# **APPENDIX 5A**

Project Descriptions



# **General Project Information:**

- **Project Description:** The Gilsizer North Detention Basin (GNDB) is an existing detention basin (approximately 43 acre-feet of storage volume) located in Yuba City, north of Lamon Way and east of Market Street. Most of the northeast corner of Yuba City drains to this detention basin. The modifications of GNDB proposed with this project include:
  - Replacing the existing concrete low flow channel with large rocks or a vegetated swale.
  - Modifying the low flow channel alignments to create native-vegetated swales along the edge of the basin to facilitate groundwater recharge and improve water quality.
  - Installing end-of-pipe trash capture devices on pipes discharging to the detention basin. Selected trash capture devices must meet the State's Trash Amendment requirements.
  - Creating a recreational area in the bottom of the detention basin and allowing public access through the Sutter Buttes Little League fields.
  - Constructing a permanent roof over the gas station and covers over material stockpiles at the City Corp Yard to reduce pollutants in runoff.

The detention basin will not require resizing due to the installation of end-of-pipe trash capture devices.

- Location: The project is located just north of the intersection of Lamon Way and Von Geldern Way. The City Corp Yard is located at 1185 Market Street, Yuba City.
- Watershed: The Gilsizer North Detention Basin discharges flows to the Feather River.
- Tributary Watershed and Trash Generating Land Use Areas: The total tributary area for the Gilsizer North Detention Basin is approximately 837 acres. The watershed contains 255 acres of high trash-generating land use (HTGLU), which is approximately 11% of the City's total HTGLU. There are approximately 184 storm drain inlets and 20 bus stops within the watershed.





# **Benefits Resulting from this Project:**

- Water Quality: This project will treat 2.14 acre-feet of stormwater and dry weather runoff per year from an urban watershed. Urban runoff is typically high in pollutants such as pesticides, oils and grease, metals, and trash.
- **Water Supply**: This project will infiltrate 2.14 acre-feet of runoff per year, thereby increasing available groundwater supply and recharging surface waters.
- **Flood Management**: The GNDB will continue to provide flood relief along Market Street. The project will provide additional infiltration capacity which will slightly increase flood relief.
- **Environmental**: This project will improve the environment by reducing the amount of trash discharged into the basin and subsequently pumped to the Feather River. It will create urban green space which improves the environmental flow and natural hydrograph.
- **Community**: Increased community access and recreational opportunities will enhance the community space. Construction and maintenance of the facility will create job opportunities.



# **Project Schematic and Photographs:**

# YCB SWRP Project A1: Gilsizer North Detention Basin Modifications





Photo 1. Gilsizer North Detention Basin.



Photo 2. Potential configuration for end-of-pipe trash device configuration. This specific device has screen openings of 1.5 in, and therefore would need to be constructed with a screen that has 5-mm openings to meet the California Trash Amendment requirements.



# **General Project Information:**

- **Project Description:** Shanghai Bend Detention Pond is an existing detention basin (approximately 83 acre-feet of storage volume) in Yuba City near the Garden Highway and Shanghai Drive intersection. This detention basin captures flows from high trash-generating areas northwest of the basin, and lower trash-generating residential areas surrounding the basin. The detention basin serves as an overflow for the existing East WWTP Basin (Project A7) and the Solar Panel pond. Project modifications would include:
  - Replacing the existing concrete channel with large rocks or a vegetated swale.
  - Modifying the low flow channel alignments to create native-vegetated swales along the edge of the basin to facilitate groundwater recharge and improve water quality.
  - Installing end-of-pipe trash capture devices on pipes discharging to the detention basin.
    The selected trash capture devices must meet the State's Trash Amendment requirements.
  - Creating a recreational area at the bottom of the detention basin and allowing public access.

The detention basin will not require resizing due to the installation of end-of-pipe trash capture devices.

- Location: The project is located north of Shanghai Drive, between Garden Highway and Levee Road.
- Watershed: The Shanghai Bend Detention Pond discharges via an existing 24-inch forcemain to the Feather River.
- Tributary Watershed and Trash Generating Land Use Areas: The total tributary area for the Shanghai Bend Detention Basin is approximately 533 acres. The watershed contains 14 acres of high trash-generating land use (HTGLU) which is approximately 1% of the City's total HTGLU. There are approximately eight storm inlets and four bus stops within the watershed.





