

## Contents

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EXECUTIVE SUMMARY (REG. § 354.4).....	1
<b>1 INTRODUCTION .....</b>	<b>1</b>
<b>1.1 Purpose of the Groundwater Sustainability Plan (GSP or Plan) .....</b>	<b>1</b>
<b>1.2 Sustainability Goal .....</b>	<b>1</b>
<b>1.3 Agency Information (Reg. § 354.6).....</b>	<b>1</b>
1.3.1 Corning Sub-basin GSA.....	1
1.3.2 Tehama County Flood Control and Water Conservation District GSA .....	1
1.3.3 Memorandum of Understanding Among Groundwater Sustainability Agencies in the Corning Subbasin .....	1
1.3.4 Estimated Cost of Implementing the GSP and the GSAs' Approach to Meet Costs .....	1
<b>1.4 GSP Organization.....</b>	<b>1</b>
<b>2 PLAN AREA.....</b>	<b>2</b>
<b>2.1 Description of the Plan Area (Reg. § 354.8).....</b>	<b>2</b>
2.1.1 Summary of Jurisdictional Areas and Other Features (Reg. § 354.8 b) .....	2
<b>2.2 Water Resources Monitoring and Management Programs (Reg. § 354.8 c, d, e) .....</b>	<b>2</b>
<b>2.3 Land Use Elements or Topic Categories of Applicable General Plans (Reg. § 354.8 f) .....</b>	<b>2</b>
<b>2.4 Potential additional GSP Elements (Reg. § 354.8 g).....</b>	<b>3</b>
<b>2.5 Notice and Communication (Reg. § 354.10).....</b>	<b>3</b>
<b>3 BASIN SETTING .....</b>	<b>4</b>
<b>3.1 Hydrogeologic Conceptual Model (Reg. § 354.14) .....</b>	<b>4</b>
<b>3.2 Current and Historical Groundwater Conditions (Reg. § 354.16) .....</b>	<b>4</b>
<b>4 WATER BUDGET INFORMATION (REG. § 354.18).....</b>	<b>6</b>
<b>4.1 Historical Water Budget .....</b>	<b>6</b>
4.1.1 Groundwater Budget.....	6
4.1.2 Surface Water Budget.....	6
<b>4.2 Current Water Budget.....</b>	<b>6</b>
4.2.1 Groundwater Budget.....	6
4.2.2 Surface Water Budget.....	6
<b>4.3 Projected Water Budget .....</b>	<b>6</b>
4.3.1 Projected Future Conditions Assumptions .....	6
4.3.2 Groundwater Budget.....	6
4.3.3 Surface Water Budget.....	7
<b>4.4 Management Areas (as Applicable) (Reg. § 354.20).....</b>	<b>7</b>

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**Proposed Draft Annotated Outline for the Corning Subbasin Groundwater Sustainability Plan (November 2020)**

<b>5</b>	<b>MONITORING NETWORKS</b> .....	<b>8</b>
5.1	<b>Description of Monitoring Networks (Reg. § 354.34)</b> .....	<b>8</b>
5.1.1	Monitoring Protocols for Data Collection and Monitoring (Reg. § 352.2).....	9
5.1.2	Representative Monitoring (Reg. § 354.36).....	9
5.1.3	Assessment and Improvement of Monitoring Network (Reg. § 354.38).....	9
<b>6</b>	<b>SUSTAINABLE MANAGEMENT CRITERIA</b> .....	<b>10</b>
6.1	<b>Sustainability Goal (Reg. § 354.24)</b> .....	<b>10</b>
6.2	<b>General Process for Establishing Sustainable Management Criteria</b> .....	<b>10</b>
6.3	<b>Sustainable Management Criteria Summary</b> .....	<b>10</b>
6.4	<b>For Each Sustainability Indicator:</b> .....	<b>10</b>
6.4.1	Measurable Objectives (Reg. § 354.30).....	10
6.4.2	Minimum Thresholds (Reg. § 354.28).....	11
6.4.3	Undesirable Results (Reg. § 354.26).....	11
<b>7</b>	<b>PROJECTS AND MANAGEMENT ACTIONS TO ACHIEVE SUSTAINABILITY GOAL (REG. § 354.44)</b> .....	<b>13</b>
7.1	<b>Project #1 Description</b> .....	<b>13</b>
7.2	<b>Project #2 Description</b> .....	<b>13</b>
7.3	<b>Project #X Description</b> .....	<b>13</b>
<b>8</b>	<b>PLAN IMPLEMENTATION</b> .....	<b>14</b>
8.1	<b>Estimate of GSP Implementation Costs (Reg. § 354.6)</b> .....	<b>14</b>
8.2	<b>Schedule for Implementation</b> .....	<b>14</b>
8.3	<b>Annual Reporting</b> .....	<b>14</b>
8.4	<b>Periodic Evaluations</b> .....	<b>14</b>
<b>9</b>	<b>REFERENCES AND TECHNICAL STUDIES (REG. § 354.4)</b> .....	<b>15</b>

