation plans for Lower Buckeye Parkway west of Estrella Parkway.
- Status of right-of-way acquisition from MCDOT R/W so that the final plans can be updated.
- MCDOT will provide updated uniformed officer verbiage for Section 401 of the Special Provisions.
- MCDOT Operations Division is to determine whether the Contractor of MCDOT will stamp the new brass cap survey monuments with the appropriate elevation.

Please provide resolutions to the above issues at your earliest convenience or by August 14th so that the plans and specifications can be completed prior to our in-house QC effort, which we would like to begin on August 18th. Thanks for your help.

Signed:



Roger W. Miles, P.E.

Distribution: 013884-2B
Don Rerick – FCDMC
Bruce Ward – MCDOT
Larry Martinez - COG
BDO



 AVERY

**Bullard Wash Channel Improvements
Telecons**

<u>No.</u>	<u>Telecon with:</u>	<u>Date</u>
1	Barbara Rust - C&VL	Sept. 15, 1997
2	Gary Voogd - UPRR	Dec. 17, 1997
3	Ron Rayner - A Tumbling T	Jan. 12, 1998
4	Roy Watson - WAPA	Apr. 6, 1998
5	Tim Smith - Local Farmer	June 9, 1998
6	Tim Smith - Local Farmer	June 22, 1998
7	Pete Thomas - APS	June 24, 1998
8	Barbara Rust - C&VL	June 30, 1998

TELECON

Sverdrup Civil, Inc.

Date: September 15, 1997

TO: Project File

FROM: Bradford D. Olbert, P.E.
Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Sunchase Properties south of MC 85

SUMMARY:

Called Barbara Rust regarding surveys for the Sunchase property. She said that a title survey was prepared for Sun Holdings on 5/30/96. The survey was done by:

Brady Aulerich & Associates, Inc.
1030 E. Guadalupe Road
Tempe, Arizona
Phone 839-4000
Plan sheet was sealed by Christopher Aulerich

A copy of the plan sheet was sent to Sverdrup. Plan includes pins set along the R/W line with MC 85 and BID canal.

Signed:


Bradford D. Olbert, P.E.

Distribution: Don Rerick
Bruce Ward
John Rose
013884-2B

TELECON

Sverdrup Civil, Inc.

Date: December 17, 1997

TO: Gary Voogd
Union Pacific Railroad

FROM: Bradford D. Olbert, P.E.
Project Manager
Sverdrup Civil, Inc.

**SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
UPRR Bridge over Proposed Bullard Wash Channel**

SUMMARY:

Mr. Olbert contacted Mr. Voogd on December 12th concerning the design of a new railroad bridge over the proposed Bullard Wash Channel in Maricopa County, Arizona. Mr. Voogd had discussed the project earlier in the week with Don Rerick (Flood Control District of Maricopa County (FCDMC)) and received a copy of the schematic of the bridge site.

Mr. Voogd said that the railroad bridge over the proposed Bullard Wash Channel will need to use a special abutment to accommodate a "U" shaped channel section with a retaining wall adjacent to the abutment. The railroad can accommodate the channel shape but not with their standard abutment design. The special abutment would double the cost of the railroad structure because of additional pile bents and concrete.

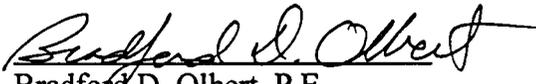
Mr. Voogd suggested that the railroad bridge standard span be lengthened to 34 feet to maintain an earth berm on the inside of the abutment. A 3-foot earth shelf is needed on the channel side of the pile cap with a 1:1 slope down to the channel bottom provided the channel is lined with concrete to cover the soil berm. Mr. Voogd provided a sketch (by Fax) of the basic dimensions of the bridge abutment utilizing the 34-foot span length with the berm (see attachment). The resultant channel will have a bottom width of 79 feet. The cost per foot for the bridge is approximately \$3800/LF.

The proposed at-grade crossing and the tailwater culvert, shown on the bridge site plan, will need to be addressed by Bob Prince. Mr. Voogd will only provide costs for the proposed bridge crossing. Removal of the two existing railroad bridges (tailwater bridge @ MP 887.39 and the bridge over existing Bullard Wash @ MP 887.76) should be a separate issue from the railroad bridge and can

be done at a later date (because their removal is not required for this project).

Mr. Olbert said that the removal of the existing railroad bridge in the future at MP 887.76 should be coordinated with the Maricopa County Department of Transportation (MCDOT). MCDOT will also need to remove their highway bridge over the existing Bullard Wash. The bridges need to be replaced with a small culvert (possibly a pipe culvert) to carry tailwater from the East Tributary under both the railroad and the highway.

Mr. Olbert confirmed the change in the proposed channel section and longer bridge with Mr. Rerick at the Flood Control District of Maricopa County (FCDMC). A follow-up message was left on Mr. Voogd's voice mail to proceed with the UPRR cost estimate using a ~~N~~2-foot long bridge with the earth berm as described above and shown on the attached sketch. ¹⁰² (220)

Signed: 
Bradford D. Olbert, P.E.

Distribution: Don Rerick - FCDMC
013884-2B

TELECON

Sverdrup Civil, Inc.