# **Benefits Resulting from this Project:**

- Water Quality: This project will treat 12.55 acre-feet of stormwater and dry weather runoff per year from an urban watershed. Urban runoff is typically high in pollutants such as pesticides, oils and grease, metals, and trash.
- **Water Supply**: This project will infiltrate 12.55 acre-feet of runoff per year, thereby increasing available groundwater supply and recharging surface waters.
- **Flood Management**: With this project, the basin will provide additional infiltration capacity which will slightly increase flood relief.
- **Environmental**: This project will improve the environment by reducing the amount of trash discharged into the basin and subsequently pumped to the Feather River. It will create urban green space which improves the environmental flow and natural hydrograph.
- **Community**: Increased community access and recreational opportunities will enhance the community space. Construction and maintenance of the facility will create job opportunities.

# **Project Schematic and Photographs:**



# YCB SWRP Project A4: Shanghai Bend Detention Pond Modifications





Photo 1. Potential configuration for end-of-pipe trash capture device. This specific device has screen openings of 1.5-in, and therefore would need to be replaced with a screen that has 5-mm openings to meet the California Trash Amendment requirements.

# YCB SWRP Project A7: Detention Pond East of WWTP Modifications



## **General Project Information:**

- **Project Description:** The Detention Pond East of the WWTP is an existing detention basin (approximately 14 ac-ft of detention storage volume). This detention basin captures flows from high trash-generating areas north and west of the project site. Project modifications include:
  - Installing in-line trash capture devices at the existing concrete basin containment structure, upstream of both existing pump intakes. The selected trash capture devices must meet the State's Trash Amendment requirements.
  - Modifying the low flow channel alignment to create rocky swales along the edge of the basin to facilitate groundwater recharge and improve water quality.
  - Constructing a berm to direct flow from the existing 48-inch and 54-inch inlets from Burns Drive to the modified low flow channel.

The detention basin will not require resizing due to the installation of end-of-pipe trash capture devices.

- Location: The project is located just east of the City's WWTP, south of Burns Drive.
- Watershed: The Detention Pond East of the WWTP is drained via two pumps and two existing force mains which discharge to the Feather River.
- Tributary Watershed Area and Trash Generating Land Use Areas: The total tributary area for the Detention Pond East of the WWTP is approximately 269 acres. The watershed contains 53 acres of high trash-generating land use (HTGLU), which is approximately 2% of the City's total HTGLU. There are also 32 storm drain inlets and 1 bus stop within the watershed.





# **Benefits Resulting from this Project:**

- Water Quality: This project will treat 49.62 acre-feet of stormwater and dry weather runoff per year from an urban watershed. Urban runoff is typically high in pollutants such as pesticides, oils and grease, metals, and trash.
- **Water Supply**: This project will infiltrate 49.62 acre-feet of runoff per year, thereby increasing available groundwater supply and recharging surface waters.
- Flood **Management**: The existing basin will continue to provide flooding relief along Burns Street. The project will provide additional infiltration capacity which will slightly increase flood relief.
- **Environmental**: This project will improve the environment because it will reduce the amount of trash pumped to the Feather River.
- **Community**: The community will not be significantly changed by this project.

# **Project Schematic and Photographs:**



# YCB SWRP Project A7: Detention Pond East of WWTP Modifications





Photo 1. Potential configuration of a trash capture device for pump intakes. The screens could be placed around the intake of a pump station, similar to how the screens are placed around the culverts in the photo above. This specific device has screen openings of 1.5-in, and therefore would need to be constructed with a screen that has 5-mm openings to meet the California Trash Amendment requirements.



# **General Project Information:**

• Project description: The City currently does not have published design standards for detention basins. However, the Yuba City Basin Drainage Study (February 2018) included standards for detention basins and requires that detention basins be sized to hold a 24-hour, 100-year storm event without pumping; maintaining a water elevation one foot below the lowest drain inlet.

