



COUNTY OF ORANGE
PUBLIC FACILITIES & RESOURCES DEPARTMENT

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MCAS EL TORO
SSIC #5090.3

May 3, 2001

Mr. Dean Gould, BRAC Environmental Coordinator
Department of the Navy, Southwest Division
Naval Facilities Engineering Command
1290 Pacific Highway
San Diego, CA 92132-5190

Subject: Remedial Design, Operable Unit 2, Landfill Sites 2 and 17
Marine Corps Air Station, El Toro, California – 30% Submittal

Dear Mr. Gould:

The County of Orange Public Facilities and Resources Department extends our thanks to you for the opportunity to review and comment upon the 30% submittal of the subject remedial design for Landfill Sites 2 and 17.

As you are aware, we are preparing an environmental analysis and associated engineering documents to construct the Alton Parkway roadway, from its current terminus at Irvine Boulevard, to Commercenter Drive. The proposed roadway is to be situated between our Musick Correctional Facility and the Borrego Canyon Wash, which is adjacent to Landfill Site 2.

Our detailed comments on the subject 30% document are primarily concerned with ensuring that the landfill closure design and post-closure monitoring by the DON are complementary to and will accommodate our proposed roadway.

This includes, among other things, ensuring that ground waters, should they extend beneath our proposed roadway facilities, be treated and/or remedied to the level consistent with our proposed use, and that the Landfill Site 2 closure be designed to remain fully enclosed and contained should Borrego Canyon Wash experience 100 year flood flows, with the nearby roadway in place.

We have included our detailed comments herein as "Attachment A", and have identified within that attachment from which County Division the comments originated. However, for ease of coordination, please have staff direct all inquiries and questions to Mr. Eric Mimoso, at (714) 834-3084.

**Remedial Design, Landfill Sites 2 & 17, MCAS, El Toro, California – 30% Submittal,
Page 2**

Thank you again for the opportunity to comment upon the subject 30% Remedial Design document.

Very truly yours,



Kenneth R. Smith
Deputy Director/Chief Engineer
Public Facilities & Resources Department

Attachment: Attachment A, detailed comments on the 30% Submittal Remedial Design Landfill Site 2 & 17, including comments contained directly onto sheets within the 30% document

5-04-01 Letter to DON – Landfill Sites 2 & 17.doc

cc:

Gary Simon, Executive Director, MCAS El Toro Redevelopment Authority (w/ Attachment A)
Vicki L. Wilson, Director, PFRD
Eric Mimoso, PFRD/Program Development-Road Programs (w/ Attachment A)
Ted Rigoni, PFRD/Design-Road Design (w/ Attachment A)

Attachment A**Orange County Public Facilities & Resources Department Comments on the
30% Submittal of the Remedial Design Operable Unit 2B, Landfill Sites 2 and 17,****MCAS El Toro, California****May 2, 2001**PFRD – Design/Road Design Comments

- 1) On Page 1-4, the 4th paragraph identifies that the predominant flow direction is away from the proposed Alton Parkway roadway. Does this statement mean that no ground waters are expected to flow in the direction of the roadway? If not, should remediation and control activities by the DON be necessary for any ground water contamination, any such activities must allow for and accommodate the County's proposed roadway.
- 2) On Page 1-7, the 3rd paragraph notes that the final remedy for ground water at Site #2 is to be selected and documented in the final ROD, following completion of supplemental ground water investigations. The schedule shown on Page 1-5, however, makes no reference to the proposed date or duration for preparation of the final ROD. Please identify the proposed dates associated with this document.
- 3) On Page 1-8, within the 1st paragraph, please identify the proposed date where upon the transfer of Site 2 from the DON to the FAA is to occur.
- 4) On Page 1-8, the last paragraph acknowledges the County's intent to proceed with construction of the Alton Parkway roadway. There is no mention, however, of the DON's intent or need to provide for a remedied Site 2 landfill and cover that is complementary to and accommodates future roadway and channel improvements. Meaning, the landfill cover needs to accommodate any Borrego Canyon Wash improvements and the expected 100-year wash flows. Please ensure text to this effect is added.
- 5) On Page 2-2, the 1st bullet item identifies that surficial waste at Area D2 is to be removed and consolidated within the operational landfill areas (Area A and Area B). Area D2 is directly adjacent to the proposed Alton roadway alignment, and may be within the proposed roadway-grading zone of influence, or Borrego Canyon Wash improvements. Any grading activities within Area D2 must be done so that work for the proposed roadway and Wash construction can occur without supplemental remediation grading measures.
- 6) On Page 2-2, Section 2.2.1, "Chemical – Specific ARARs", identifies that "...remedial action for groundwater at Site 2 will be addressed in a separate ROD." Please note that the County's proposed roadway includes sidewalks and a bike trail, thus pedestrian use will be made of the Alton Parkway roadway. Any contaminated ground waters from Site 2 that are within the roadway zone must be remedied consistent with the County's intended use for this roadway facility.
- 7) On Page 2-3, Table 2-1, "Chemical – Specific ARARs for Remedial Action at Sites 2 and 17," identifies that landfill gas is below regulatory limits at Site 2, and that no landfill gas recovery system is required. However, text also notes that further evaluation is being performed at Site 2, and that soil gas probes will be monitored during construction and the post-closure maintenance period. Please identify that the control period must continue for

