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City of Grover Beach  
**STORM WATER MANAGEMENT PROGRAM**

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**September 2008 Draft**  
**RWQCB Copy**

## 5.2. The Grover Beach SWMP Watershed Identified

Grover Beach, its watershed and SWMP coverage area are located in the 18060006 Central Coastal Watershed as shown in the figure below.

### MAPS 6.2 CENTRAL COAST WATERSHED



From:

U.S.EPA, "Surf Your Watershed" website at <http://www.epa.gov/surf>



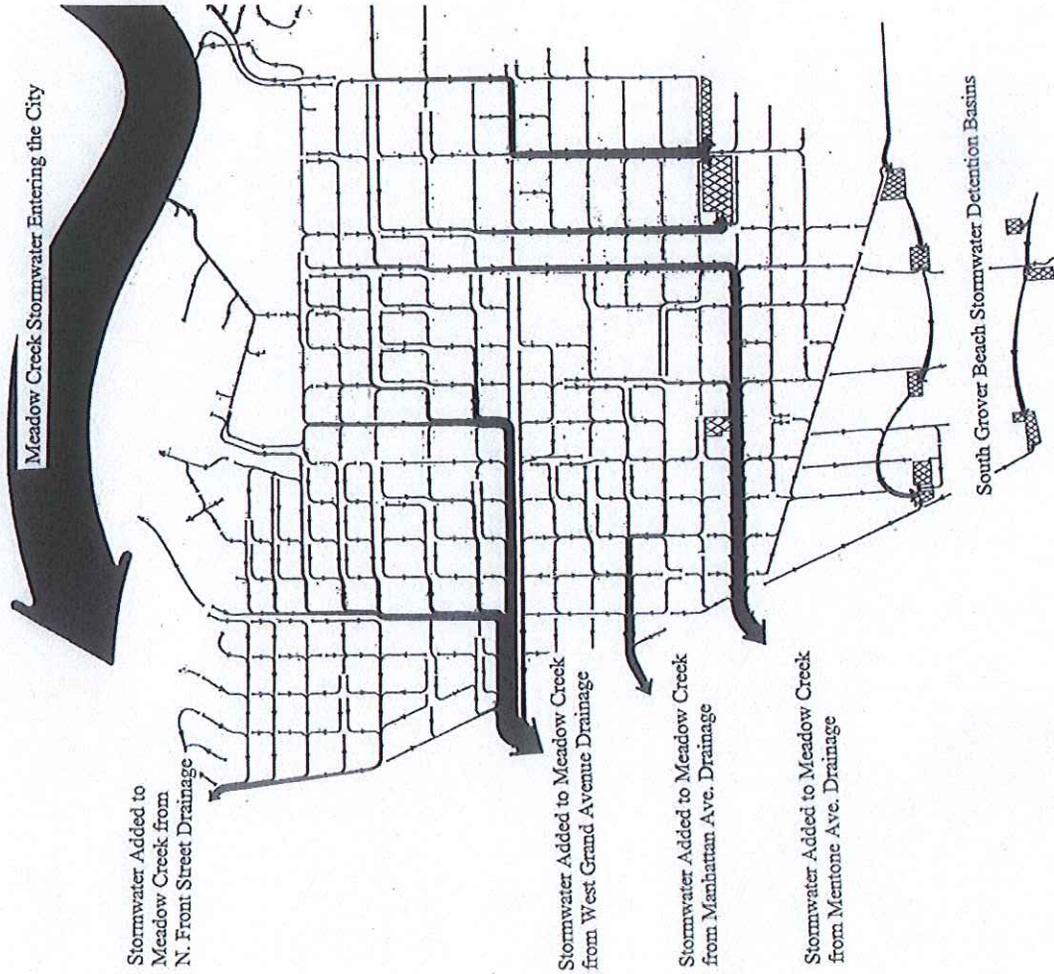
From: U.S. EPA EnviroMapper for Water

Table 6-1 lists the waterbodies in the SWMP watersheds and the corresponding California Hydrologic unit name and number. Meadow Creek is identified in the City's SWMP coverage area.

