COMMENTS RECEIVED DURING THE EARLY CONSULTATION REVIEW

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Office Memorandum
County of Kern

To: Planning Department
Michael Hollier

Date: September 10, 2007

From: Engineering & Survey Services
Floodplain Management Section
Aaron Leicht, by Alejandro Gonzaga

Phone: 862-5093

Subject: File #5434 MDH 04-07, GPA 2, ZCC 6, Taft Corporation

Map No. 71

Our Section has reviewed the attached subject documents and has the following comments:

The runoff of storm water from the site will be increased due to the increase in impervious surface generated by the proposed development.

The subject property is subject to flooding from Ridgecrest Hills.

Therefore, the following conditions will be included with the Conditions of Approval recommended by the Floodplain Management Section at the Tentative Map stage.

The applicant shall provide a plan for the disposal of drainage waters originating on site and from adjacent road right-of-ways (if required), subject to approval of the Engineering and Survey Services Department, per the Kern County Subdivision Standards.

Associated flood hazard requirements will need to be incorporated into the design of this project per the Kern County Floodplain Management Ordinance.

ENVIRONMENTAL HEALTH SERVICES DEPARTMENT
KERN COUNTY RESOURCE MANAGEMENT AGENCY

INTEROFFICE MEMORANDUM

MATTHEW CONSTANTINE
DIRECTOR

To: Michael Hollier

Date: September 24, 2007

From: Amy Lennon, EHS

Subject: Environmental Consultation for GPA 2, ZC 6, Map 71

The Kern County Environmental Health Services Department has reviewed the Early Consultation for the above referenced project. This Department has the local regulatory authority to enforce state regulations and local codes as they relate to waste discharge, water supply requirements, and other items that may affect the health and safety of the public or that may be detrimental to the environment.

The design of the project or the type of improvement is not likely to cause serious public health problems; therefore, this Department has no comments or recommendations and does not wish to impose any conditions on the subject lot line adjustment.

Kern County Planning Department
Attn: Michael Hollier, Planner 1
2700 M Street, Suite 100
Bakersfield, California 93301

August 31, 2007

Telephone: (661) 862-8787
FAX: (661) 862-8601

RESPONSIBLE AGENCY REVIEW

PURPOSE: The purpose of this form is to aid responsible agencies, trustee agencies, and agencies or individuals with a particular expertise in reviewing the described project. This preliminary analysis will aid us in determining whether the effects of the project will require preparation of an environmental impact report (EIR) or a Negative Declaration. If any of the effects of a project may have a substantial adverse effect on the environment, then an EIR must be prepared, unless mitigation measures to modify the project are proposed and agreed to by the applicant (Section 21080, Public Resources Code). **Pursuant to Section 21081.6, Public Resources Code, any mitigation measure shall be monitored by a program to ensure compliance. Should your agency recommend a mitigation measure, this Department requests you include a monitoring program to ensure implementation.**

INSTRUCTIONS: **Based upon your area of expertise and concern, please evaluate environmental impacts of the project.** Section 21080(c), Public Resources Code, requires that a request for an EIR contain substantial evidence in the record to show significant effect; therefore, the reasons for such a recommendation need to be justified by separate documentation. Please complete the following and return this page.

Check One

☐ **EIR**

☐ **Negative Declaration**

☒ **Mitigated Negative Declaration**

Date: 9.14.07

Reviewing Agency:
ROADS DEPT.

Contact:
WARREN MAXWELL

* SEE ATT. *

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Please reply by September 21, 2007

PROPOSED PROJECT: 5434 MDH 04-07; (1) General Plan Amendment No. 2, Map No. 71; and (2) Zone Change Case No. 6, Map No. 71 (Taft Corporation [PP08209])

LOCATION: Approximately 1/8 mile south of Springer Avenue, and 1/4 mile east of Downs Street, in the unincorporated area south of the city of Ridgecrest; being a portion of the E/2 of the NW/4 of Section 16, T27 S, R40 E, MDB&M, County of Kern, State of California

PROJECT DESCRIPTION: a) An amendment to the Kern County General Plan from map code designation 5.6 (Residential – Minimum 2 1/2 Gross Acres per Dwelling Unit) and 5.6/2.5 (Residential – Minimum 2 1/2 Gross Acres per Dwelling Unit/Flood Hazard) to 5.4 (Residential – Maximum 4 Dwelling Units per Gross Acre, or a more restrictive designation; and (b) A change in zone classification from E (20) (Estate – 20 acres) to E (1/4) (Estate – 1/4 acre), or a more restrictive district, to facilitate the construction of 125 single-family residences on 40.63 acres. As proposed, domestic water supply and sewage disposal would be by Indian Wells Valley Water District and City of Ridgecrest Sanitation District, respectively. Access to the site is proposed off West Kendall Avenue via College Heights Boulevard, which are designated as "Local Street" and "Arterial/Major Highway" alignments, respectively, by the Circulation Element of the Kern County General Plan. The purpose of the 5.4 map code is to accommodate urban single-family development on lots with a minimum average size of 1/4 net acre. The purpose of the 2.5 physical constraint map code is to designate special flood hazard areas as identified on the Flood Insurance Rate Maps (FIRM) of the Federal Emergency Management Agency (FEMA) and supplemented by floodplain delineating maps that have been approved by the Kern County Engineering and Survey Services Department. The purpose of the E (1/4) District is to designate areas suitable for larger lot residential living environments. More information on uses allowed in the E (1/4) District can be found online at: http://www.co.kern.ca.us/planning/pdfs/zo/zotoc.pdf.

COUNTY OF KERN
RESOURCE MANAGEMENT AGENCY
ROADS DEPARTMENT
Office Memorandum

To: Ted James, Director
Planning Department
Attn: Michael Hollier, Planner 1

September 11, 2007

From: Patricia J. Ebel, Transportation Development Engineer
Roads Department

Subject: 7-8.5c General Plan Amendment #2, Map 71
7-5.2 Zone Change Case #6, Map 71
(Southwest of Norma Street and Springer Avenue, Ridgecrest)

This Department has reviewed the subject project and recommends the following **off-site** requirements:

1. Record a public access easement of all subject off-site property for Norma Street, 60 feet in width, from the project boundary to Springer Avenue, per the Kern County Land Division Ordinance and Development Standards.

2. Record a public access easement of all subject off-site property for Springer Avenue, 60 feet in width, from Norma Street to the nearest paved publicly maintained road, per the Kern County Land Division Ordinance and Development Standards.

3. Under street improvement plans approved by the Kern County Engineering and Survey Services Department and Roads Department, construct the off-site portion of Norma Street from the project boundary to Springer Avenue to Type A Subdivision Standards, secondary highway as noted below, in accordance with the Kern County Development Standards and Land Division Ordinance. These improvements will be two twelve-foot asphalt concrete lanes, eight-foot graded shoulders, and the necessary transitions.

4. Under street improvement plans approved by the Kern County Engineering and Survey Services Department and Roads Department, construct the off-site portion of Springer Avenue from Norma Street to the nearest paved publicly maintained road to Type A Subdivision Standards, secondary highway as noted below, in accordance with the Kern County Development Standards and Land Division Ordinance. These improvements will be two twelve-foot asphalt concrete lanes, eight-foot graded shoulders, and the necessary transitions.

Thank you for the opportunity to comment on this project. If you have any questions or comment, please contact Warren Maxwell of this Department.

COUNTY OF KERN
RESOURCE MANAGEMENT AGENCY
ROADS DEPARTMENT
Office Memorandum

To: Ted James, Director
Planning Department
Attn: Holly Nelson, Supervising Planner

May 9, 2007

From: Patricia J. Ebel, Transportation Development Engineer
Roads Department

Subject: 7-4.4 TTM 6731, Zone Map 71-16

This Department has reviewed the traffic impact study, prepared by Minagar and Associates with a revised date of April 25, 2007, and concurs with its findings. A long with this memo is a copy of the approved study for your files.