This project will build on this existing design criteria and will create standards for enhancing existing detention basins and for constructing new detention basins. The intent of this plan is to provide standard guidance on how to:

- Size detention basins,
- Install trash capture devices to meet the State's Trash Amendments,
- Promote infiltration,
- Provide water quality treatment swales and pools and certain types of vegetation to provide treatment where applicable, and
- Enhance public recreation opportunities and allow public access.

This guidance document will be used by the City, the City's consultants, and developers who design detention basins within the City Sphere of Influence.

• Watershed and Location: This guidance manual will cover the City Sphere of Influence, which includes Gilsizer Slough, Live Oak Canal, and the various watersheds that are pumped into Feather River.

# **Benefits Resulting from this Project:**

This project includes the preparation of detention basin standards. When the detention basin standards are fully implemented, the following benefits are expected to occur:

- Water Quality: Water quality is expected to be improved because there will be a reduction of trash in receiving waters.
- Water Supply: Water supply is expected to increase because infiltration will be enhanced.
- **Flood Management**: Flood management is expected to be improved since all detention basins will be designed with consistent standards for a 100-year, 24-hour design storm event and because debris will be removed from the drainage system, which will improve the system operations.
- **Environmental**: The environment is expected to be improved because a reduction of trash and pollutants in the receiving waters will improve beneficial uses of receiving waters.
- **Community**: The community is expected to be moderately improved because trash capture and improved recreational opportunities enhances the community.

# YCB SWRP Project E1: Standards for Detention Basins



#### **Project Costs:**

• **Estimated Plan Preparation Cost:** The estimated cost of preparing the design standards is \$TBD.

# **Project Photographs:**



Photo 1. The existing Gilsizer North Detention Basin was designed without the revised standards, and consequently it lacks many features that would be included if it was designed with the revised standards, like public access and recreation facilities, water quality swales and pools, and trash collection.





Photo 2. The existing Shanghai Bend Detention Basin was designed without the revised standards, and consequently it lacks many features that would be included if it was designed with the revised standards, like public access and recreation facilities, water quality swales and pools, and trash collection.



## **General Project Information:**

• **Project Description:** Gilsizer Slough is a natural channel that was modified to provide drainage for urban and agricultural land uses. Gilsizer Slough is currently managed by the Gilsizer County Drainage District. Gilsizer County Drainage District does not have published standards for maintaining and enhancing Gilsizer Slough, so the County's drainage design standards are used to provide guidance. The County standards include the required depth of freeboard and minimum/maximum velocity requirements.

This project will create new standards for the management and improvement of Gilsizer Slough and add to the existing County standards for improvements to Gilsizer Slough. The intent of this plan is to provide standard guidance on:

- Requirements for the installation of trash capture devices to meet the State's Trash Amendments;
- Structural and non-structural improvements to bank slopes to minimize erosion;
- Requirements for the installation new piped discharges to Gilsizer Slough to control and reduce trash and runoff entering the channel.
- How to manage and conduct routine maintenance activities.

This guidance document will be used by the City, the City's consultants, developers who modify the channel, and by those who want to install new or modify existing discharges to Gilsizer Slough.

• Watershed and Location: This guidance manual will cover Gilsizer Slough from Franklin Road to George Washington Boulevard, which includes the Gilsizer Slough watershed.

# **Benefits Resulting from this Project:**

This project includes the preparation of standards for Gilsizer Slough. When the standards are fully implemented, the following benefits are expected to occur:

- Water Quality: Water quality is expected to be improved because there will be a reduction of trash and erosion (and therefore suspended sediment) in Gilsizer Slough and the Sutter Bypass.
- Water Supply: Water supply is not expected to change.
- **Flood Management:** Flood Management is expected to improve because this project will result in improved maintenance of Gilsizer Slough and debris will be removed from the drainage system, which will improve the system operations. In addition, new discharges into Gilsizer Slough will be limited.
- **Environmental:** The environment is expected to be improved because these standards will result in a reduction of trash and pollutants in Gilsizer Slough.
- **Community:** The community is not expected to change significantly.

# **Project Costs:**

• Estimated Plan Preparation Cost: The estimated cost of preparing this plan is to be determined.



# **Project Photographs:**





Photo 2. Gilsizer Slough with maintenance being performed.