**Tables**

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**Figures**

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**Appendices**

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**EXECUTIVE SUMMARY (REG. § 354.4)**

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# **1 INTRODUCTION**

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## **1.1 Purpose of the Groundwater Sustainability Plan (GSP or Plan)**

## **1.2 Sustainability Goal**

## **1.3 Agency Information (Reg. § 354.6)**

### **1.3.1 Corning Sub-basin GSA**

#### **1.3.1.1 Organization and Management Structure**

#### **1.3.1.2 Legal Authority**

#### **1.3.1.3 Agency Contact Information**

### **1.3.2 Tehama County Flood Control and Water Conservation District GSA**

#### **1.3.2.1 Organization and Management Structure**

#### **1.3.2.2 Legal Authority**

#### **1.3.2.3 Agency Contact Information**

### **1.3.3 Memorandum of Understanding Among Groundwater Sustainability Agencies in the Corning Subbasin**

### **1.3.4 Estimated Cost of Implementing the GSP and the GSAs' Approach to Meet Costs**

## **1.4 GSP Organization**

- Description of how the GSP is organized
- Preparation Checklist for GSP Submittal

## **2 PLAN AREA**

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### **2.1 Description of the Plan Area (Reg. § 354.8)**

#### **2.1.1 Summary of Jurisdictional Areas and Other Features (Reg. § 354.8 b)**

- Map(s) (Reg. § 354.8 a):
  - Area covered by GSP
  - Other Agencies within the Subbasin
  - Jurisdictional boundaries of federal or State land
  - Existing land use designations
  - Density of wells per square mile

#### **2.2 Water Resources Monitoring and Management Programs (Reg. § 354.8 c, d, e)**

- Description of water resources monitoring and management programs
  - Description of how monitoring networks of those programs will be incorporated into the GSP
  - Descriptions of how those programs may limit operation flexibility in the basin
  - Description of conjunctive use programs

#### **2.3 Land Use Elements or Topic Categories of Applicable General Plans (Reg. § 354.8 f)**

- Summary of general plans and other land use plans
  - Information could include crop types and acreages, urban land designation, and identification of open spaces.
- Description of how implementation of the GSP may change water demands or affect achievement of sustainability and how the GSP addresses those effects
- Description of how implementation of the GSP may affect the water supply assumptions of relevant land use plans

- Summary of the process for permitting new or replacement wells in the basin
- Information regarding the implementation of land use plans outside the basin that could affect the ability of the Agency to achieve sustainable groundwater management

## **2.4 Potential additional GSP Elements (Reg. § 354.8 g)**

- Wellhead protection
- Migration of contaminated groundwater
- Well abandonment and well destruction program
- Replenishment of groundwater extractions
- Conjunctive use and underground storage
- Well construction policies
- Groundwater contamination cleanup, recharge, diversions to storage, conservation, water recycling, conveyance, and extraction projects
- Efficient water management practices
- Relationships with State and federal regulatory agencies
- Land use plans and efforts to coordinate with land use planning agencies to assess activities that potentially create risks to groundwater quality or quantity
- Impacts on groundwater dependent ecosystems

## **2.5 Notice and Communication (Reg. § 354.10)**

- Description of beneficial uses and users in the basin
- A Communications Section that describes:
  - Decision-making processes
  - Public engagement opportunities
  - Encouraging active involvement
  - Informing the public on GSP implementation progress

## **3 BASIN SETTING**

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### **3.1 Hydrogeologic Conceptual Model (Reg. § 354.14)**

- Graphical and narrative description of the physical components and boundaries of the Subbasin
- Three scaled cross-sections with discussion
- Figure and discussion of interpreted areal electromagnetic (AEM) survey results
- Stratigraphic column of formations in the Subbasin
- Table with hydrogeologic properties of formations in the Subbasin.
- Maps and discussion of physical characteristics
  - Topographic information
  - Soil types
  - Hydrologic soil groupings
  - Surficial geology
  - Delineation of potential recharge areas
  - Delineation of existing discharge areas
  - Surface water bodies and surface water conveyance infrastructure
  - Source and point of delivery for local and imported water supplies