Table 5-2 Major Waterbodies in the SWMP Coverage Area

U.S.G.S. HYDROLOGIC UNIT AND #	CA HYDROLOGIC UNIT AND #	WATERBODIES IN THE SWMP COVERAGE AREA	SWMP COMMUNITY
Central Coastal 18060006	Estero Bay 310	Arroyo Grande Creek	Arroyo Grande -Oceano
		Meadow Creek (tributary to Oceano Lagoon)	Grover Beach - Oceano

**Map 5.2 – City and Meadow Creek Storm Drainage**



### 5.3. Meadow Creek Beneficial Uses

The Beneficial Uses in the SWMP coverage area, as developed by the RWQCB, are shown in the Table 6-2.

**Table 5-3: Beneficial Uses of the Waterbodies in the SWMP Coverage Area, From the RWQCB Basin Plan, September 8, 1994, Inland Surface Waters**

ESTERO BAY HYDROLOGIC UNIT																						
Waterbody Names	MUN	AGR	PRO	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIO	RARE	EST	FRESH	NAV	PO	AQUA	SAL	SHELL	
Meadow Creek	X	X			X	X	X	X	X				X	X						X		

#### 5.3.1 SWMP Beneficial Uses for Meadow Creek

Those listed beneficial uses which are unchallenged by this SWMP are listed below:

##### Ground Water Recharge (GWR)

Uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers. Ground water recharge includes recharge of surface water underflow.

##### Non-Contact Water Recreation (REC-2)

Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

##### Cold Fresh Water Habitat (COLD)

Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates.

##### Wildlife Habitat (WILD)

Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

##### Preservation of Biological Habitats of Special Significance (BIOL)

Uses of water that support designated areas or habitats, such as established refuges, parks, sanctuaries, ecological reserves, or Areas of Special Biological Significance (ASBS), where the preservation or enhancement of natural resources requires special protection.

##### Spawning, Reproduction, and/or Early Development (SPWN)

Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

### 5.3.2 Challenged SWMP Beneficial Uses for Meadow Creek

Those uses identified by the RWQCB for Meadow Creek within the MS4 coverage area which are challenged are:

#### Municipal and Domestic Supply (MUN)

Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply. RWQCB should identify the specific uses which qualify inclusion of Meadow Creek in this category for that section of Meadow Creek within and/or downstream of the City of Grover Beach.

#### Agricultural Supply (AGR)

Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing. RWQCB should identify the specific uses which qualify inclusion of Meadow Creek in this category for that section of Meadow Creek within and/or downstream of the City of Grover Beach.

#### Water Contact Recreation (REC-1)

Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs. RWQCB should identify the specific uses which qualify inclusion of Meadow Creek in this category for that section of Meadow Creek within and/or downstream of the City of Grover Beach. Commercial Land Sport Fishing (COMM)

Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes. RWQCB should identify the specific uses which qualify inclusion of Meadow Creek in this category for that section of Meadow Creek within and/or downstream of the City of Grover Beach.

#### Rare, Threatened, or Endangered Species (RARE)

Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered. RWQCB should identify the specific uses which qualify inclusion of Meadow Creek in this category for that section of Meadow Creek within and/or downstream of the City of Grover Beach.

### 5.4. SWMP Grover Beach and Meadow Creek Watershed Described

Prior to development, Grover Beach's natural watershed drained the northern hills to the south into a natural basin where stormwater was absorbed by the sandy soils. Today, urbanization channels the City's northerly neighborhoods stormwaters to Meadow Creek to the south and to the west as can be seen on Map 6.3. Detention basins that recycle stormwaters are important in collecting runoff from North Grover Beach, as well as South Grover Beach.

The City has been successful in requiring new development to detain stormwater on site. This is particularly evident in the industrial district and in residential subdivisions created in the past thirty years. The Mentone Basin was created in the 1980s to provide stormwater detention for the neighborhood's natural basin and to feed the groundwater table.