# YCB SWRP Project E2: Standards for Gilsizer Slough







## **General Project Information:**

- Project Description: This project is a plan to reduce trash entering receiving waters, such as the Feather River and the Sutter Bypass, through wet weather and dry weather drainage. The intent of this plan is to meet the State's Trash Amendments, reduce trash in the community, and enhance beneficial uses of receiving waters by improving water quality and aquatic habitat. The Trash Capture Master Plan will identify specific trash reduction projects and activities to be implemented over a 10-year time period to meet the requirements of the Trash Amendments and minimize capital and annual operation and maintenance costs. The plan will compare the costs associated with installing multiple, small trash capture devices with installing a few large trash capture devices. Specific projects have already been identified where trash control would have a large beneficial impact, and these areas will be evaluated in more detail in the Trash Capture Master Plan. Devices that meet full trash capture requirements (such as hydrodynamic separators, outfall nets, and connector pipe screens) will be identified and located. Projects that provide multiple benefits will also be evaluated, such as projects that meet the State's full capture requirements while also promoting infiltration or reducing runoff (such as detention basins and infiltration trenches). The City selected to use Track 1 for compliance with the Trash Amendments, which will require installation of full trash capture systems for all the priority land uses (high trash generating land uses). The feasibility of switching to Track 2 so the City can receive credit for its current efforts to reduce trash (i.e. street sweeping) will also be explored.
- Watershed and Location: The Trash Capture Master Plan will cover the City limits, which includes Gilsizer Slough, Live Oak Canal, and the various watersheds that pump into Feather River.

#### **Benefits Resulting from this Project:**

This project includes the preparation of the Trash Capture Master Plan. When the Trash Capture Master Plan is fully implemented, the following benefits are expected to occur:

- Water Quality: Water quality is expected to be improved because there will be a reduction of trash in receiving waters.
- Water Supply: Water supply is not expected to significantly change.
- **Flood Management:** Flood management is expected to be improved because debris will be removed from the drainage system, which will improve the system operations. Removing trash will require maintenance or automated trash systems.
- **Environmental:** The environment is expected to be improved because compliance with the Trash Capture Master Plan will reduce the trash in the receiving waters.
- **Community:** The community is not expected to change significantly.

# **Project Costs:**

• Estimated Plan Preparation Cost: The estimated cost of preparing the Trash Capture Master Plan is to be determined. This cost will not include the costs of designing and constructing the improvements that will be identified in the Trash Capture Master Plan.



# **Project Photographs:**





# YCB SWRP Project E3: Trash Capture Master Plan





Photo 3. Trash accumulating along Harter Parkway in Yuba City. Imagery June 2012 © Google 2018.



# **General Project Information:**

- **Project Description:** The Gilsizer Slough at Lincoln Road Trash Capture project involves installing a trash capture device in Gilsizer Slough, just south of Lincoln Road. This project will capture flows from a significant portion of the City and large area of high trash-generating areas; it has the largest tributary area of all projects. This project includes:
  - Installing an in-line trash capture device in Gilsizer Slough. The selected trash capture device must meet the State's Trash Amendment requirements. The hydraulic model used to verify the feasibility of the device indicated there was no significant increase in upstream or downstream high-water levels for larger design storm events.
  - Modifying the existing Gilsizer Slough channel to eliminate the adverse slope (between Lincoln Road and Rushing Street).
  - Upgrading the existing vehicle access road adjacent to Gilsizer Slough and upstream of the proposed trash capture device if necessary for maintenance access.
  - This project is a combination of three previous initial projects, which allows a significant portion of the City's runoff to be treated in one location with one capture device.
- **Location:** The project is located in Gilsizer Slough, approximately 300 feet downstream of Lincoln Road.
- Watershed: The flow through the Gilsizer Slough at Lincoln Road Trash Capture project will continue to flow downstream in Gilsizer Slough.
- Tributary Watershed and Trash Generating Land Use Areas: The total tributary area for the Gilsizer Slough at Lincoln Road project is approximately 3,412 acres. The watershed contains 906 acres of high trash-generating land use (HTGLU) which is approximately 39% of the City's total HTGLU. There are approximately 501 storm inlets and 62 bus stops within the watershed.