This project will contribute 2.24% share to a traffic signal at the intersection of Bowman Road and China Lake Blvd. Based on a cost of $160,000 per signal from the City of Ridgecrest Developer Cost and Fee Study dated 2/01/06. This projects proportionate share toward this signal is $3,584.00 and is due prior to the recordation of this tract map.

Thank you for the opportunity to comment on this project, if you have any questions or comments please contact Brian Blacklock of this Department.

Kern County Planning Department
Attn: Michael Hollier, Planner 1
2700 M Street, Suite 100
Bakersfield, California 93301

August 31, 2007

Telephone: (661) 862-8787
FAX: (661) 862-8601

RESPONSIBLE AGENCY REVIEW

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Check One

☒ **EIR**

Date: 9-21-07

☐ **Negative Declaration**

Reviewing Agency:
City of Ridgecrest

Contact:
Matthew Alexander

☐ **Mitigated Negative Declaration**

Technical reports will not be redistributed

Please reply by September 21, 2007

PROPOSED PROJECT: 5434 MDH 04-07; (1) General Plan Amendment No. 2, Map No. 71; and (2) Zone Change Case No. 6, Map No. (Taft Corporation [PP08209])

LOCATION: Approximately 1/8 mile south of Springer Avenue, and 1/4 mile east of Downs Street, in the unincorporated area south of the City of Ridgecrest; being a portion of the E/2 of the NW/4 of Section 16, T27 S, R40 E, MDB&M, County of Kern, State of California

PROJECT DESCRIPTION: a) An amendment to the Kern County General Plan from map code designation 5.6 (Residential – Minimum 1/2 Gross Acres per Dwelling Unit) and 5.6/2.5 (Residential – Minimum 2 1/2 Gross Acres per Dwelling Unit/Flood Hazard) to 5.4 (Residential – Maximum 4 Dwelling Units per Gross Acre, or a more restrictive designation; and (b) A change in zone classification from E (20) (Estate – 20 acres) to E (1/4) (Estate – 1/4 acre), or a more restrictive district, to facilitate the construction of 125 single-family residences on 40.63 acres. As proposed, domestic water supply and sewage disposal would be by Indian Wells Valley Water District and City of Ridgecrest Sanitation District, respectively. Access to the site is proposed off West Kendall Avenue via College Heights Boulevard, which are designated as "Local Street" and "Arterial/Major Highway" alignments, respectively, by the Circulation Element of the Kern County General Plan. The purpose of the 5.4 map code is to accommodate urban single-family development on lots with a minimum average size of 1/4 net acre. The purpose of the 2.5 physical constraint map code is to designate special flood hazard areas as identified on the Flood Insurance Rate Maps (FIRM) of the Federal Emergency Management Agency (FEMA) and supplemented by floodplain delineating maps that have been approved by the Kern County Engineering and Survey Services Department. The purpose of the E (1/4) District is to designate areas suitable for larger lot residential living environments. More information on uses allowed in the E (1/4) District can be found online at: http://www.co.kern.ca.us/planning/pdfs/zo/zotoc.pdf.

See attached letter

www.ci.ridgecrest.ca.us

City of Ridgecrest

Planning Development
110 West California Ave.
Ridgecrest, CA 93555
(760) 499-5060 FAX (760) 499-1580

September 21, 2007

Kern County Planning Department (Fax) (661) 862-8601
Michael Hollier, Planner 1
2700 M. Street, Suite 100
Bakersfield, CA 93301

RE: Responsible Agency Review – County Project- 5434 MDH 04-07; GPA No.2, Map 71 and ZC No.6 Map 71 (Taft Corporation PP08209)

In the absence of an Environmental Assessment, Staff has reviewed the potential environmental impacts of the above mentioned project and recommends an EIR for the project for the following reasons:

1. Circulation – The project is surrounded by existing dirt roads. Staff is concerned about the traffic impacts 125 new homes will have on city streets.

2. City Services – Although the project is in the County, it boarders the City Limits on two sides. Will the city have to eventually provide public services to this community such as fire, police, schools, parks?

3. Tract Design – Staff feels a street design consisting of 7 cul-de-sacs is a poor design. ¼ acres lots do not appear to create a desirable buffer between rural 2 ½ acre lots on the North and West side of the proposed tract.

4. Drainage – Staff is concerned that a density of ¼ acre lots in this area of flood hazard would create problems downstream. The tract design does not provide for any on-site retention.

If you have any questions, please do not hesitate to contact me at (760) 499-5063.

Sincerely,

Matthew Alexander

Matthew Alexander
City Planner
City of Ridgecrest - Planning Department
100 West California Ave.
Ridgecrest, CA 93555-4054
760 499-5063 **malexander@ci.ridgecrest.ca.us**

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

FACSIMILE COVER

ADM-0172 (REV 2/97)

ATTENTION: Michael Hollier	FROM: CalTrans D. 9 Planning
UNIT / COMPANY: Kern County Planning	NAME OF SENDER: Gayle Rosander
	DATE: 9/11/07 — TOTAL PAGES (Including cover sheet): 2
	FAX NO. (Include area code): 760-872-0754 — CALNET / ATSS FAX:
DISTRICT / CITY: Bakersfield	PHONE NO. (Include area code): 760-872-0785 — CALNET / ATSS:
PHONE NO. (Include area code): 661-862-8787 — FAX No. (Include area code): 661-862-8601	ORIGINAL(S) DISPOSITION: ☐ DESTROY ☐ RETURN ☐ CALL FOR PICK-UP

COMMENT: Re: GPA 2 Map 71 ZC 6 Map 71
Taft TTM 6731

Our Responsible Agency Review form follows.

Regards,
Gayle

Kern County Planning Department
Attn: Michael Hollier, Planner I
2700 M Street, Suite 100
Bakersfield, California 93301

Telephone: (661) 862-8787
FAX: (661) 862-8601

August 31, 2007

RESPONSIBLE AGENCY REVIEW

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Check One

☐ **EIR**

Date: 9/11/07

Reviewing Agency:

☐ **Negative Declaration**

Caltrans D-9

Contact:

☒ **Mitigated Negative Declaration**

Gayle Rosander 760-872-0785

Collection of traffic impact fees to mitigate cumulative impacts to state and local roadways.

Technical reports will not be redistributed

Please reply by September 21, 2007

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California Regional Water Quality Control Board
Lahontan Region

Linda S. Adams
Secretary for
Environmental Protection

Victorville Office
14440 Civic Drive, Suite 200, Victorville, California 92392
Phone (760) 241-6583 • FAX (760) 241-7308
http://www.waterboards.ca.gov/lahontan

Arnold Schwarzenegger
Governor

September 20, 2007

File: Environmental Doc Review
Kern County

Michael Hollier
Kern County Planning Department
2700 M Street, Suite 100
Bakersfield, CA 93301
FAX (661) 862-8601

COMMENTS ON THE NOTICE OF PREPARATION OF ENVIRONMENTAL IMPACT REPORT FOR TENTATIVE MAP 6731, TO SUBDIVIDE AN APPROXIMATELY 40.63 ACRE-SITE TO 125 SINGLE-FAMILY RESIDENTIAL UNITS, LOCATED 1/8 MILE SOUTH OF SPRINGER AVENUE AND ¼ MILE EAST OF DOWNS STREET, IN THE UNINCORPORATED AREA SOUTH OF THE CITY OF RIDGECREST, IN THE COUNTY OF KERN, APN 510-010-06, 07

California Regional Water Quality Control Board, Lahontan Region (Water Board) staff has reviewed the above-referenced Notice of Preparation (NOP) dated July 26, 2007 submitted by the San Bernardino County Land Use Services Department. Our comments regarding the NOP are submitted in compliance with CEQA Guidelines section 15096.