The City drainage pattern and volume relationship map (see Map 6.3) illustrates significant stormwater and urban runoff locations and patterns in the community. The map also illustrates the magnitude or capacity of flow for each stormwater or runoff route, block by block. As an example, the most significant stormwater volume is illustrated by the boldest arrow on the

map. The map clearly illustrates Meadow Creek's role as the City's major watercourse. The map also portrays the importance of stormwater basins and recycling in South Grover Beach.

Meadow Creek drains a 3,800 acre watershed located in rural San Luis Obispo County, Arroyo Grande and Pismo Beach. It carries runoff through Grover Beach to the Pacific Ocean. It is the City's greatest carrier of stormwater and runoff as it weaves in and out of the communities it serves. Meadow Creek is best understood by separately analyzing three sections of the creek with the SWMP coverage area.

#### **5.4.1 The El Camino Real Channel Section**

The waters of Meadow Creek originate in the rural and urbanized unincorporated area of San Luis Obispo County and incorporated Pismo Beach and Arroyo Grande. The Creek enters the City of Grover Beach in a buried structure near U.S. 101 and Oak Park Blvd. The Meadow Creek channel then follows a route parallel to U.S. 101 and El Camino Real to 4<sup>th</sup> Street where it enters the City of Pismo Beach and the sixty-nine acre Pismo Lake Ecological Preserve.

This section of the Grover Beach channel is heavily laden with willow and other flora which collects sediment and other solids. The channel has filled in with sediment over recent years, perhaps, as much as five feet within the last ten to fifteen years. Litigation in the 1980s addressed the importance and means of limiting upstream development sedimentation to this channel section.

The collection of sediment may be exacerbated by the slowing of creek flow due to the downstream creation and operation of a thirty acre lake within the Pismo Lake Ecological Preserve. The Preserve area was a depository of upstream silt prior to the lake's creation in 1986. This SWMP recommends the displacement of sediment from the Preserve area to the creek channel should be addressed by the Coastal San Luis Resource Conservation District which operates the Preserve.

Attempts by City crews to adequately remove sediment from the creek by hand have been futile. Removal of silt by hand is only semi-adequate until the creek's first seasonal storm flow, at which time, storm drain outlets serving Nacimiento Avenue housing become buried under silt. Mechanized removal of channel sediment buildup has historically been hampered by the California Department of Fish and Game's permitting process.

The California Department of Fish and Game financially assisted with the lake's creation. The Preserve is now reputed to be an important riparian breeding ground for waterfowl and used by 250 bird species. Salt water is introduced to the creek's fresh water in the lake according to the Coastal San Luis Resource Conservation District web site <http://www.coastalrcd.org/PismoLake.html> (see Appendix F.)

This channel section also collects storm waters and runoff from residential areas to the south and public roadways to the north. Silt buildup has buried creek storm drain outlets serving Nacimientto Avenue housing causing storm waters to threaten those residents during major storms.

Water quality improvement in this section of Meadow Creek must be dissected and addressed as follows:

- a. water quality entering this Grover Beach channel section
- b. water quality problems in this channel section
- c. water quality as it leaves this Grover Beach channel section

#### **5.4.2 The Le Sage Channel Section**

Meadow Creek waters enter Grover Beach again at a north City boundary located west of Hwy 1 after their impoundment at the Pismo Lake Ecological Preserve. Originally, the creek made it way through the beach sands to the Pacific Ocean near the North Beach Campground, but it was diverted and channelized in the early 1900s to a southerly direction en route to state campgrounds and lagoons in Oceano.

Water quality of the channel has changed in the creek due to the mixture of salt and fresh water at the Pismo Lake Ecological Preserve. The City diverts storm waters from Front Street and West Grand Avenue to the creek.

The channel within Grover Beach flows southerly and parallels a public golf course owned by the California Department of Parks and Recreation and operated by a private contractor. A private recreational vehicle park adjoins the creek channel to the east. The channel flows under West Grand Avenue and proceeds through State Park property.