### **3.2 Current and Historical Groundwater Conditions (Reg. § 354.16)**

- Description and illustration of current groundwater elevation contours and flow direction
- Hydrographs, maps, discussion outlining trends in groundwater elevations through time, spatially, and with depth
- Estimate of groundwater storage over time
- Description of why seawater intrusion is not applicable in the Subbasin
- Maps and discussion of land subsidence conditions

- Maps and discussion of groundwater quality issues including:
  - Point source groundwater pollution
  - Non point source groundwater pollution
  - Summary of major groundwater quality concerns
- Identification of interconnected surface water systems
- Identification of groundwater-dependent ecosystems
  - Including potentially related factors such as instream flow requirements, threatened and endangered species, and critical habitat.

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## **4 WATER BUDGET INFORMATION (REG. § 354.18)**

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### **4.1 Historical Water Budget**

#### **4.1.1 Groundwater Budget**

- Description and quantification of inflows, outflows, and change in storage
- Quantification of overdraft (as applicable)

#### **4.1.2 Surface Water Budget**

- Description and quantification of inflows and outflows
- Description of surface water supply sources
- Description of surface water reliability

### **4.2 Current Water Budget**

#### **4.2.1 Groundwater Budget**

- Quantification of inflows, outflows, and change in storage
- Quantification of overdraft (as applicable)

#### **4.2.2 Surface Water Budget**

- Quantification of inflows and outflows

### **4.3 Projected Water Budget**

#### **4.3.1 Projected Future Conditions Assumptions**

- Projected future land use conditions
- Projected population growth
- Assumptions for projected climate change and it how it may affect streamflows and surface water deliveries

#### **4.3.2 Groundwater Budget**

- Description and quantification of inflows, outflows, and change in storage
- Quantification of overdraft (as applicable)
- Estimate of sustainable yield

### **4.3.3 Surface Water Budget**

- Description and quantification of inflows and outflows
- Description of surface water supply used or available for use for groundwater recharge or in-lieu use

### **4.4 Management Areas (as Applicable) (Reg. § 354.20)**

- Reason for creation of each management area
- Level of monitoring and analysis
- Description of management areas
- Explanation of how management of management areas will not cause undesirable results outside the management area

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## 5 MONITORING NETWORKS

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### 5.1 Description of Monitoring Networks (*Reg. § 354.34*)

- Description of how the monitoring network is capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate Plan implementation
- Description of monitoring network objectives including explanation of how the network will be developed and implemented to monitor:
  - Groundwater and related surface conditions
  - Interconnection of surface water and groundwater
- Description of how implementation of the monitoring network objectives demonstrate progress toward achieving the measurable objectives, monitor impacts to beneficial uses or users of groundwater, monitor changes in groundwater conditions, and quantify annual changes in water budget components
- Description of how the monitoring network is designed to accomplish the following for each sustainability indicator:
  - Chronic Lowering of Groundwater Levels. Demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features
  - Reduction of Groundwater Storage. Estimate the change in annual groundwater in storage
  - Seawater Intrusion. Monitor seawater intrusion
  - Degraded Water Quality. Determine groundwater quality trends
  - Land Subsidence. Identify the rate and extent of land subsidence
  - Depletions of Interconnected Surface Water. Calculate depletions of surface water caused by groundwater extractions
- Description of how the monitoring plan provides adequate coverage of the sustainability indicators
- Density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends

- Scientific rationale (or reason) for site selection
- Consistency with data and reporting standards
- Corresponding sustainability indicator, minimum threshold, measurable objective, and interim milestone
- Location and type of each site on a map
- If management areas are used, a description of the level of monitoring and analysis appropriate for each management area. (*Reg. § 354.20 b*)

#### **5.1.1 Monitoring Protocols for Data Collection and Monitoring (*Reg. § 352.2*)**

- Description of technical standards, data collection methods, and other procedures or protocols to ensure comparable data and methodologies.