# **Benefits Resulting from this Project:**

- Water Quality: This project will capture and allow removal of trash from an urban watershed.
- Water Supply: This project will not provide any significant benefit to water supply.
- **Flood Management**: After this project is constructed, Gilsizer Slough will continue to provide the same level of flood protection as it does currently.
- **Environmental**: This project will improve the environment because it will reduce the amount of trash discharged down Gilsizer Slough and subsequently pumped to the Sutter Bypass.
- **Community**: The community will not be changed significantly by this project.

**Project Schematic and Photographs:** 



# YCB SWRP Project F1, F2 & F4: Gilsizer Slough at Lincoln Road Trash Capture





Photo 1. Box Culvert and 84-inch outlet in Gilsizer Slough at Lincoln Road.



# YCB SWRP Project F1, F2 & F4: Gilsizer Slough at Lincoln Road Trash Capture





Photo 3. Potential configuration for in-line trash capture device. This device will be installed across the bottom of Gilsizer Slough. The screen height will be set at the water surface elevation of a 1-year, 1-hour storm. This specific device has screen openings of 1.5-in, and therefore would need to be replaced with a screen that has 5-mm openings to meet the California Trash Amendment requirements. This type of device (even with a 5-mm screen) would need to be approved by the State Water Board.

# YCB SWRP Project F3: Madrone and Orchard/Park Trash capture



## **General Project Information:**

- Project Description: The Madrone and Orchard/Park Trash Capture project involves:
  - Installation of a 5-mm screen trash capture device in Gilsizer Slough just downstream the twin, 5-foot by 8-foot box culverts at Madrone Drive to meet the State's Trash Amendment requirements. The hydraulic model used to verify the feasibility of the device indicated there was no significant increase in upstream or downstream high-water levels for larger design storm events.
  - Replacement of the existing trash rack at Park Avenue to improve maintenance and cleaning of the rack when there is water flowing in Gilsizer Slough. The existing rack ends below the top of the headwall, and consequently it is difficult to clean. The replacement rack will extend at least three feet above the headwall to allow debris to be lifted up the rack and into a low dumpster (see Figure 1).

The 5-mm screen trash capture device will be sized for a 1-year storm and will capture all trash larger than 5-mm. During larger storms, the device will be overtopped and may clog from storm flows conveying heavy debris loads to the screen. To prevent large debris from entering the ~1,000-foot tunnel, it is necessary to have the trash rack at the entrance to the Park Avenue headwall, downstream of the new trash capture device.

- Location: The project is located on the southeast corner of the Orchard Street and Park Avenue intersection, and on the west side of Madrone Avenue at the intersection with Orchard Street.
- Watershed: The Madrone and Orchard/Park trash capture project discharges flow downstream in Gilsizer Slough.
- Tributary Watershed and Trash Generating Land Use Areas: The total tributary area for the Madrone and Orchard/Park trash capture project is 481 acres. The watershed contains 161 acres of high trashgenerating land use (HTGLU), which is approximately 7% of the City's total HTGLU. There are approximately 155 storm inlets and 15 bus stops within the watershed.





# **Benefits Resulting from this Project:**

- Water Quality: This project will capture and allow removal of trash from an urban watershed.
- Water Supply: This project does not provide any significant benefit to water supply.
- **Flood Management:** This project will improve flood management by improving the ability to clear the Park Avenue trash rack and thereby reducing the potential for flooding.
- **Environmental:** This project will improve the environment because it will reduce the amount of trash in Gilsizer Slough.
- **Community:** The community will not be significantly changed by this project

#### **Project Schematic and Photographs:**



# YCB SWRP Project F3: Madrone and Orchard/Park Trash capture





Photo 1. Potential configuration for in-line trash capture device. This specific device has screen openings of 1.5-in, and therefore would need to be constructed with a screen that has 5-mm openings to meet the California Trash Amendment requirements. This type of device (even with a 5-mm screen) would need to be approved by the State Water Board.