Water quality concerns include runoff and impact from:

- a. the State golf course
- b. the Le Sage recreational vehicle park
- c. the State park
- d. Front Street, Le Sage Drive and West Grand Avenue

#### **5.4.3 The Pismo State Beach Dunes Channel Section**

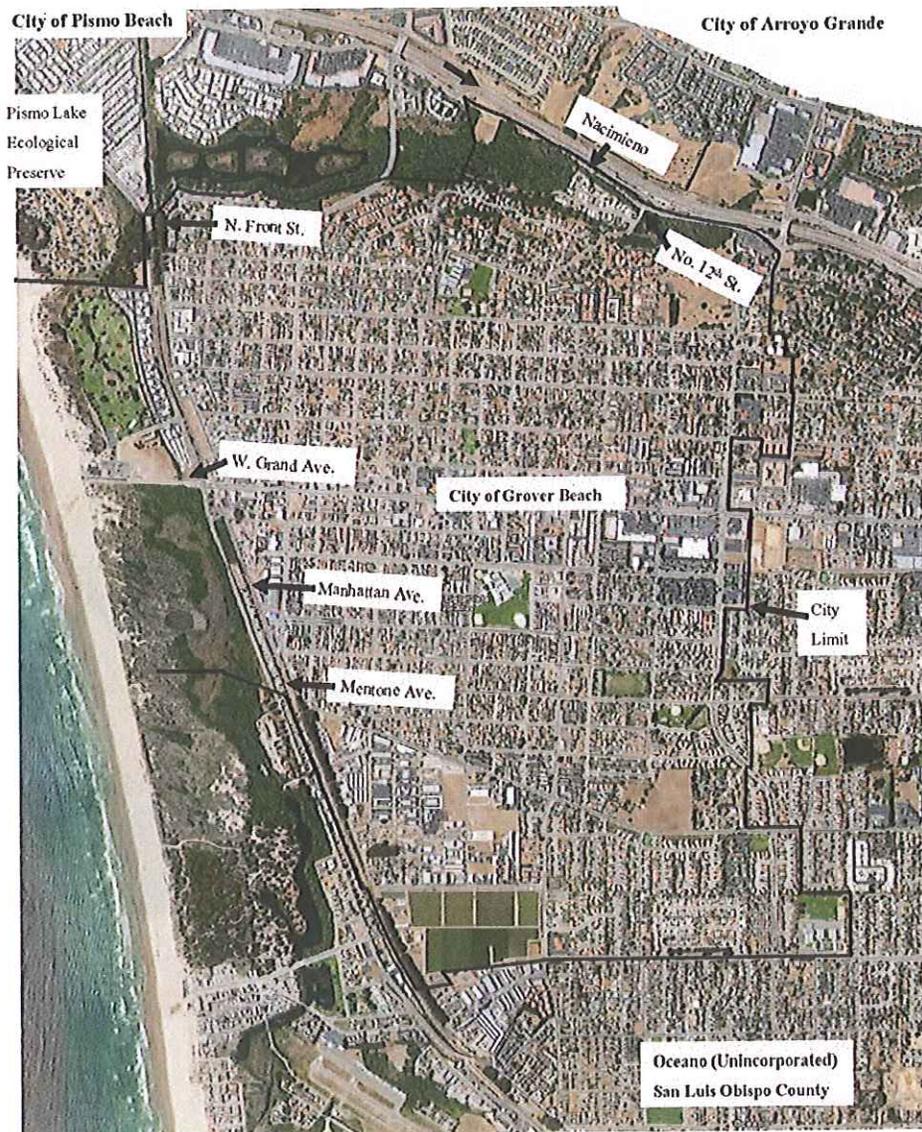
The creek enters this section at West Grand Avenue and flows southerly to camp sites and lagoons in Oceano and then to the Pacific Ocean.