Scope and Level of Needed Analyses

1. The project proponents are proposing to subdivide an approximately 40.63 acre site into 125 single-family residential units on minimum lot size of 10,890 square foot each and these lots are proposed to be connect to individual septic tank disposal systems. Please note that the Lahontan Regional Water Quality Control Board's Basin Plan requires a minimum of 15,000 square foot lot size for such disposal system. Please refer to the Lahontan Region Basin Plan: **http://www.waterboards.ca.gov/lahontan/BPlan/BPlan_Index.htm.**

2. The proposed development is in an area that may contain natural drainages and blue-line streams and the require permits may include:

   - Discharge of fill material - Clean Water Act (CWA) section 401 water quality certification for federal waters; or Waste Discharge Requirements for non-federal waters, and
   - Land disturbance - CWA section 402(p) stormwater permit, to include the development of a Stormwater Pollution Prevention Plan and a NPDES General Construction Stormwater Permit and/or a NPDES General Industrial Stormwater Permit. These permits are accessible on the State Board's Homepage (www.waterboards.ca.gov).

General Comments

1. Alternatives Analysis

   Because development projects can individually and cumulatively cause major water quality impacts, we strongly encourage a low-impact planning approach. Please:

   a. Include in the alternatives presented in the EIR a low-impact approach for the projects, based on principles and practices described in the documents listed in Attachment 2 to these comments, Low Impact Development References.

   b. Such an approach generally involves more compact development that: minimizes generation of urban pollutants;

   - preserves the amenity and other values of natural waters;
   - maintains natural waters, drainage paths, landscape features and other water-holding areas to promote stormwater retention, pollution removal, and groundwater recharge;
   - designs communities and landscaping to minimize stormwater generation, runoff, and concentration; promote groundwater recharge; and reduce water demand; and
   - promotes water conservation and re-use.

2. Identification of Affected Waters

   A clear understanding of the location and nature of the waters potentially affected by this project is fundamental to fulfillment of our regulatory responsibilities. The EIR should include a planning area-scale map and general description based on available data of waters potentially affected by the project, tabulated and organized by watershed (drainage basin) and water body type, e.g., wetlands, riparian areas (as defined by the National Academy of Sciences)[1], streams, other surface waters, and groundwater basins (a greater level of discrimination is usually appropriate, e.g., of wetland type).

3. Characterization of Impacts

   As noted above, we believe avoidance is the best strategy for managing potential water quality impacts. For unavoidable impacts, understanding how pollution pathways will operate is essential to managing them. Please:

   a. Specify at a watershed-level of detail the causes, natures, and magnitude of impacts, which would result from the project.

   b. Quantify impacts as definitively as feasible, using appropriate modeling and adequate data. Modeling approaches should be documented; and data

[1] "Riparian areas are transitional between terrestrial and aquatic ecosystems and are distinguished by gradients in biophysical conditions, ecological process, and biota. They are areas through which surface and subsurface hydrology connect water bodies with their adjacent uplands. They include those portions of terrestrial ecosystems that significantly influence exchanges of energy and matter with aquatic ecosystems (i.e., a zone of influence). Riparian areas are adjacent to perennial, intermittent, and ephemeral streams, lakes, and estuarine-marine shorelines" (National Research Council. *Riparian Areas, Functions and Strategies for Management.* National Academy of Sciences, Washington, D.C. 2002). Riparian areas are created and maintained by periodic inundation by overbank flood flows from the adjacent surface water bodies.

deficiencies or other factors affecting the reliability of the results identified and characterized.

c. Identify whether impacts will be temporary or permanent.

4. Hydrologic Disruption Analysis

Because increased runoff from developed areas is the key variable driving a number of other adverse effects, attention to maintaining the pre-development hydrograph will prevent or minimize many problems and will limit the need for other analyses and mitigations.

Please include the following in the EIR:

a. Alternatives and mitigation measures to maintain the pre-existing hydrology.

b. A meaningful analysis of potential cumulative impacts to watershed hydrology from existing and planned development in the watershed or planning area.

Best Management Practices must be used to mitigate project impacts throughout the County. For more information regarding water quality and how the Regional Board may regulate activities affecting water quality, see the Lahontan Region Basin Plan which contains prohibitions, water quality standards, and policies for implementation of standards at http://www.waterboards.ca.gov/lahontan/BPlan/BPlan_Index.htm. The projects developed within the County will need to comply with all applicable water quality standards and prohibitions, including provisions of the Basin Plan. Specifically, project alternatives should be developed, and areas where impacts can be avoided or minimized should be identified. Any unavoidable impacts must be mitigated.

Best Management Practices for post-storm events need to be incorporated and monitored throughout the County to minimize erosion, deposition of sediment, and the accompanying possible degradation of water quality, increased maintenance, and property damage.

Drainage courses should be kept in their natural condition to the greatest extent feasible, in order to retain habitat and allow groundwater recharge. The County should prohibit the conversion of natural watercourses to culverts, storm drains or other underground structures except to protect public health and safety. In addition, we recommend development features span drainage channels or allow for broad crossings in lieu of utilizing culverts. Design features of any future development should be incorporated to ensure that runoff is not concentrated by the proposed project, thereby causing downstream erosion. In addition, the County should consider the establishment of mitigation areas near drainages.

Projects to be developed should also indicate the final configuration of the blue-line streams, if applicable, and other drainages in the project vicinity. Project proponents should draw maps using an overlay feature to indicate where building pads, etc., will be placed in relation to all drainages existing on the property. Each project will need to quantify these impacts, and discuss the purpose of project, need for surface water disturbance, and alternatives (avoidance, minimize disturbances and mitigation) in their environmental document. Mitigation must be identified in the environmental document including timing of construction. Mitigation must replace functions and values of wetlands lost. Project proponents will find additional information in the Lahontan Region Basin Plan at http://www.waterboards.ca.gov/lahontan/BPlan/BPlan_Index.htm. The County could consider parks, open space and other low impact uses

within the designated flood plains and adjacent to recharge areas and buffer zones.

Beneficial uses for the blue-line streams and other drainages in the County should recognize additional characteristics of water bodies including their ability to enhance and protect water quality. Characteristics which enable surface waters to provide water quality enhancement, include, but are not limited to, riparian vegetation and stream bank configuration. Additionally, natural surface drainages help buffer passage of waters, slowing runoff and providing temporary storage of direct precipitation and runoff, serving to reduce the heights of flood peaks in adjacent receiving waters and adjacent or downstream areas. This form of water storage is vital to a number of other beneficial uses, including agriculture and wildlife. The proponents of the project should recognize the unique climatic conditions of the desert region habitat, and that conservation and stewardship of this habitat may be promoted by creating buffers around riparian areas or water bodies to minimize the potential of negative significant impacts resulting from potential development. Any impacts to beneficial uses are to be avoided, minimized, or mitigated, in that order.

We would like to reiterate the foremost method of avoiding and minimizing impacts to watersheds from urban development is "Low Impact Development" (LID), the goals of which are maintaining a landscape functionally equivalent to pre-development hydrologic conditions and minimal generation of nonpoint source pollutants. LID results in less surface runoff and less pollution routed receiving waters. Impacts to watersheds may be minimized through efforts in maintaining natural drainage paths and landscape features to slow and filter runoff and maximize groundwater recharge, and by reducing the impervious cover created by development and the associated transportation network, thereby managing runoff as close to the source as possible.

We understand that LID development practices that would maintain aquatic values could also reduce local infrastructure requirements and could benefit energy conservation, air quality, open space, and habitat. Many planning tools exist to implement the above principles, and a number of recent reports and manuals provide specific guidance regarding LID.

Vegetated areas for stormwater management and infiltration on-site are valuable in LID, and may enhance the aesthetics of the property. These principles can be incorporated into the proposed project design. We request natural drainage patterns be maintained to the extent feasible. Minimum-disturbance activities (such as preservation of vegetation and grade) are preferable to more structural (hard scape) control measures because they protect and preserve the natural drainage system. Natural drainage, including the use of vegetated buffer zones and rock swales, is the most effective means of filtering sediment and pollution and regulating the volume of runoff from land surfaces to adjacent streams, including washes.