**Orange County Public Facilities & Resources Department Comments on the
30% Submittal of the Remedial Design, Landfill Sites 2 and 17, MCAS El Toro, California
Page 2**

- a period of 30 years, and state the party who will be responsible for the control (costs, maintenance, record keeping, etc.).
- 8) On Page 2-4, within Table 2-2, "Location – Specific ARARs for Remedial Action at Sites 2 and 17," please identify the Site 2 landfill cover system must be designed to avoid any adverse effects to Borrego Canyon Wash and the roadway fill adjacent to the Wash.
 - 9) Also within Table 2-2 on Page 2-4, reference is made to a section 7 consultation for any Federally threatened species, including gnatcatchers within the Site 2 landfill area. We ask to be provided an opportunity to review/comment on any of the monitoring, reporting and mitigation requirements insofar as they impact Borrego Canyon Wash and/or our proposed roadway grading impact area.
 - 10) On Page 2-5, within Table 2-2, we ask to be allowed an opportunity to review/ comment on any evaluations or recommendations made to allow the coastal sage scrub to "reinvade" the landfill cover system within Site 2 (specifically Areas D2 and B), insofar as these impact the proposed Borrego Canyon Wash and roadway improvements.
 - 11) On Page 2-6, Table 2-3, "Action – Specific ARARs for Remedial Action at sites 2 and 17," states that a foundation layer is to be designed for units where waste is to remain in place. If any wastes are to remain in place within the Borrego Canyon Wash or the proposed roadway template, please provide the County an opportunity to review/ comment on any subsequent geotechnical investigations, specifications for the design and installation of the foundation layer, and any post closure operations and maintenance procedures, etc.
 - 12) On Page 2-6, also within Table 2-3, please provide the County an opportunity to review/comment on any resource agency permits, conditions, regulations or requirements insofar as they impact the Borrego Canyon Wash or proposed roadway template.
 - 13) On Page 2-6, Table 2-3, please provide the County an opportunity to review/ comment on the erosion control plan, diversion and drainage facilities, post-closure BMP's, etc., insofar as they impact the Wash and the proposed roadway facilities. Specifically, the closed landfill grading design should include dust control and emission control requirements, etc.
 - 14) On Page 2-8, Table 2-3, the referenced locked and gated perimeter fence enclosure is to be provided for, owned and maintained by whom and for how long?
 - 15) On Page 2-8, Table 2-3, post-closure land uses in the vicinity of Site No. 2 include the roadway, local and regional drainage and bike trail facilities. Please ensure the landfill closure process acknowledges and approves these general land uses.
 - 16) On Page 2-8, Table 2-3, please ensure the landfill cover system and any Wash improvements are constructed to withstand 100 year flows as determined by the County's 100 year Q (cfs) as provided elsewhere within this Attachment A, and per the Orange County Hydrology Manual.

**Orange County Public Facilities & Resources Department Comments on the
30% Submittal of the Remedial Design, Landfill Sites 2 and 17, MCAS El Toro, California
Page 3**

- 17) For section 2.3, "Biological Assessment," please see previous comment No. 9 regarding review of threatened species.
- 18) On Page 2-10, Section 2-10, "Civil Design," please incorporate any Radiological Assessment recommendations subsequently developed as part of the final ROD process into the design of the landfill cover system.
- 19) On Page 2-13, within Section 2.5.5, "Surface Water Drainage," please ensure that any hydraulic or hydrology analyses include the proposed roadway grading (fill) template within the analysis.