The Pismo State Beach Dunes Channel section of Meadow Creek lies within the ownership, operation and jurisdiction of the California Department of Parks and Recreation. It is generally inaccessible to the public due to the heavy overgrowth of willows and other flora. There have been undocumented reports from time to time that the area may provide some temporary shelter to the homeless. The watercourse is known to breed a large mosquito population which is blown across Hwy 1 to the Amtrak rail station during windy, summer days.

Map 5.4.1 Meadow Creek SWMP Channel Sections



Map 5.4.2 City Storm Drain Discharge to Meadow Creek



The City diverts storm waters from City streets to this section of the creek. They are illustrated on Map 6.5. Water quality concerns include runoff and impact from the City stormwater diversions, the stagnation of water within the State park and water quality entering this section.

**Section 6. Potential Pollutants Addressed**

**6.1. Water Quality Concerns Specific To Grover Beach and Meadow Creek**

A number of water quality concerns and their potential sources have been identified for the area covered by this SWMP. These specific concerns are in addition to the POCs commonly found in urban runoff.

**Table 6.1. Water Quality Concerns Specific to Meadow Creek Channel Sections Addressed in SWMP**

Waterbody	Water Quality Concern	Potential POC Sources	Potential POC	BMP
Meadow Creek- (El Camino Channel)	Sedimentation = S Salt Water Intrusion = SW	Natural Sources, Construction/Land Development, Pismo Lake Ecological Preserve	S S S S SW&S SW&S	IL5A IL5B IL5C IL5D IL5E IL5I
Meadow Creek- (LeSage Channel)	Salt Water Intrusion Sedimentation = S	Pismo Lake Ecological Preserve	SW&S SW&S	IL5E IL5I
Meadow Creek- (LeSage Channel)	Organics = O Nutrients = N	Golf Course Operations	N&O	IL5F
Meadow Creek- (LeSage Channel)	Petroleum hydrocarbons = H Trash = T	LeSage recreational vehicle park	T&H	IL5G
Meadow Creek- (Pismo State Beach Dunes Channel)	Petroleum hydrocarbons Trash = T Sedimentation = S Salt Water Intrusion = SW	State beach recreational uses	N&T SW&S	IL5H IL5I

## 6.2. Pollutants Commonly Associated with Land Use and Pollutants of Concern (POCs)

The Municipal Phase II General Permit says "POCs consist of any pollutants that exhibit one or more of the following characteristics:

- Current loadings or historic deposits of the pollutant are impacting the beneficial uses of a receiving water
- Elevated levels of the pollutant are found in sediments of a receiving water and/or have the potential to bioaccumulate in organisms therein
- The detectable inputs of the pollutant are at concentrations or loads considered potentially toxic to humans and/or flora and fauna."

It identifies POCs found in urban runoff as:

- Sediments
- Non-sediment solids
- Nutrients
- Pathogens
- Oxygen-demanding substances
- Petroleum hydrocarbons
- Heavy metals
- Floatables
- Polycyclic aromatic hydrocarbons (PAHs)
- Trash
- Pesticides and herbicides

A land uses can generate pollutants that have an adverse affect upon the environment. The common pollutants listed below are generally associated with their corresponding land use category, but are not identified here as specific to Grover Beach.

Agriculture: The following pollutants are commonly associated with agricultural use:

- Pesticides and herbicides;
  - Siltation and increased erosion due to cultivation causing removal of topsoil, clogging of waterbodies, and fish kill;
- and
- Fertilizers contributing nutrients such as nitrogen and phosphorus to runoff leading to eutrophication.

Recreation: Recreational uses can result in the production of the following pollutants:

- Sewage discharge;

- Oil and gas;
- Pet wastes; and
- Siltation: Recreational vehicles, hikers, and bikers can cause erosion leading to siltation of adjacent waterbodies.

Residential: The pollutants below are often associated with residential uses:

- Chlorine: High levels of chlorine can be introduced into the environment when swimming pools are drained. High concentrations of chlorine are toxic to fish and wildlife;
- Oil and gas;
- Pesticides, herbicides, and fertilizers;
- Hazardous household products.