Research is showing that LID practices may be more cost effective than revegetation practices or structural controls, especially long-term. Cost savings can be realized through reduced maintenance cost for stormwater infrastructure and repairs. Efforts should be made to avoid drainage channels, or to develop broad crossings if necessary, to minimize any unavoidable impacts.

Thank you for the opportunity to comment. We welcome the opportunity to work with the County to make this project an example of environmental sustainability in California. If you should have any questions regarding our above or attached comments, please contact me at (760) 241-7376. The Water Board recommends that project proponents and/or lead agencies consult with Board staff to discuss potential project impacts, including avoidance and mitigation measures. Early consultation with the Water Board is recommended, since modification of proposed projects within the County may be required to avoid or reduce impacts to hydrology and water quality.

Sincerely,

/s/ Mack Hakakian

Mack Hakakian
Engineering Geologist

Attachments
Attachment 1, *Urban Development: Potential Water Quality Impacts and Required Analyses*
Attachment 2, *Low Impact Development References*

MH/rc/CEQA comments/Ridgecrest TM 6731.doc

Urban Development:
Potential Water Quality Impacts and Required Analyses

INTRODUCTION

This Attachment consists of a table and a diagram showing how urban development can affect water quality, and the information needed to predict and manage the impacts. Pollution pathways are described and diagrammed at the level of detail at which potential effects can be analyzed and management measures applied. The table and diagram are described (and in electronc version hyperlinked) below.

Watersheds are complex natural systems in which physical, chemical, and biologic components interact to create and maintain the beneficial uses of water on which society's well-being and economy depend. Similarly, disturbances to natural watershed dynamics caused by urban development degrade water quality through a complex of interrelated causes and effects. Unmanaged, these pollution pathways ultimately destroy the physical, chemical, and biological integrity of the watersheds in which they occur, diminishing or destroying the beneficial uses.

The table and diagram are:

Table 1, Potential Effects Of Urban Development On Beneficial Uses and Required Analyses outlines the causes of water quality degradation caused by urban development, provides literature citations for each of the effects, and identifies for each effect the project-specific information needed to assess and mitigate its adverse impact to water quality.

Figure 1, Potential Effects Of Urban Development On Beneficial Uses flowcharts the causes and effects listed in Table 1. It begins on the left with three activities which are associated with urbanization: filling, construction (active construction and post-construction phases), and channelization. Figure 1 ends on the right with the resulting impaired beneficial uses and the potential for increased maintenance and property damage. In between are intermediate processes. Cause-and-effect relationships are shown by arrows.

TABLE 1

Potential Effects of Urban Development on Beneficial Uses and Required Analyses

Urban development degrades water quality through a complex of interrelated causes and effects.

How to Use this Table. Table 1 outlines the pollution pathways potentially associated with urban development, provides literature citations for each cause-and-effect relationship, and identifies the information needed to assess and manage potential effects on a project-specific basis. The pollution pathways are described at the level of detail at which project-specific potential effects can be analyzed and management measures applied. The same analysis can also be applied more broadly at a general level, e.g., to urban development that would be authorized under a land-use general plan. This Table is comprised of three worksheet sub-tables described below. (In the electronic version of this table, the sub-tables are accessed via tabs at the bottom of the page).

The **"Potential Water Quality Impacts and Required Analyses"** worksheet displays the potential causes and effects (in the "Cause" and "Effect" columns respectively) of water quality degradation associated with urban development, and the information needed to assess and manage project-specific effects (the "Needed Analysis" column). Because of the complex nature of watershed dynamics, many "effects" are also "causes" along the pollution pathways, and the number in square brackets listed with each "effect" cross-reference to its enumerated place in the "Cause" column. Additionally, each of the "effects" is footnoted, and the footnote number refers to the associated note in the "Notes" sub-table.

A **Related Flow-Chart Diagram** (Figure 1, "Potential Effects of Urban Development on Beneficial Uses") graphically displays these cause-and-effect relationships.

The **"Notes"** worksheet displays the summary literature citations for each of the "effects" in the "Potential Water Quality Impacts..." sub-table, keyed to the numeric footnotes in the "Effects" column.

The **"References"** worksheet displays the full literature citations, indexed by author.