#### **5.1.2 Representative Monitoring (*Reg. § 354.36*)**

- Description of representative sites if designated
- Demonstration of adequacy of using groundwater elevations as proxy for other sustainability indicators
- Adequate evidence demonstrating site reflects general conditions in the area

#### **5.1.3 Assessment and Improvement of Monitoring Network (*Reg. § 354.38*)**

- Review and evaluation of the monitoring network
- Identification and description of data gaps
- Description of steps to fill data gaps
- Description of monitoring frequency and density of sites

## 6 SUSTAINABLE MANAGEMENT CRITERIA

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### 6.1 Sustainability Goal (Reg. § 354.24)

- Description of sustainability goal, including:
  - Information from the basin setting used to establish the sustainability goal
  - Discussion of the measures that will be implemented to ensure that the basin will be operated within its sustainable yield
  - Explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon

### 6.2 General Process for Establishing Sustainable Management Criteria

- Description of process to involve the GSAs, Boards, and stakeholders in developing SMCs for each sustainability indicator

### 6.3 Sustainable Management Criteria Summary

- Summary table that shows SMCs at a glance for each applicable Sustainability Indicator

### 6.4 For Each Sustainability Indicator:

- *Chronic Lowering of Groundwater Elevations*
- *Subsidence*
- *Reduction in Groundwater Storage*
- *Degraded Water Quality*
- *Depletion of Interconnected Surface Water*

#### 6.4.1 Measurable Objectives (Reg. § 354.30)

- Description of each measurable objective and how the measurable objectives were established for each relevant sustainability indicator
- Description of how a reasonable margin of safety was established for each measurable objective

- Description of a reasonable path to achieve and maintain the sustainability goal including a description of interim milestones for each relevant sustainability indicator
- If management areas are used, a description of (*Reg. § 354.20 b*):
  - The measurable objectives established for each management area, and an explanation of the rationale for selecting those values, if different from the basin at large.
  - An explanation of how the management area can operate under different measurable objectives without causing undesirable results outside the management area, if applicable.

#### **6.4.2 Minimum Thresholds (*Reg. § 354.28*)**

- Description of each minimum threshold and how they were established for each relevant sustainability indicator
- Relationship for each sustainability indicator
- Description of how minimum thresholds have been selected to avoid causing undesirable results
- Description of how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.
- Standards related to sustainability indicators
- How each minimum threshold will be quantitatively measured for each relevant sustainability indicator
- If management areas are used, a description of (*Reg. § 354.20 b*):
  - The minimum thresholds established for each management area, and an explanation of the rationale for selecting those values, if different from the basin at large.
  - An explanation of how the management area can operate under different minimum thresholds without causing undesirable results outside the management area, if applicable.

#### **6.4.3 Undesirable Results (*Reg. § 354.26*)**

- Description of undesirable results for any of the sustainability indicators

- Cause of groundwater conditions that would lead to undesirable results
- Criteria used to define undesirable results based on minimum thresholds
- Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results

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## **7 PROJECTS AND MANAGEMENT ACTIONS TO ACHIEVE SUSTAINABILITY GOAL (REG. § 354.44)**

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### **7.1 Project #1 Description**

- Measurable objective that is expected to benefit from the project or management action
- Circumstances for implementation
- Public noticing
- Overdraft mitigation projects and management actions
- Permitting and regulatory process
- Time-table for initiation and completion, and the accrual of expected benefits
- Expected benefits and how they will be evaluated
- How the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.
- Legal authority required
- Estimated costs for the projects and managements and plans to meet those costs (economic analysis and finance strategy for projects and management actions)
- Management of groundwater extractions and recharge
- Relationship to additional GSP elements as described in Water Code §10727.4.

### **7.2 Project #2 Description**

### **7.3 Project #X Description**

## **8 PLAN IMPLEMENTATION**

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### **8.1 Estimate of GSP Implementation Costs (*Reg. § 354.6*)**

### **8.2 Schedule for Implementation**

### **8.3 Annual Reporting**

- GSAs plan for required annual reporting

### **8.4 Periodic Evaluations**

- GSAs process for required periodic evaluations

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## 9 REFERENCES AND TECHNICAL STUDIES (REG. § 354.4)

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### Complete References List of Reports and Datasets Used for GSP Development

#### Planned Appendices

- Interbasin and Coordination Agreements (as applicable) (*Reg. § 357*)
- Contact Information for Plan Manager and GSA Mailing Address (*Reg. § 354.6*) [Section 1]
- List of Public Meetings (*Reg. § 354.10*) [Section 2]
- Public Comments and Responses (*Reg. § 354.10*) [Section 2]
- Technical Appendices
  - Groundwater Model Documentation [Section 4]