PFRD – Program Development/Hydrology

- 1) Section B 2.2 on Page B 2-1 of Attachment B to the subject report indicates that the 100-year peak discharge (from the Flood Control Master Plan for San Diego Creek prepared by John M. Tettemer and Associates in April 1989) "at the confluence of the tributaries is 4,976 cfs." This is the 100-year peak discharge from the referenced master plan. However, another hydrology report on file prepared by Robert Bein, William Frost & Associates entitled "Borrego Canyon Wash Hydrology at Alton Parkway (dated November 1988) developed a slightly higher 100-year peak discharge of 5,268 cfs at the confluence of the two tributaries. Please use 5,268 cfs as the discharge at the confluence of Borrego Wash and San Diego Creek.
- 2) Section B 2-2 on Page B 2-1 of Attachment B to the subject report indicates that "the HEC-RAS analysis conducted as a part of the feasibility study appears to have used 2,000 cfs for the northern tributary, 3,000 cfs for the eastern tributary, and subsequently, 5,000 cfs for the flow through Borrego Canyon Wash." This section also states that "an independent analysis of the hydrology for the area was completed by Earth Tech, and results matched those predicted in the feasibility study report." Neither the method used to apportion flow for the tributaries nor Earth Tech's independent analysis was submitted for review. Since the peak discharges for each tributary would be calculated for (smaller watershed areas) using different depth-area reduction factors than that used for the peak discharge at the confluence, it is highly improbable that the peak discharge at the confluence would simply be the sum of the peak discharges from the tributaries. The peak discharge calculations for each tributary should be accomplished and submitted for review and approval.
- 3) It is recommended that confluence hydraulic calculations be accomplished using the following range of flow combinations: (a) peak discharge of 5,268 cfs downstream of the confluence, peak discharge for the northern tributary, and coincident discharge (5,268 cfs – peak discharge for the northern tributary) for the eastern tributary; and (b) peak discharge of 5,268 cfs downstream of the confluence, peak discharge for the eastern tributary, and coincident discharge (5,268 cfs – peak discharge for the eastern tributary) for the northern tributary.
- 4) On Page 2-14, Section 2.5.5.1, "Hydrologic Analysis," the U.S. Corps of Engineers Criteria for riprap design should be used rather than Caltrans' Design Guide.

**Orange County Public Facilities & Resources Department Comments on the
30% Submittal of the Remedial Design, Landfill Sites 2 and 17, MCAS El Toro, California
Page 4**

- 5) On Page 2-14, Section 2.5.5.2, "Hydraulic Analysis," Borrego Canyon Wash has been analyzed assuming a fixed boundary. However, the existing channel has shown evidence of degradation, scour and bank erosion. The HEC-RAS analysis appears inadequate for developing a plan to protect the landfill. A detailed sedimentation study should be performed which reflects the actual field conditions. Further, the HEC-RAS study presented in Appendix B is inadequate for design purposes. The HEC-RAS analysis should be performed/revised to include the Alton Parkway Roadway fill as shown on the preliminary plans prepared in 1992 by RBF Associates.
- 6) Additional comments on Attachment B, "HEC-RAS Analysis," are as follows:
- The electronic data file of the HEC-RAS computation along with a report of all warning and error messages was not provided. Consequently, a thorough review of the analysis was not possible.
 - The report states that a Manning's "n-value" was assumed to be 0.025 for the channel bottom and 0.035 for the banks. The frictional losses along moveable sand bed streams like Borrego Canyon Wash are known to vary based upon hydraulic flow conditions. A sensitivity analysis is recommended where Manning's n-value is varied. In the absence of more detailed channel roughness investigations, the Orange County Flood Control Design Manual's recommendations of 0.020 as the lower limit and 0.030 as the high limit of n-value should be used.
 - Information regarding the confluence analysis was not provided. Given the 40/60-flow distribution assumed in the analysis and the angle of entry of the tributary, a momentum-based analysis is more appropriate.
 - The HEC-RAS output table submitted indicates that all 3 Study Reaches are predicted to be very unstable (Froude Number close to unity). The Orange County Flood Control Design Manual classifies flow conditions as being unstable when Froude Number ranges between 0.9 and 1.2. Unstable flow conditions cause unpredictable results from those calculated.