CAUSE	EFFECT	NEEDED ANALYSES
1. FILL & EXCAVATION Fill or excavation in wetlands, riparian areas, or other waters of the state.	**A. Decreased Flood Storage. [4]** Fill can impinge on the natural storage volume of ephemeral, intermittent, and perennial channels, backwaters, and wetlands, reducing capacity to retain runoff.[1]	1) Quantify reduced flood storage in each affected basin. 2) Identify mitigation.
	B. Change in Groundwater Storage. [10] Fill and excavation can decrease groundwater recharge and cause lower water tables by changing soil percolation characteristics and reducing the area of standing water in recharge basins.[2] Linear excavation (e.g., for utility lines) can act as a conduit to drain groundwater and locally lower water tables.	1) Quantify groundwater response to changes in percolation. 2) Identify locations where linear alignments could act to dewater shallow aquifers. 3) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	C. Change in Wetland and Riparian Vegetation. [17] Fill and excavation can bury or remove vegetation and can change site features to prevent reestablishment of characteristic species.	1) Identify and map types and areal extents of affected vegetation. 2) Identify mitigation.
	D. Impaired Beneficial Uses. [18] Fill can directly impair beneficial uses by reducing water area and changing hydrology, geomorphology, substrate, and other waterbody characteristics. In addition, projects which fragment habitat and reduce wildlife movement along riparian and other corridors can degrade remaining patches of wetlands and other habitat by changing their physical characteristics and by isolating and exposing small populations of plants and animals, resulting in local or regional extinctions.[3]	1) Document types, areal extents, and (for drainage features) lengths of affected waters. 2) Characterize and map at project-area and regional scales existing wildlands, along with riparian corridors and other water features supporting habitat connectivity. 3) Identify effects of fill on terrestrial and aquatic habitat connectivity (refer to Enclosure 3). 4) Identify watershed-level effects on pollutant removal and flood retention. 5) Identify mitigation.
2A. CONSTRUCTION Clearing, grading, and construction of structures and facilities.	**A. Production of Urban Pollutants. [7]** Construction can produce pollutants through improper use and disposal of toxic construction materials.	1) Identify mitigation for inclusion in stormwater pollution prevention plan.
	B. Change in Soil Erosion. [8] Active construction can dramatically increase soil erosion by exposing and destabilizing soils. Erosion is compounded by the increased runoff typically accompanying construction.[6]	1) Identify location and extent of planned grading. Display proximity and slope relationships to receiving drainages. 2) Document erodibility of soils and subsoils in areas proposed for grading. 3) Quantify amount and duration of increased sediment loadings to each affected drainage. 4) Identify mitigation.
	C. Increased Runoff. [9] Construction can increase both the total and peak volume of stormwater runoff by removing vegetation, compacting soil, exposing dense subsoil, creating steep graded slopes, and eliminating terrain depressions and ephemeral and intermittent drainages that would naturally slow the movement of stormwater.[9]	1) Quantify total and peak volumes of increased runoff for each affected drainage 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	D. Impaired Beneficial Uses. [18] Projects which fragment habitat and reduce wildlife movement along riparian and other corridors can degrade remaining patches of wetlands and other habitat by changing their physical characteristics and by isolating and exposing small populations of plants and animals, resulting in local or regional extinctions.[11]	1) Characterize and map at project-area and regional scales existing wildlands, along with riparian corridors and other water features supporting habitat connectivity. 2) Identify effects of construction on terrestrial and aquatic habitat connectivity (refer to Enclosure 3). 3) Identify mitigation.
2B. POST-CONSTRUCTION Ongoing effects of constructed environment.	**A. Dry weather discharge. [6]** Construction can cause dry-season "nuisance" runoff from activities such as landscape irrigation[5], sidewalk and vehicle washing, and basement dewatering.	1) Characterize volumes, seasonality, and other pertinent characteristics of "nuisance" flows for each affected drainage.
	B. Increased Groundwater Pumping. [5] Construction can cause increased groundwater pumping for domestic or landscape use.[4]	1) Quantify and map locations of increased pumping.
	C. Production of Urban Pollutants. [7] After construction, urban areas can generate pesticides, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, bacteria, viruses, and other pollutants from activities such as landscape care and vehicle operation and maintenance.[7]	1) Quantify projected increase in pollution production in each affected basin. 2) Identify mitigation.
	D. Change in Soil Erosion. [8] After construction, erosion can be reduced to below natural levels because soils are covered with buildings and pavement, and runoff is routed through storm drains.[8]	1) Quantify reduction of natural sediment delivery rates to each affected basin. 2) Identify mitigation.
	E. Increased Runoff. [9] After construction, maintained landscapes and impervious surfaces such as roofs and streets increase total and peak runoff. The increased flows move quickly over paved surfaces and are collected, concentrated, and further accelerated in stormdrain systems. The combination of increased flows and more efficient transport causes a higher, "flashy", more rapidly peaking and falling hydrograph, especially for smaller, more frequent floods.[10]	1) Quantify project-induced changes in total and peak runoff rates to each affected drainage. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
3. CHANNELIZATION Engineered changes in channel structure or morphology to stabilize banks, prevent flooding, or increase flow conveyance.	**A. Decreased Flood Storage. [4]** Channelization can reduce flood storage within a basin by restricting flows to the active channel, thereby preventing detention of floodwater in backwaters and on the adjacent floodplain.[12]	1) Quantify and map reductions in flood storage in each affected basin. 2) Identify mitigation.
	B. Change in Groundwater Storage. [10] Lining channel bottoms can change groundwater storage by reducing percolation and groundwater recharge.[13] Deepening natural channels can drain adjacent shallow water tables.[14]	1) Quantify and map locations of reduction in recharge rates. 2) Quantify effects on channelization on shallow water tables and associated wetlands. 3) Identify mitigation.
	C. Channel Destabilization. [11] Channelization can cause channel destabilization by changing the balance between the stream's flow, sediment load, and channel form. Destabilization tends to affect entire stream systems. For example, channelization can concentrate and synchronize peak flows from tributary streams, causing increased channel erosion both above and below the channelized reach. The eroded sediment is then deposited downstream when the flow slows down, where it may initiate further destabilization.[15]	1) Quantify basin-level hydrologic and fluvial geomorphic effects of channelization in each affected drainage. 2) Identify mitigation.
	D. Increased Flooding Frequency. [14] Constricted channels (e.g., in leveed sections) can cause water to back up, resulting in localized upstream flooding. Rapid passage of floodwaters through "improved" channels can increase flooding downstream by concentrating and synchronizing tributary peaks.[16]	1) Quantify basin-level hydrologic effect of channelization on each affected basin, including changes in flood return frequencies. 2) Identify mitigation.
	E. Decreased Pollutant Removal. [16] Channelization can decrease natural pollutant removal by reducing instream structural complexity and turbulent-flow aeration, increasing flow velocity, reducing overbank flow, and by causing change in vegetation.[17]	1) Map waters lost to channelization in each affected drainage and characterize type, areal extent, and pollutant removal value. 2) Quantify affect on pollutant loadings to each affected waterbody and downstream receiving waters. 3) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	F. Change in Wetland and Riparian Vegetation. [17] Channelization and associated maintenance can directly destroy wetland and riparian vegetation and can change site features to prevent reestablishment of characteristic species.[18]	1) Map and Identify types and areas of affected vegetation. 2) Identify mitigation.
	G. Impaired Beneficial Uses. [18] Channelization and associated maintenance can directly impair beneficial uses by reducing waterbody area; increasing stream velocity; disrupting riffle and pool sequences, cover, and other structural features; changing substrate; cutting off nutrient inputs to and from backwaters and riparian wetlands, dewatering upstream reaches, and reducing aesthetic and recreational value. Reduced overbank flooding can adversely affect reproduction of riparian vegetation and wetland and riparian functions.[19] Channelization can inhibit the movement of fish, other aquatic biota, and wildlife, and thus isolate and reduce the viability of populations up and downstream.[20] Construction of channels can introduce sediment, nutrients, and toxics into the water column.[21]	1) Identify direct and indirect effects of proposed channelization projects on beneficial uses. 2) Characterize and display at project-area and regional scales existing wildlands, along with riparian corridors and other water features supporting habitat connectivity. 3) Identify effects of channelization on terrestrial and aquatic habitat connectivity. 4) Identify mitigation.
4. DECREASED FLOOD STORAGE	**A. Increased Runoff. [9]** Reduced flood storage on the floodplain and in channels, swales, wetlands, backwaters, and other natural depressions increases and accelerates runoff.[22]	1) Quantify total and peak volumes of increase runoff for each affected drainage. 2) Identify mitigation.
5. INCREASED GROUNDWATER PUMPING	**A. Change in Groundwater Storage. [10]** Increased groundwater pumping can lower watertables locally or in distant donor basins.[23]	1) Quantify and map locations of project-induced changes in groundwater levels. 2) Identify mitigation.
6. DRY WEATHER DISCHARGE	**A. Change in Baseflow. [12]** Dry weather runoff from urban activities can increase dry-period streamflows.[24]	1) Quantify hydrologic effects of dry weather flows on the baseflow of each affected drainage.