Commercial: Commercial uses have the potential to produce the following pollutants:

- Chemicals including detergents and synthetic organic chemicals;
- MTBE which volatilizes (becomes unstable) in soil and leaches into groundwater;
- Oil and grease.

Industrial: Several pollutants impacting water quality can result from industrial uses including:

- Heavy metals;
- Priority organics;
- Oil and gas;
- MTBE

### 6.3 Summary of Potential POCs and Related BMPs

The following Table identifies the BMPs contained the SWMP and their relationship to identified potential POCs.

**CITY OF GROVER BEACH COMMUNITY DEVELOPMENT**

**Architectural Standards for Meadow Creek**

1. That a mylar copy of the recorded tract map be supplied to the City.
2. That each lot be individually served with water, sewer, electricity, natural gas, telephone and cable TV.
3. That all of the utilities listed in Item 2 be stubbed out to each lot prior to recordation at the applicants' expense.
4. That all utilities be undergrounded.
5. That Public Utility Easements be shown on the final map in locations approved by the various utility companies and the City.
6. That the 6" City water main be extended from Charles Street to Margarita Avenue at the applicants' expense and dedicated to the City. The design and installation to meet the approval of the City.
7. That a fire hydrant be installed every 300' along the proposed private street at the applicants' expense and dedicated to the City. Location, design, and flow requirements to meet the approval of the City.
8. That a sewer main system be installed at the applicants' expense and a portion of that system be dedicated to the City. The design and installation to meet the approval of the City.
9. That the design and construction of the private road be to the approval of the City. The private road shall be improved with 32 feet wide paving, with curbs and gutters on both sides, and a 4 foot sidewalk on one side. Cost of design and construction shall be borne by the applicant.
10. That prior to recordation survey monuments shall be set in locations to be approved and specified by the City.
11. That prior to recordation the complete drainage control system be designed and installed to the approval of the City. Said drainage system to be designed and installed at the applicants' expense.
12. That precise engineered grading plans, erosion control plans, and utility plans be prepared by the applicants' engineer. Design and installation to meet the approval of the City. Said plans and installation shall be at the applicant's expense.

13. That the project's CC & R's have a provision that:
  - a. Makes the City and State Department of Fish and Game a third party to the specific extent that the City may inspect, order maintenance, or perform the required maintenance and rein the property to recover cost for said maintenance of any or all drainage and erosion control devices.
  - b. Requires Planning Commission approval of all plans for construction or single family detached dwellings, accessory buildings, and fences.
  - c. Requires Planning Commission approval for the proposed removal of any Coastal Live Oak or Shag Bark Manzanita.
  
14. That the State Department of Fish and Game and the City of Grover City shall be the permitting agencies for all drainage and erosion control devices.
  
15. That all grading activities shall be prohibited between September 30 and May 1st.
  
16. That all areas disturbed by grading shall be planted prior to October 15th with temporary or permanent (as in the case of finished slopes) erosion control vegetation. Vegetative cover must be established by November 1st of each year. Said planting shall be accomplished under the supervision of a licensed landscape architect or landscape contractor. Planting shall consist of seeding, mulching, fertilization and irrigation adequate to provide 90% coverage within 90 days. Planting shall be repeated if the required level of coverage is not established. This requirement shall apply to all disturbed areas including stockpiles.
  
17. That in areas of moderate soil limitations cut and fill slopes on areas under 20% slope shall not be over 4:1 pitch and four feet high, compacted (if fill) with straw mulch broadcast and punched in at 4,000 pounds per acre, and seeded with a native grass and shrub seed mixture generally having the following basic ratio of components.
 

Native woody shrubs	6 lbs/acre
Native herbaceous annuals and perennials	15 lbs/acre
Native grasses	60 lbs/acre
Wood fiber mulch with soil binder	1500
lbs/acre Fertilizer	150 lbs/acre
  
18. That in areas of Low Soil Limitations cut and fill areas under 10% slope shall not exceed 3:1 pitch and four feet in height. Disturbed soil shall be hydroseeded (no straw mulch needed) with the seed mixture as required in Item 17 above, except additional wood fiber shall be incorporated at a minimum of 2,000 lbs/acre.
  