Date: January 12, 1997

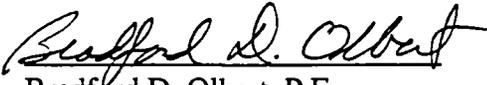
TO: Ron Rayner
A-Tumbling-T Ranches

FROM: Bradford D. Olbert, P.E.
Project Manager
Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Tailwater Discharge from East Local Tributary

SUMMARY:

Mr. Rayner returned Mr. Olbert's call on January 12th concerning the meeting date for the proposed Bullard Wash Channel. He will be able to attend the meeting in Goodyear on January 20th. Mr. Olbert asked Mr. Rayner if he knew what the tailwater flow rates were from both the East Local Tributary and the Bullard Wash tailwater ditch. Mr. Rayner said the maximum flow rates are in the range of 10 to 15 cfs. If pipe sizes of 30 to 36-inches are provided, it would be adequate for his needs. Mr. Rayner preferred a pipe size that would provide the tailwater flow but would also reduce the amount of storm water flow he receives. The storm water causes considerable damage to his facilities, so a smaller pipe would be better. Mr. Olbert said he would look at the 30 and 36-inch pipe size flow ranges and bring the information to the meeting next week. A pipe size can be selected at the meeting.

Signed: 
Bradford D. Olbert, P.E.

Distribution: Don Rerick - FCDMC
013884-2B

TELECON

Sverdrup Civil, Inc.

Date: April 6, 1998

TO: File

**FROM: Dan Stough, P.E.
Project Engineer
Sverdrup Civil, Inc.**

**SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
(Western Area Power Association OH Power Line Clearances)**

SUMMARY:

Mr. Stough contacted Roy Watson (Western Area Power Association, WAPA). Mr. Stough asked for clarification of the overhead power line clearances stated by Mr. Watson in a letter to John Palmeri.

Mr. Watson stated in the phone conversation that the minimum clearance is twenty-four feet (24') from wires to top of berm (the operation and maintenance road surface). The maximum height VEHICLE is 15' at any time. Extra caution should be used during summer months because of increased sag due to load and heat.

Mr. Watson also added that warning balls must be installed on the wires if the channel is to be inspected using helicopter or winged aircraft. The Operation and Maintenance guidelines will be written to include maximum heights on vehicles (not to exceed 15 feet) and that aircraft shall NOT be used to inspect the channel south of MC 85.

Signed:

Daniel E. Stough, P.E.

Distribution:

013884-2B

TELECON

Sverdrup Civil, Inc.

Date: June 9, 1998

TO: Tim Smith

FROM: Bradford D. Olbert, P.E.
Project Engineer
Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
60% Construction Plan Review by Tim Smith

SUMMARY:

Mr. Olbert contacted Tim Smith for his comments on the above plan set. The following are his comments:

1. Because of the way the fields drain, additional tailwater pipes will be needed at stations 107+50 and 116+00. The pipes should be 12 inches in diameter.
2. The tailwater pipe located at station 119+80 is shown as a 12-inch pipe. This is too small of a pipe diameter. The existing pipe is larger than 12 inches. The minimum pipe size should be 18 inches. Mr. Olbert said he will check the existing pipe size before resizing the pipe.
3. All other plan items were satisfactory.

Signed:


Bradford D. Olbert, P.E.

Distribution: Don Rerick, FCDMC
013884-2B

TELECON

Sverdrup Civil, Inc.

Date: June 22, 1998

TO: Tim Smith

FROM: Bradford D. Olbert, P.E.
Project Engineer
Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
60% Construction Plan Review by Tim Smith

SUMMARY:

Tim Smith contacted Mr. Olbert concerning the deletion of a tailwater pipe requested earlier (6/9/98) by Mr. Smith at station 116+50. Mr. Smith said that the Wood property has a low spot at that location. Mr. Olbert said that the new tailwater ditch would be located approximately 220 ft to the west of its current location. Because the ditch is further to the west the ground can be graded to drain to the north to the location of the proposed tailwater inlet. Mr. Smith said that the ground is higher to the west of the new channel and agreed that a tailwater ditch could be graded to the proposed tailwater inlet.

Signed:


Bradford D. Olbert, P.E.

Distribution: Don Rerick, FCDMC
013884-2B

TELECON

Sverdrup Civil, Inc.

Date: June 24, 1998

TO: Pete Thomas, APS
Transmission Maintenance Dept.
371-7156

FROM: Bradford D. Olbert, P.E.
Project Engineer
Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Fence Grounding under Transmission Towers

SUMMARY:

Mr. Olbert contacted Mr. Thomas about the grounding of fences and railings under the high voltage transmission lines. The following was discussed.

- In a situation such as Bullard Wash where there are three transmission lines crossing the channel adjacent to one another, APS would place a grounding rod 75 feet each side of the transmission corridor (not on each side of a transmission line) and possibly one more in the center of the three lines. For a single high voltage transmission line place a grounding rod 75 feet to each side of the line.
- He will send grounding details to Sverdrup that APS uses.

Signed:


Bradford D. Olbert, P.E.

Distribution: Don Rerick, FCDMC
013884-2B

TELECON

Sverdrup Civil, Inc.

Date: June 30, 1998

TO: Barbara Rust
Coe & Van Loo Consultants, Inc.

FROM: Bradford D. Olbert, P.E.
Project Engineer
Sverdrup Civil, Inc.

SUBJECT: Contract FCD 95-39
Flood Control District of Maricopa County
Bullard Wash Channel Improvements - Final Design
Broadway Road Access through Bullard Wash

SUMMARY:

Mr. Olbert contacted Ms. Rust concerning the Broadway Road access through Bullard Wash. The following was discussed.

- During construction of the channel, there will be periods of time that access through the channel at Broadway Road will be restricted. The specification will be clear that the contractor will need to coordinate with Mr. Rayner to schedule the closures.
- The contractor will be required to maintain the irrigation system through the construction site for the duration of the work.
- Ms. Rust said that everyone always assumed that some closure would be necessary but she will contact Mr. Rayner and inform him of the possible closures and the coordination with the contractor on the timing and duration of the closures.

Signed:


Bradford D. Olbert, P.E.

Distribution: Don Rerick, FCDMC
013884-2B