CAUSE	EFFECT	NEEDED ANALYSES
	B. Increased Pollutant Delivery. [13] Dry weather runoff can carry the pollutants generated by the activity causing the flow, e.g., pesticides, nutrients, and petrochemicals from landscape maintenance and cleaning sidewalks and vehicles. Collection of polluted dry weather flows in catch basins may result in shock loadings when it is displaced by subsequent storm flows.[25]	1) Quantify and characterize pollutant loadings from activities generating dry weather runoff to each affected drainage. 2) Identify mitigation.
7. PRODUCTION OF URBAN POLLUTANTS	**A. Increased Pollutant Delivery. [13]** Increased production of urban pollutants can cause increased delivery of pollutants to surface and groundwater.[26]	1) Quantify and characterize pollutant loadings from to each affected drainage. 2) Identify mitigation.
8. CHANGE IN SOIL EROSION	**A. Channel Destabilization. [11]** Changes in upland soil erosion can destabilize stream channels by changing the amount of sediment carried into the stream. The stream may then erode or aggrade its channel to balance its available energy with the changes in its sediment load. 1. Increased sediment from construction causes channel aggradation, changing stream cross sections and redirecting flows.[27] 2. Decreased sediment from a paved watershed can cause channel incision and/or side-cutting. The effect may be compounded by increased runoff from the paved watershed. Aggradation may occur downstream where the flow slows and deposits the eroded sediment, which may deflect flows against the channel banks and cause further bank erosion.[28]	1) Conduct geomorphologic analysis of channel response to increases in construction-related sediment. 2) Conduct geomorphologic analysis of channel response to long-term reductions in sediment delivery to each affected drainage. 3) Identify mitigation. Note: Sediment as a pollutant is considered in No. 7, "Production of Urban Pollutants".
9. INCREASED RUNOFF	**A. Change in Soil Erosion. [8]** Increased runoff can dramatically increase soil erosion by causing greater runoff velocities which more effectively displace and carry soil particles. Construction-related soil destabilization can compound the effect.[29]	1) Quantify increases in sheet and gully erosion resulting from increased runoff. 2) Identify mitigation.
	B. Change in Groundwater Storage. [4] Increased runoff can reduce groundwater recharge and lower water tables, since water draining from impervious surface is unable to percolate to groundwater at that location.[30]	1) Map locations of and quantify losses of recharge and water table response. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	C. Channel Destabilization. [11] Increased peak runoff can destabilize channels by increasing the flow velocity and erosive power of the stream. Head cutting, incision and/or widening of the channel, and associated sideslope failures can result. Reduced sediment input as a result of change in soil erosion rates can compound the effect.[31] In small streams, increased runoff may also dislodge logs and other channel features that help to define the channel.[32]	1) Quantify channel geomorphic response to increased runoff for each affected drainage. 2) Identify mitigation.
	D. Increased Pollutant Delivery. [13] Increased runoff increases pollutant delivery because it can more effectively carry particulate and soluble pollutants to receiving waters. Increased flow velocity reduces contact time with soil and vegetation that might otherwise remove pollutants.[33]	1) Quantify types and quantities of increased pollutant loadings to each affected drainage. 2) Identify mitigation.
	E. Increased Flooding Frequency. [14] Increased runoff and greater transport efficiency result in higher peak flows from storms of a given return period.[34]	1) Quantify basin level hydrologic effect of increased runoff on each affected basin, including changes in flood return frequencies. 2) Identify mitigation.
	F. Change in Water Temperature. [15] Increased runoff from urban areas can raise the temperature of receiving waters because runoff from impervious surfaces is often warmer than runoff from pervious surfaces or subsurface flow.[35]	1) Model increase in water temperature along stream profile of each affected drainage. 2) Identify mitigation.
	G. Impaired Beneficial Uses. [18] Increased runoff can impair habitat values by flushing fish and invertebrates out of streams,[36] increasing water level fluctuations and the velocity of flows entering wetlands,[37] and causing salinity changes in estuaries and other nearshore marine waters.[38]	1) Identify direct effects of increased flow on aquatic biota, hydrologic regimes of adjacent wetlands, and salinity of marine receiving waters for each affected drainage. 2) Identify mitigation.
10. CHANGE IN GROUNDWATER STORAGE	**A. Change in Baseflow. [12]** Changes in watertable level can cause changes in the dry weather baseflow of streams fed by groundwater.[39]	1) Quantify for each affected drainage the changes in baseflow associated with lowered water tables and map locations. 2) Identify mitigation.
	B. Change in Wetland and Riparian Vegetation. [17] A lowered watertable can dry up wetlands, stress or kill mature riparian vegetation, and reduce or eliminate seedling survival.[40]	1) Identify types and areas of wetlands and riparian areas that would be affected by expected lowering of shallow water tables and map locations. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	C. Impaired Beneficial Uses. [18] A lowered watertable can impair water supply and other beneficial uses which use groundwater. Seawater intrusion is possible in coastal areas.[41] Aquifer compaction and subsidence can also occur.[42] Wetland and riparian areas can be dewatered, harming associated vegetation and habitats.[43]	1) Identify affects of expected water table lowering on water supply and other beneficial uses and map locations. 2) Identify mitigation.
11. CHANNEL DESTABILIZATION	**A. Channelization. [3]** Channel erosion can threaten property and structures, leading to placement of riprap or other engineered stabilization of critical sections.[45]	1) Identify stream reaches in which project-induced channel destabilization may require channelization. 2) Identify mitigation.
	B. Change in Groundwater Storage. [10] Channel incision can dewater shallow aquifers adjacent to the channel.[46]	1) Identify and map stream reaches in which project-induced stream incision may dewater shallow aquifers. 2) Identify mitigation.
	C. Increased Pollutant Delivery. [13] Channel erosion can result in increased suspended solids and turbidity in the water column.[47]	1) Identify and map stream reaches subject to project-induced destabilization, quantify changes in channel dimension, and volume of eroded material for each affected basin. 2) Identify mitigation.
	D. Increased Flooding Frequency. [14] Channel aggradation can cause local flooding by diverting flows and decreasing a stream's flow capacity.[48]	1) Identify and map stream reaches in which project-induced channel destabilization may cause aggradation and associated flooding. 2) Identify mitigation.
	E. Change in Water Temperature. [15] Bank erosion and aggradation can increase water temperature by creating a broader channel with shallow flows, increased water surface relative to flow volume, and a smaller proportion of shaded water surface. As a result, summer water temperatures and daily and seasonal temperature fluctuations tend to be greater.[49]	1) Identify and map stream reaches in which project- induced destabilization can increase water temperature. 2) Identify mitigation.
	F. Change in Wetland and Riparian Vegetation. [17] Channel destabilization can encroach on riparian wetlands and undermine streamside vegetation.[50]	1) Identify, characterize, and map wetland and riparian areas subject to encroachment by channel destabilization; . 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	G. Impaired Beneficial Uses. [18] Channel destabilization can reduce or eliminate habitat, recreation, esthetic values, and other uses by affecting deep pools, pool-riffle ratios, undercut banks, substrate suitability, and other structural features.[51]	1) Identify, characterize, and map stream reaches in which channel destabilization can directly impair beneficial uses. 2) Identify mitigation.
	H. Increased Maintenance and Property Damage. [19] Channel erosion can undermine streamside buildings, bridges, utility crossings, and other property. Aggradation can bury diversion structures and other infrastructure and may require removal to maintain flow capacity.	1) Identify and map stream reaches in which destabilization may cause increased maintenance and property damage. 2) Identify mitigation.
12. CHANGE IN BASEFLOW	**A. Change in Groundwater Storage. [10]** Reduced stream baseflow can decrease groundwater recharge by reducing wetted area and the amount of water available for recharge in stream channels.[52]	1) Identify and map affected stream reaches. 2) Quantify losses of recharge and water table response. 3) Identify mitigation.
	B. Change in Water Temperature. [15] Decreased baseflow, typically resulting from change in groundwater storage, can cause elevated and fluctuating stream temperature because groundwater usually enters the stream at cool, stable temperatures.[53]	1) Identify and map affected stream reaches; 2) Quantify temperature effects along stream profile. 3) Identify mitigation.
	C. Change in Wetland and Riparian Vegetation. [17] Decreased stream baseflow can cause riparian vegetation to shift to upland species.[54]	1) Characterize and map affected riparian areas. 2) Identify mitigation.
	D. Impaired Beneficial Uses. [18] 1. Decreases in the amount or duration of baseflow can impair habitat quality by eliminating aquatic and riparian habitat area, reducing flow velocities, and otherwise disrupting the life cycles of plants and animals which are dependent on water.[55] 2. Increases in baseflow resulting from dry weather discharge can impair waterbodies such as seasonal wetlands, vernal pools, and intermittent streams which are naturally defined by seasonal water availability.	1) Identify and map affected waterbody segments. 2) Characterize and quantify changes in baseflow. 3) Identify direct effects on beneficial uses 4) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
13. INCREASED POLLUTANT DELIVERY	**A. Impaired Beneficial Uses. [18]** Urban pollutants can impair many beneficial uses, e.g., water supply, recreation, fish and wildlife habitat, and shellfish production.[56]	1) Identify direct effects of increased pollutant loadings on beneficial uses in each affected waterbody segment. 2) Identify mitigation.
14. INCREASED FLOODING FREQUENCY	**A. Channelization. [3]** Increased flooding can lead to channelization of the critical section to more efficiently pass flood flows.[57]	1) Identify stream reaches in which project-induced flooding may require channelization. 2) Identify mitigation.
	B. Impaired Beneficial Uses. [18] Increased flooding can impair habitat,[58] water supplies, navigation, and other beneficial uses.	1) Identify stream reaches in which project-induced flooding may impair beneficial uses. 2) Identify mitigation.
	C. Increased Maintenance and Property Damage. [19] Increased flood frequency can result in more maintenance and flood damage.	1) Identify stream reaches in which project-induced flooding may increase maintenance and property damage. 2) Identify mitigation.
15. INCREASED WATER TEMPERATURE	**A. Impaired Beneficial Uses. [18]** Increased water temperature can directly stress aquatic biota and can also affect other parameters associated with habitat quality, such as dissolved oxygen concentration and rate of chemical reactions.[59]	1) Identify and map affected waterbody segments. 2) Quantify temperature changes. 3) Characterize effects on beneficial uses. 4) Identify mitigation.
16. DECREASED POLLUTANT REMOVAL	**A. Increased Pollutant Delivery. [13]** Less removal of pollutants by natural processes can result in greater concentrations of pollutants in receiving waters.[60]	1) Quantify effects to pollutant loadings for each affected waterbody. 2) Identify mitigation.
17. CHANGE IN WETLAND AND RIPARIAN VEGETATION	**A. Channel Destabilization. [11]** Loss of vegetation and its associated anchoring root masses can destabilize channel banks and other geomorphic features.[61]	1) Characterize and map affected geomorphic features. 2) Identify mitigation.
	B. Change in Water Temperature. [15] Loss of riparian vegetation can increase maximum water temperature by exposing more water surface to the sun. Daily and seasonal temperature fluctuations also tend to be greater.[62]	1) Identify and map stream reaches in which loss of riparian vegetation can increase water temperature. 2) Identify mitigation.
	C. Decreased Pollutant Removal. [16] Removal of vegetation adjacent to a waterbody can reduce removal of pollutants from the waterbody and from the overland flow draining to the waterbody.[63]	1) Describe type, areal extent, and pollutant removal value of affected vegetation and map location. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	D. Impaired Beneficial Uses. [18] Loss of vegetation directly impairs the quality of aquatic and riparian habitat by reducing cover, structural diversity, and nutrient sources.[64] Removal of vegetation can also fragment and isolate remaining patches of habitat, resulting in decreased habitat value over large areas.[65]	1) Identify affected waterbody segments. 2) Characterize direct effects of vegetation loss on beneficial uses. 3) Characterize and display at project-area and regional scales existing wildlands, along with riparian corridors and other water features supporting habitat connectivity. 4) Identify effects of vegetation change on terrestrial and aquatic habitat connectivity. 5) Identify mitigation.