19. That temporary dust control shall be employed during all construction. Watering down methods used to control dust shall not erode the soil. Downhill cuts or fill shall be lined with straw bales to control erosion from runoff.

20. That where exposed soil conditions exist within the landscaped and irrigated portion of the sites near dwellings, slopes shall be planted with ground cover netting at the time of building permit issuance to retain soil. Any of the mulch and seed provisions of Item 17 may be used instead of netting.
21. That permanent landscape plant materials shall be selected, sized and spaced to achieve total soil surface coverage in one year with irrigation provided.
22. That permanent landscape trees and shrubs having fibrous root systems shall be used.
23. That multilevel construction designs shall be required to reduce grading.
24. That a combination of slopes and low retaining walls shall be used to reduce grading.
25. That pier and post and beam type construction shall be used for sites in excess of 15% cross slope.
26. That silt and oil separators shall be an integral part of the drainage and erosion control systems.
27. That all drainage and erosion control devices shall be easily accessible for cleaning and maintenance.
28. That native plant material shall be the major theme in all landscape designs.
29. That fencing be installed along the perimeter of the project to the satisfaction of the Planning Director and the Parks and Recreation Director.
30. That the final tract map be revised to reflect the changes shown on Exhibit "A" (on file).
31. That on subsequent dwelling construction only fiberglass composition shingles or concrete or clay tile roofing material be allowed. NO wood shingles or shakes shall be permitted.
32. That prior to recordation the applicant pay for appropriate street signage.



## City of Grover Beach

Mayor John P. Shoals Mayor Pro Tern Bill Nicolls Council Member Chuck Ashton, Council Member Karen Bright, Council Member Stephen C. Lieberman

Bob Perrault  
City Manager

### GRADING AND DRAINAGE PLAN CHECK LIST

The following items shall be included as part of a grading plan submittal to the City of Grover Beach for grading plan/drainage plan approval.

1. Grading plans will be required for all vacant lot construction and non-attached additions or free standing granny units. A grading plan may not be required for a remodel or attached addition to an existing residence provided that the lot is essentially flat and an underground retention system is used for on-site drainage retention (a City Topographic Map with 2-foot contours is hereby provided and is also available in digital form upon request). Existing and finish contours shall be shown on all grading plans. In the event that shallow drainage basins or other features which are difficult to depict at 1-foot contour intervals are indicated, contour intervals at 0.5 foot or 0.1-foot may be required. Topographic data including the location of existing structures shall be shown a minimum of 10 feet beyond the boundary of the lot in question. In cases where existing offsite drainage/runoff is conveyed onto and/or across the lot in question, the grading plan shall provide for its continuation.

2.

Case 1: For new construction on a vacant lot or redevelopment of a lot requiring the removal of the main structure, on-site drainage retention will be required for ALL impervious surface area, both existing and new;

Case 2: For lot redevelopment that includes a new addition, remodel and/or granny-unit construction and said new addition, remodel and/or granny-unit construction represents an increase in aggregate area equal to 40% or greater of existing impervious surface area, on-site drainage retention will be required for ALL impervious surface area, both existing and new. In cases where new building improvement aggregate area is less than 40% of the existing improvement square footage, only new development area will be considered as impervious surface area for drainage volume calculations;

In each case, on-site drainage retention will be required, except tract lots that have a common drainage basin that receives all lot drainage (per City Council Resolution 06-41, approved June 05, 2006). The volume of drainage to be retained shall be calculated using the formula: area of impervious surface in square feet times 0.325 equals cubic feet of drainage volume to be retained. For multiple basin systems, it may be necessary to include a tributary area diagram for clarity.

3. Maximum side slope for basin(s) and other features is 3:1.

4. In most cases, drainage runoff from new or existing impervious surfaces shall be directed to the new drainage retention facilities utilizing underground piping. Driveways and flatwork may sheet flow into adjacent surface basins. Show gutters & downspouts.