PFRD – Construction/Materials Laboratory

The selected remedy for sites 2 and 17 as stated in the report are:

- Onsite waste consolidation
- A single-layer, minimum 4-foot-thick monolithic soil cover to prevent contact with landfill materials and to reduce infiltration into waste;
- Erosion control features to control surface water flow and protect integrity of the cover system;
- Fencing, signs, and gates with locks to restrict access;
- Land-use restrictions to protect the landfill cover system, restrict irrigation, and prevent groundwater at Site 2;

**Orange County Public Facilities & Resources Department Comments on the
30% Submittal of the Remedial Design, Landfill Sites 2 and 17, MCAS El Toro, California
Page 5**

- Natural resource/habitat mitigation measures coordinated with the U.S. Fish and Wildlife Service (USFWS);
- Monitoring of soil gas and leachate to detect possible migration of contaminants from both sites;
- Periodic inspection of the cover system, drainage features, settlement monuments, and security features to assure the integrity of the landfill cover system and access controls; and
- Periodic reviews (at least every 5 years) to evaluate the monitoring results and verify that the action remains protective of human health and the environment.

General Comments:

- 1) The selected remedy for the landfill sites identifies a significant amount of future actions. How these actions are to be initiated and by whom is critical to their success. Who will determine what action is appropriate and who will have the authority to take action? The report needs to be specific as to post-closure activities, and how any modifications or revisions to those activities are handled.
- 2) Does the long-term maintenance and monitoring setup anticipate changes in regulations? For example, periodic reviews are required to verify that the action "remains" protective of human health and the environment at that time.
- 3) Page 1-4, 1st paragraph states that the site is in the "Irvine Groundwater Forebay". Is some form of barrier needed at this location?
- 4) Page 1-4 also states that groundwater below the landfill was not fully addressed. Whether or not groundwater flows through this site must be determined. Most likely it does in some form, which leaves an opening for future problems. Additionally, Page 1-5 should be renamed, as it is the project schedule not the true "Remedial Action Schedule".
- 5) Page 2-13 indicates trapezoidal reinforced shotcrete channels are recommended. It is doubtful that a standard plan channel would minimize infiltration. It could also easily be assumed that these channels could carry excessive contaminants to regional watercourses.
- 6) Page 2-14 suggests the use of the Caltrans method for channel riprap sizing. Please use the US Army Corps method. A filter layer should also be required in this application.
- 7) Page 2-15 specifies that the landfill security system be maintained throughout the post-closure maintenance period. Where is the responsibility for the post-closure maintenance period defined?
- 8) Page 2-15 states a gas collection system may be required. Who is responsible for determining if a system is needed, building the system and operating it?

**Orange County Public Facilities & Resources Department Comments on the
30% Submittal of the Remedial Design, Landfill Sites 2 and 17, MCAS El Toro, California
Page 6**

Plan Comments

- 1) Plan sheet 6 does not have the referenced riprap detail. Please provide.

Geotechnical Engineering Comments

- 1) Table A 1-1 shows that the ground water is 10-24 feet deep at Site 2 with bedrock depth at 60+ feet; this seems to indicate that sealing the surface may not solve the problem, if groundwater contamination is a problem.
- 2) Figure A 4-2 shows a fault running through the landfill sites. This fault should not be crossed with the assumption that a landfill cover of 4 feet of earth will stop migration of any contamination within the landfills. This fault (land feature) will likely cause site contamination issues to be raised again in the future.
- 3) The Geotechnical report seems to be very detailed and complete. We do see seismic issues being a major concern, as there does not appear to be a prohibition for structures to be placed on the fill in the future.

Findings/Conclusions/Recommendations

We do not believe it appropriate to assume that ground water only 10 feet down is not a problem with respect to contamination. The recent measurement in the geotechnical report does not reflect the historical fluctuations with ground water in the "Tustin Plain" resulting from the drought of the last three to four years. Development of the watershed will also increase the supply of water to the upper water tables (many of which are perched water) bringing them closer to the surface.

Second, the presence of a fault, even though no longer active, represents a discontinuity through which water can travel both upwards and downwards within the soil medium.