POTENTIAL EFFECTS OF URBAN DEVELOPMENT ON BENEFICIAL USES

This diagram shows how urban development can can affect beneficial uses of water.

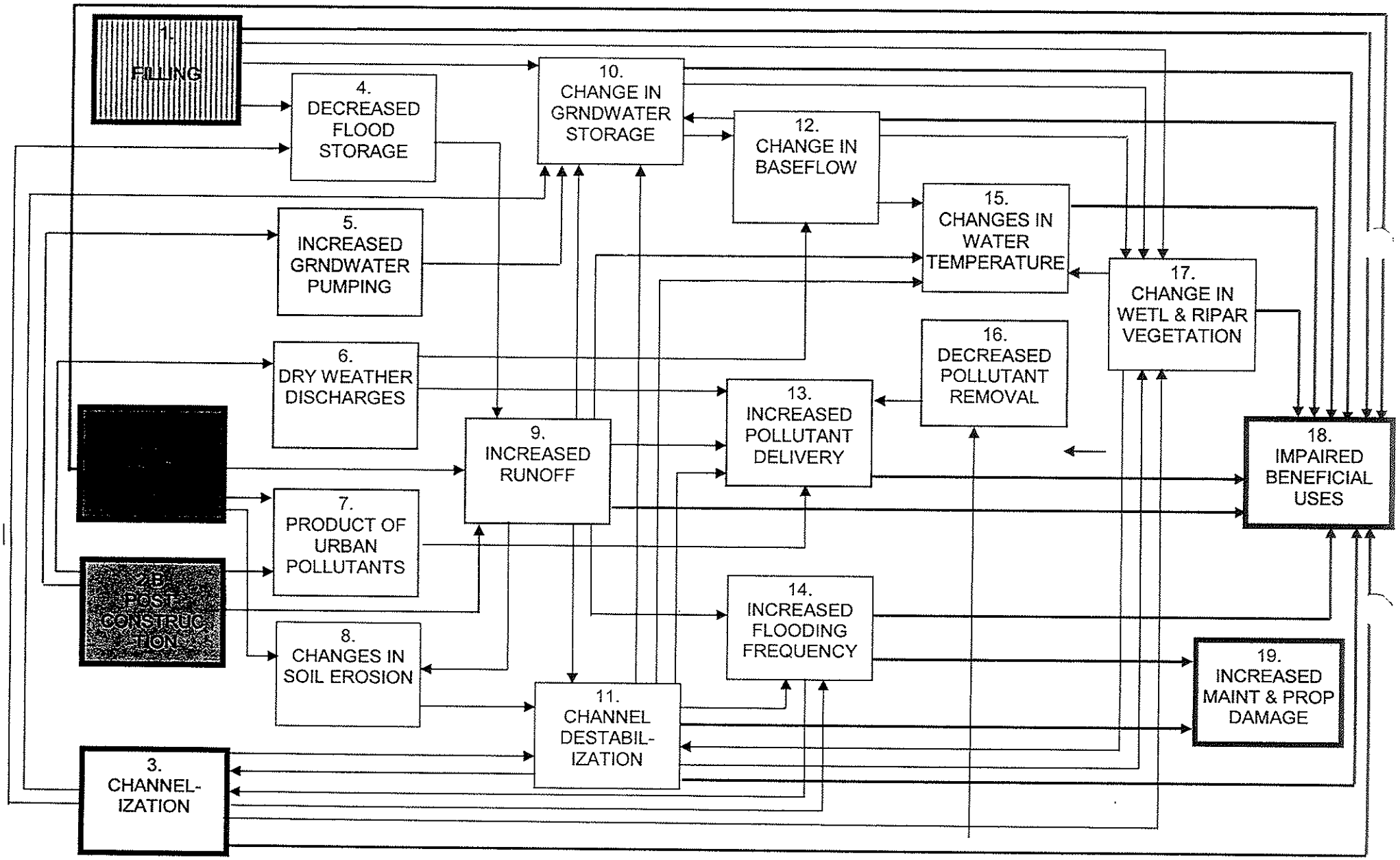

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Figure 1

Low-Impact Development References

Low-impact (LID) development generally involves more compact development that:

- minimizes generation of urban pollutants;
- preserves the amenity and other values of natural waters;
- maintains natural waters, drainage paths, landscape features and other water-holding areas to promote stormwater retention and groundwater recharge;
- designs communities and landscaping to minimize stormwater generation, runoff, and concentration; promote groundwater recharge; and reduce water demand;
- promotes water conservation and re-use.

The following documents are among many that provide more specific guidance in LID.

Bay Area Stormwater Management Agencies Association. Start at the Source. 1999. Online: http://www.basmaa.org/index.cfm.

Center for Watershed Protection. Better Site Design: A Handbook for Changing Development Rules in Your Community. August 1998. Online: http://www.cwp.org/.

Local Government Commission. The Ahwahnee Water Principles: A Blueprint for Regional Sustainability. July 2006. Online: http://water.lgc.org/guidebook.

Prince George's County, Maryland, Department of Environmental Protection. Low-Impact Development Design Strategies. January 2000.

Prince George's County, Maryland, Department of Environmental Protection. Low-Impact Development Hydrologic Analysis. January 2000.

United States Environmental Protection Agency. Using Smart Growth Techniques as Stormwater Best Management Practices. EPA 231-B-05-002. December 2005.

United States Environmental Protection Agency. Parking Spaces/Community Places. EPA 231-K-06-001. January 2006.

United States Environmental Protection Agency. Protecting Water Resources with Higher Density Development. EPA 231-R-06-001. January 2006.

United States Environmental Protection Agency. Growing Toward More Efficient Water Use: Linking Development, Infrastructure, and Drinking Water Policies. EPA 230-R-06-001. January 2006.