5. Finish floors of new structures including the garage shall be at least 1-foot above the lowest top of curb fronting the development or the lowest drainage overflow (UBC 1806.5.5). In the case of a . lot which does not drain to the street, all drainage shall be directed into new drainage facilities sized as previously stated. Overflow from these facilities may be directed to the natural existing overflow elevation on the lot. The overflow elevation must be at least 1-foot below the new finish floor elevations.

6. Show finish elevations for all new sidewalks and driveway approaches fronting the property in question. In the case of connecting new sidewalk to existing, or new gutter to existing pavement, show the existing elevations at the conform line.

7. Grading on site shall provide for a minimum of 0.5' from finish floor to adjacent grade, a minimum of 2% for 5-feet and then a minimum of 1% flowline grade to the top of curb or overflow point.

8. In order for a permeable driveway using grasscrete, pervious pavers, or pervious concrete material to be considered, the driveway used must be shown to pass 3.2 inches of runoff per hour and the material must be founded on clean, washed gravel. Grasscrete voids must be filled with clean, washed gravel only.

9. Underground infiltration systems shall be encapsulated on all sides with an engineering filter fabric such as Mirafi 140N or approved equal.

10. A silt and debris separator, similar in character to a small septic tank of approximately 300 gallons minimum size shall be utilized ahead of the inlet to the underground infiltration field. The separator shall have two compartments with access to each compartment for cleaning.

11. The surface drainage inlet to an underground infiltration system shall be depressed below the adjacent grade in a manner so that if the system fails, a surface pool of water is formed on private property to warn the property owner that the system has failed. The elevation of the pool shall be such that overflow occurs at least one foot below finish floor.

12. The underground infiltration system shall be outside the zone of influence from adjacent building footings as defined by a 30 degree angle between the bottom of the adjacent footing and the bottom of the adjacent infiltration field. In the event that the above separation cannot be achieved, a report from a licensed Geotechnical Engineer shall be supplied to justify the proposed locations.

13. Underground drainage detention systems shall be designed to retain the amount of drainage described in item No. 2 above. A rock fill layer (6 inches minimum around each lateral) shall be used as part of the underground retention facility utilizing a 20% volume of porosity for sizing the system. The system may be resized during construction to accommodate laboratory tested rock fill with porosity volumes exceeding 20%, after the building permit has been obtained, on-site testing of the rock has been completed by a licensed soils engineer and the City Engineer has been notified.

14. Return red marked check prints with the resubmitted plans.

15. Grading plans must be prepared by an appropriately licensed Engineer or an architect.

16. The City Engineer reserves the right to request information not shown on this checklist, if circumstances justify such a request. Any information requested shall be submitted promptly to avoid project review delays.

**Items 17 through 21 may be satisfied at building permit stage:**

17. Retaining walls which do not have other external loads, or slopes which are not greater than 3:1, may be constructed according to City Standard Drawings. All other walls shall be specifically designed by a licensed Engineer or architect.
18. When retaining walls are required near property line to support a new lower property elevation on the development side, a shoring installation and removal plan shall be submitted and approved prior to installation of the retaining wall. In addition, retaining walls placed near property lines where the project side elevation is to be lowered shall be accompanied by a statement from a licensed Geotechnical Engineer that the resulting excavation will not result in damage to adjoining property.
19. A new Preliminary Soils Report will be required for new construction on a vacant lot, redevelopment of a lot requiring the removal of the main structure or lot redevelopment that includes a one-story new addition, remodel and/or granny-unit construction greater than 1,000 square feet or a two-story new addition, remodel and/or granny-unit construction regardless of area.
20. Provide calculations to justify pipe sizes, slopes and inlet capacity for all downspouts and basin connections.
21. If there is no curb and gutter installed on the property frontage, a new street design shall be prepared for curb, gutter and sidewalk. See Street Design checklist.

*[Revised 7-31-08]*