Third, we believe channel riprap and four feet of cover on the top of the landfill area are inadequate long-term measures.

It is our opinion that the landfill should be encased with an impermeable membrane or surrounded a continuous grout curtain deep enough to prevent migration of ground waters and covered with an impermeable membrane to prevent water penetration from the surface.

Also attached to this transmittal is a copy of a letter dated April 2, 2001, from Hunsaker & Associates, with comments for consideration on the Landfill Site 2 Closure Plan.

All questions on these comments should be directed through Eric Mimoso, Senior Civil Engineer at (714) 834-3084.

Attachment: 4/2/01 Hunsaker & Associates letter



HUNSAKER & ASSOCIATES

IRVINE, INC.

PLANNING
ENGINEERING
SURVEYING
GOVERNMENT RELATIONS

IRVINE
RIVERSIDE
SAN DIEGO

April 2, 2001

Mr. Eric Mimoso
COUNTY OF ORANGE
P.O. Box 4048
Santa Ana, CA 92702

Subject: **30% Review – Landfill Site 2
Marine Corps Air Station, El Toro, CA**

Dear Mr. Spindler:

Per your request, our office has reviewed a 30% submittal for remedial design of Landfill Site 2 on Marine Corps Air Station, El Toro, California. Our comments are summarized as follows:

FOUNDING PARTNERS:

RICHARD HUNSAKER
TOM R. MCGANNON
JOHN A. MICHLER
DOUGLAS G. SNYDER

PRINCIPALS:

DAVID FRATTONI
FRED GRAYLEE
BRADLEY HAY
PAUL HUDDLESTON
KAMAL H. KARAM
DOUGLAS L. STALEY
JACK TARR
KRIS WEBER
JOSEPH E. WIGHTMAN

1. Provide detail(s) for proposed slope along Magazine Road.
2. Surface sheet flow is presently directed toward the tops of the proposed slopes. Provide a means to prevent water from going over the top of slope.
3. Show all existing and proposed ground water monitoring wells and gas wells on grading plans.
4. Show all appropriate Orange County grading notes on plan.
5. Provide hydrology calculations in the County of Orange format contained in the Orange County hydrology manual.
6. Provide documentation from reference hydrology reports.
7. Address opposite bank erosion of the streams in the next submittal.
8. The mannings "n" values used in the HEC-RAS analysis should be consistent with the Orange County hydraulic design manual.
9. Provide appropriate sizing of the slope protection based upon velocities determined by the HEC-RAS analysis.
10. The trapezoidal channel that directs the offsite runoff to the west does not have any freeboard. Resize this channel and document peak discharges and locations used for sizing all channels and v-ditches.

Three Hughes
Irvine, California
92618-2021
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Mr. Gene Spindler
SHEA BUSINESS PROPERTIES
April 2, 2001
Page 2

11. In the next submittal, provide plans incorporating the recommendations contained in the report; i.e. slope protection details, berm diversion, details for all channels to be constructed.
12. Address all additional comments in the report and on the plans.

A more detailed review of the plan will be provided when a more complete set of plans and report is submitted.

Please call me at (949) 768-2560 if you have any questions.

Sincerely,

HUNSAKER & ASSOCIATES IRVINE, INC.

A handwritten signature in black ink, appearing to read 'Jack Tarr', written over a vertical line that extends from the company name above.

Jack Tarr
Principal

JT:wp
xc: Gene Spindler, Shea Properties
W.O. 789-20
(f:\c\wo\789\20 L1-jt.doc)



**County of Orange
Transportation Programs
Traffic Engineering
Special Districts**

300 N. Flower Street
Santa Ana, CA 92702

Fax

Mr. Dean Gould
BRAC Environmental Coordinator

To: Department of the Navy **From:** Mr. Eric Mimoso

Fax: (619) 532-0780 **Pages:** 11

Phone: **Date:** May 3, 2001

Re: **CC:**

- Urgent For Review Please Comment Please Reply Please Recycle
-

● **Comments:**

Comments on Landfill Sites 2 and 17 Remedial Design.
Original letter and comments made directly on the
plan itself to follow by U.S. Mail. Call Eric Mimoso
at (714) 834-3084 with any questions.

If you have problems please call (714) 834-3483.