Further Online References:

Ca. Office of Environmental Health Hazard Assessment: http://www.oehha.ca.gov/ecotox.html
United States Environmental Protection Agency: http://www.epa.gov/smartgrowth/

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FAX: (661) 862-8601

August 31, 2007

RESPONSIBLE AGENCY REVIEW

PURPOSE: The purpose of this form is to aid responsible agencies, trustee agencies, and agencies or individuals with a particular expertise in reviewing the described project. This preliminary analysis will aid us in determining whether the effects of the project will require preparation of an environmental impact report (EIR) or a Negative Declaration. If any of the effects of a project may have a substantial adverse effect on the environment, then an EIR must be prepared, unless mitigation measures to modify the project are proposed and agreed to by the applicant (Section 21080, Public Resources Code). **Pursuant to Section 21081.6, Public Resources Code, any mitigation measure shall be monitored by a program to ensure compliance. Should your agency recommend a mitigation measure, this Department requests you include a monitoring program to ensure implementation.**

INSTRUCTIONS: **Based upon your area of expertise and concern, please evaluate environmental impacts of the project.** Section 21080(c), Public Resources Code, requires that a request for an EIR contain substantial evidence in the record to show significant effect; therefore, the reasons for such a recommendation need to be justified by separate documentation. Please complete the following and return this page.

Check One

☐ EIR

☒ Negative Declaration

☐ Mitigated Negative Declaration

Date: 9/4/07

Reviewing Agency:
CDOGGR

Contact:
Tom Giallonardo

Technical reports will not be redistributed

Please reply by September 21, 2007

PROPOSED PROJECT: 5434 MDH 04-07; (1) General Plan Amendment No. 2, Map No. 71; and (2) Zone Change Case No. 6, Map No. 1 (Taft Corporation [PP08209])

LOCATION: Approximately 1/8 mile south of Springer Avenue, and 1/4 mile east of Downs Street, in the unincorporated area south of the City of Ridgecrest; being a portion of the E/2 of the NW/4 of Section 16, T27 S, R40 E, MDB&M, County of Kern, State of California

PROJECT DESCRIPTION: a) An amendment to the Kern County General Plan from map code designation 5.6 (Residential – Minimum 1/2 Gross Acres per Dwelling Unit) and 5.6/2.5 (Residential – Minimum 2 1/2 Gross Acres per Dwelling Unit/Flood Hazard) to 5.4 (Residential – Maximum 4 Dwelling Units per Gross Acre, or a more restrictive designation; and (b) A change in zone classification from E (20) (Estate – 20 acres) to E (1/4) (Estate – 1/4 acre), or a more restrictive district, to facilitate the construction of 125 single-family residences on 40.63 acres. As proposed, domestic water supply and sewage disposal would be by Indian Wells Valley Water District and City of Ridgecrest Sanitation District, respectively. Access to the site is proposed off West Kendall Avenue via College Heights Boulevard, which are designated as "Local Street" and "Arterial/Major Highway" alignments, respectively, by the Circulation Element of the Kern County General Plan. The purpose of the 5.4 map code is to accommodate urban single-family development on lots with a minimum average size of 1/4 net acre. The purpose of the 2.5 physical constraint map code is to designate special flood hazard areas as identified on the Flood Insurance Rate Maps (FIRM) of the Federal Emergency Management Agency (FEMA) and supplemented by floodplain delineating maps that have been approved by the Kern County Engineering and Survey Services Department. The purpose of the E (1/4) District is to designate areas suitable for larger lot residential living environments. More information on uses allowed in the E (1/4) District can be found online at: http://www.co.kern.ca.us/planning/pdfs/zo/zotoc.pdf.

Michael Hollier - Proposed Project 5434 MDH 04-07

From: "Warren, Robert J CIV NAWS China Lake, N45"
To:
Date: 09/10/2007 10:43 AM
Subject: Proposed Project 5434 MDH 04-07
CC: "O'Gara, John E CIV"

Mr. Hollier:

Thank you for the opportunity to comment on proposed project 5434 MDH 04-07; (1) General Plan Amendment No. 2, Map No. 71; and (2) Zone Change Case No. 6, Map No. 71 (TAFT Corporation PP08209). The NAWS China Lake team has reviewed the proposed project and our analysis indicates the project area lies directly east of existing flight departure paths from NAWS China Lake. Recommend you notify the project proponent that the project area is adjacent to the military flight departure corridor and occasional over flight scenarios.

Please call me at (760) 939-3954 should you have any questions regarding this response. As always, we appreciate the opportunity to participate in this land use process.

Respectfully,

Jason Warren
Environmental Planner
Naval Air Weapons Station
Code N45NCW
China Lake, CA 93555
PH: (760) 939-3954 FAX: (760) 939-2980

Kern County Planning Department
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August 31, 2007

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Check One

☒ **EIR**

Date: 9-21-07

☐ **Negative Declaration**

Reviewing Agency:
City of Ridgecrest

Contact:
Matthew Alexander

☐ **Mitigated Negative Declaration**

Tc cal reports will not be redistributed

Please reply by September 21, 2007

PROPOSED PROJECT: 5434 MDH 04-07; (1) General Plan Amendment No. 2, Map No. 71; and (2) Zone Change Case No. 6, Map No. 71 (Taft Corporation [PP08209])

LOCATION: Approximately 1/8 mile south of Springer Avenue, and 1/4 mile east of Downs Street, in the unincorporated area south of the city of Ridgecrest; being a portion of the E/2 of the NW/4 of Section 16, T27 S, R40 E, MDB&M, County of Kern, State of California

PROJECT DESCRIPTION: a) An amendment to the Kern County General Plan from map code designation 5.6 (Residential – Minimum 2 1/2 Gross Acres per Dwelling Unit) and 5.6/2.5 (Residential – Minimum 2 1/2 Gross Acres per Dwelling Unit/Flood Hazard) to 5.4 (Residential – Maximum 4 Dwelling Units per Gross Acre, or a more restrictive designation; and (b) A change in zone classification from E (20) (Estate – 20 acres) to E (1/4) (Estate – 1/4 acre), or a more restrictive district, to facilitate the construction of 125 single-family residences on 40.63 acres. As proposed, domestic water supply and sewage disposal would be by Indian Wells Valley Water District and City of Ridgecrest Sanitation District, respectively. Access to the site is proposed off West Kendall Avenue via College Heights Boulevard, which are designated as "Local Street" and "Arterial/Major Highway" alignments, respectively, by the Circulation Element of the Kern County General Plan. The purpose of the 5.4 map code is to accommodate urban single-family development on lots with a minimum average size of 1/4 net acre. The purpose of the 2.5 physical constraint map code is to designate special flood hazard areas as identified on the Flood Insurance Rate Maps (FIRM) of the Federal Emergency Management Agency (FEMA) and supplemented by floodplain delineating maps that have been approved by the Kern County Engineering and Survey Services Department. The purpose of the E (1/4) District is to designate areas suitable for larger lot residential living environments. More information on uses allowed in the E (1/4) District can be found online at: http://www.co.kern.ca.us/planning/pdfs/zo/zotoc.pdf.

See attached letter

City of Ridgecrest

www.ci.ridgecrest.ca.us

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September 21, 2007

Kern County Planning Department
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RE: Responsible Agency Review – County Project- 5434 MDH 04-07; GPA No.2, Map 71 and ZC No.6 Map 71 (Taft Corporation PP08209)

In the absence of an Environmental Assessment, Staff has reviewed the potential environmental impacts of the above mentioned project and recommends an EIR for the project for the following reasons:

1. Circulation – The project is surrounded by existing dirt roads. Staff is concerned about the traffic impacts 125 new homes will have on city streets.

2. City Services – Although the project is in the County, it boarders the City Limits on two sides. Will the city have to eventually provide public services to this community such as fire, police, schools, parks?

3. Tract Design – Staff feels a street design consisting of 7 cul-de-sacs is a poor design. ¼ acres lots do not appear to create a desirable buffer between rural 2 ½ acre lots on the North and West side of the proposed tract.

4. Drainage – Staff is concerned that a density of ¼ acre lots in this area of flood hazard would create problems downstream. The tract design does not provide for any on-site retention.

If you have any questions, please do not hesitate to contact me at (760) 499-5063.

Sincerely,

Matthew Alexander

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