Figure 1. Potential Replacement Trash Rack Configuration





# **General Project Information:**

- **Project Description:** The Jefferson Ditch Improvements project involves modifications to the existing Jefferson Ditch to provide trash capture and increase runoff treatment and infiltration. This project captures flows from a large amount of high trash-generating areas east of the project site. Project modifications include:
  - Installing an in-line trash capture device in Jefferson Ditch, downstream of the existing 84-inch Harter storm drain outlet. The selected trash capture device must meet the State's Trash Amendment requirements.
  - Widening Jefferson Ditch for approximately 100 feet in length downstream of the new trash capture device and constructing a grassy swale in the widened ditch to provide treatment and infiltration.
- Location: The project is located at the junction of Jefferson Avenue and Redding Avenue, west of Harter Parkway.
- Watershed: The flow through the Jefferson Ditch Improvements project will continue to flow to Live Oak Canal, just east of Stonegate Drive.
- Tributary Watershed Area and Trash Characteristics: The total tributary area for the Jefferson Ditch Improvements Project is approximately 531 acres. The watershed contains 44 acres of high trash-generating land use (HTGLU), which is approximately 2% of the City's total HTGLU. There are approximately 35 storm drain inlets and 3 bus stops within the watershed.





#### **Benefits Resulting from this Project:**

- Water Quality: This project will treat 0.06 acre-feet of stormwater and dry weather runoff per year from an urban watershed. Urban runoff is typically high in pollutants such as pesticides, oils and grease, metals, and trash.
- Water Supply: This project will infiltrate 0.06 acre-feet of runoff per year, thereby increasing available groundwater supply and recharging surface waters.
- **Flood Management**: After this project is constructed, the Jefferson Ditch will continue to provide the same level of flood protection as it does currently
- **Environmental**: This project will improve the environment because it will reduce the amount of trash discharged to the Live Oak Canal and subsequently pumped to the Sutter Bypass.
- **Community**: The community will not be changed significantly by this project.

#### **Project Schematic and Photographs:**



# YCB SWRP Project F5: Jefferson Ditch Improvements





Photo 1. Potential configuration for in-line trash capture device. This device will be installed directly downstream of 84-in culvert, similar to Photo 1. The screen height will be set at the water surface elevation of a 1-year, 1-hour storm. This specific device has screen openings of 1.5-in, and therefore would need to be replaced with a screen that has 5-mm openings to meet the California Trash Amendment requirements. This type of device (even with a 5-mm screen) would need to be approved by the State Water Board.

# YCB SWRP Project F6: Live Oak Canal at Franklin Road Trash Capture



## **General Project Information:**

- **Project Description:** The Live Oak Canal at Franklin Road Trash Capture project involves installing a trash capture device in Live Oak Canal, just south of Franklin Road. This project will capture trash from high trash-generating areas north and east of the project site. Project modifications include installing an in-line trash capture device in the Live Oak Canal downstream of Franklin Road. The selected trash capture device must meet the State's Trash Amendment requirements.
- **Location:** The project is located in Live Oak Canal, south of Franklin Road.
- Watershed: The flow through the Live Oak Canal at Franklin Road Trash Capture project will continue to flow downstream in the Live Oak Canal.
- Tributary Watershed Area and Trash Characteristics: The total tributary area for the Live Oak Canal at Franklin Road project is approximately 3,022 acres. The watershed contains 263 acres of high trash-generating land use (HTGLU), which is approximately 11% of the City's total HTGLU. There are approximately 42 storm inlets and 1 bus stop within the watershed.





# Benefits Resulting from this Project

- Water Quality: This project will capture and allow removal of trash from an urban watershed.
- Water Supply: This project would not provide any significant benefit to water supply.
- **Flood Management**: After this project is constructed, the Live Oak Canal will continue to provide the same level of flood protection as it does currently.
- **Environmental**: This project will improve the environment because it will reduce the amount of trash in the Live Ok Canal, which is ultimately pumped into the Sutter Bypass.
- **Community**: The community will not be changed significantly by this project.

**Project Schematic and Photographs:** 



# YCB SWRP Project F6: Live Oak Canal at Franklin Road Trash Capture





Photo 1. Potential configuration for in-line trash device. This device will be installed directly downstream of 84-in culvert at Franklin Road, similar to Photo 1. The screen height will be set at the water surface elevation of a 1-year, 1-hour storm. This specific device has screen openings of 1.5-in, and therefore would need to be replaced with a screen that has 5-mm openings to meet the California Trash Amendment requirements. This type of device (even with a 5-mm screen) would need to be approved by the State Water Board